EIBN Sector Reports

Wood Products Industry

2019

This Sector Report was created by the EIBN unit at:

Indonesian French Chamber of Commerce and Industry (IFCCI)

www.ifcci.com

Contents

Methodology

This desk research highlights the opportunities for investors and outlines the industry's characteristics (e.g. market size, growth potential), the structure of the market, key stakeholders and major providers, future trends, regulations, and existing challenges.

In preparing this report, EIBN has made use of wide ranging literature, data sources, and methods. General information was gathered from publicly available sources; news articles, official company websites, publications, the Indonesian Ministry of Environment and Forestry (KLHK), related business associations, as well as websites providing predictions based on statistical data. In addition, we also gathered information from local market stakeholders, interviewing them where necessary.

In some instances where the latest official data had not yet been published, the most recent data has been used, for example, when data and figures were still unavailable for 2019, we instead used data from previous years. References also denote from where the data was retrieved.

This report begins with an overview of Indonesian forestry status quo, including its forestry reserves, certain species of trees common in trade, forest ownership, Forest Management Unit (FMU), forest certification and sustainable forest management, related legal issues, and the country's trading status of production, export as well as import. The report also identifies major wood product industry nationwide, such as wood logs, sawn timber, wooden board (i.e. plywood, block board, MDF, particle board), wood for construction, furniture, craft, pulp and paper, and wood pellets. Business opportunities in Indonesia's local market are examined and there is also discussion on the regulations and standards that apply. Finally, the report outlines relevant contacts and upcoming exhibitions.

Executive Summary

As the 10th largest global economy (in terms of purchasing power parity) and the primary economy within ASEAN, Indonesia offers great potential and rapid growth among other emerging countries. The wood products industry is among the largest industries in the country and has made significant contributions to national economic growth. Some 63% of Indonesia's entire land area is designated as forest area while the remaining 37% consists of non-forest public land.

Indonesian traded timber is classified under four (4) different groups and 121 types of wood. Among the more renowned woods that are traded are merbau, meranti, nyatoh, sungkai, sengon, bengkirai, sonokeling (rosewood), keruing, mahoni, tusam and jati (teak). Some 86.9% of Indonesia's forests belong to the government, with the remainder being under so-called "Titled Forest". The Forest Management Unit (KPH), meanwhile, provides the basis for improved forest governance, planning, forest resources co-management, and monitoring, as well as stakeholder engagement.

Indonesia became the first country to obtain the EU's Forest Law Enforcement Governance and Trade (FLEGT) when the European Parliament approved the European Commission's proposal to extend the FLEGT licence to Indonesia on 9 August 2016. Following this decision, Indonesian wood products are allowed to enter 28 EU member countries without having to pass the expensive and lengthy diligence process as previously required by EU trade laws. Indonesia is a net exporter of timber and wood products and although exported worldwide, Far Eastern countries form the major markets for national timber exports. Important exports include processed goods, such as plywood, pulp and paper, mouldings and joinery, furniture, sawn timber and veneers.

Important national industries, meanwhile, include those involving wood logs, sawn timber, wooden board, wood for construction, furniture and crafts, pulp and paper, and wood pellets. Furthermore, foreign investors should be aware about the lucrative business opportunities existing in the national wood products industry buoyed by the promising export market, abundance of raw material, the huge demand and growing domestic market, as well as the strength of Indonesian wood brand both on overseas and home markets.

In terms of regulation and standards, verification of timber legality and the negative list for investment are among the first things of which business players must be fully aware. All must comply with the Indonesian Timber Legality Assurance System (TLAS) or Timber Legality Verification System (Indonesian: *Sistem Verifikasi Legalitas Kayu-SVLK*). The government must ensure for global stakeholders that Indonesian wood products were harvested legally and tracked throughout their supply chain. As for the negative investment list, industries such as veneer wood, plywood, Laminated Veneer Lumber (LVL), wood chips, wood pellets, wood pulp, exploitation of timber forest products of natural forest are among those that require recommendation for sustainable raw material supply from the Ministry of Environment and Forestry (KLHK). Moreover, several other industries such as carving handicrafts, kitchenware, rattan, bamboo, cork, wooden goods and wooden ships and tools industries must either be in partnership with local entities or are fully reserved for SMEs. Other regulations that foreign investors must seriously consider include forest governance, legal rights to harvest, taxes and fees, as well as trade and transport.

Introduction

Indonesia is the not only the largest country in South-East Asia but also the world's largest archipelagic state by area and population. It spans over 17,000 islands with 34 administrative provinces and a land area of some 1,811,570 km^2, the majorly consisting of forest area.[1] As in other wood-product exporting countries such as Canada, USA, Sweden, Finland, Brazil, or even Russia and Chile, forests in Indonesia have been one of the backbones of the national economy. For at least five decades forestry resources have played a significant role in supporting the nation's economic development. Recent records indicate that up to half of the nation's total forests are allocated for production purposes.[2]

With a population approaching 270 million, Indonesia is not only the leading country that drives cooperation and integration in South-East Asia, but shows great potential and rapid growth among other emerging nations.

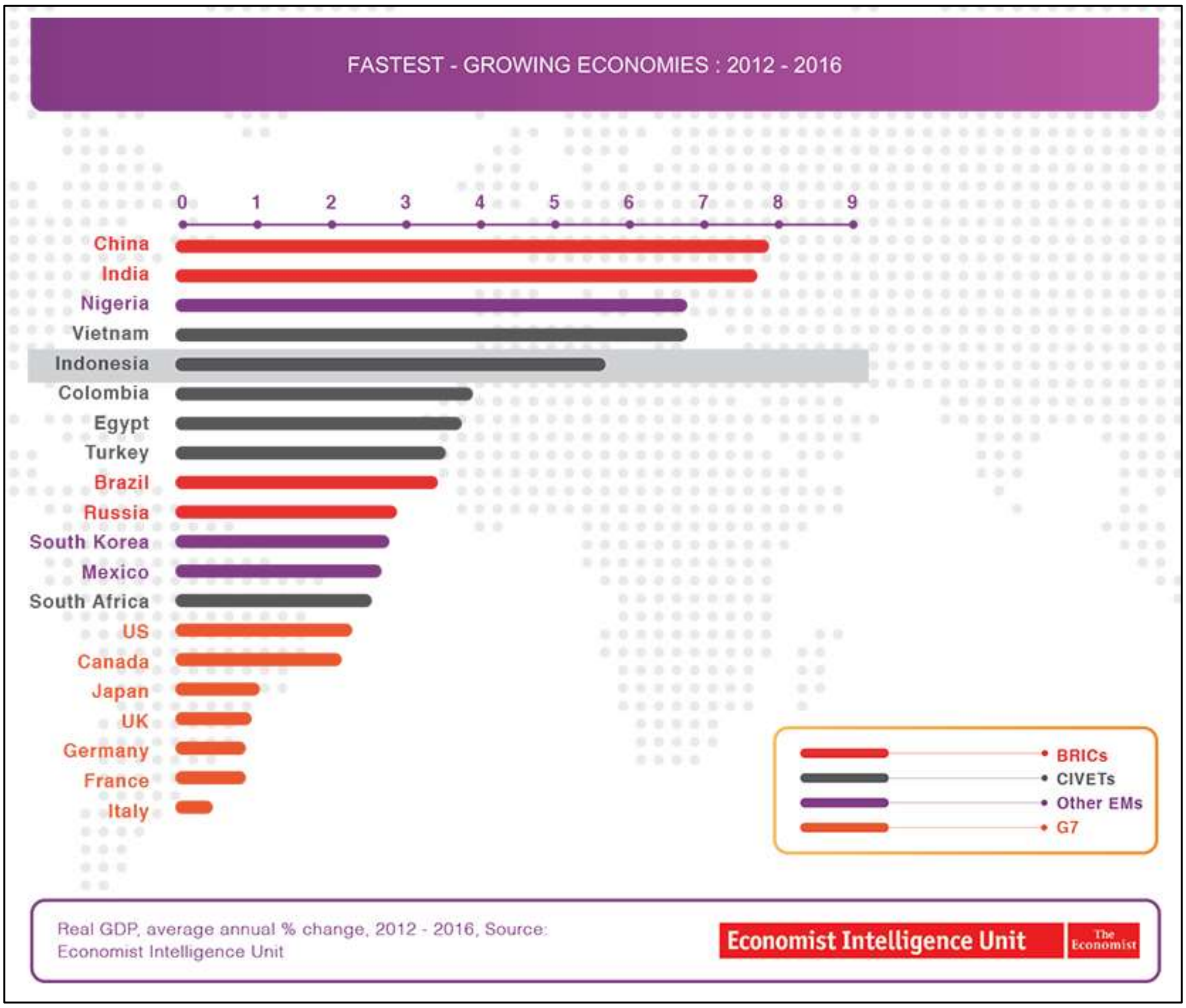

Figure 1: Indonesia among the fastest-growing economies in the world 2012-2016

Source: The Economist 2017

[1] Indonesia - Forest area (% of land area). Trading Economics. 24 Apr 2019. Available at: https://tradingeconomics.com/indonesia/forest-area-percent-of-land-area-wb-data.html
[2] Indonesia-EUFLEGT Facility. 23 Apr 2019. Available at :http://www.euflegt.efi.int/indonesia

The world's largest equatorial state, Indonesia, has long been renowned as a supplier of high quality wood, some international market favourite species including merbau, meranti, nyatoh, sungkai, sengon, bengkirai, sonokeling (rosewood), keruing, mahoni, tusam and jati (teak). Although the Indonesian archipelago only consists of about 1% of the total land mass on the surface of the earth, its natural forest reserves, which are estimated to exceed 100 million hectares are the largest in Asia and the second largest in the world,.

Figure 2: Sonokeling or Rosewood is one of the high quality woods grown on government controlled plantations in Indonesia

Source: Saillant Furniture 2017

Indonesia began to fully utilize its forests in the early 1970s, through focus national development towards wood processing industry. Today, Indonesia is the largest plywood exporter, plus also the biggest wood logs producer in the world, as well as processed wood and pulp wood for paper production.[3] In 2001, the wood products industry contributed to around USD 5.1 billion in export value or 1.1% of Indonesia's Gross Domestic Product.

Based on data from the Indonesian Forest Entrepreneurs Association (APHI), the value of exports has also been increasing. In 2016, the value of wood product exports amounted to USD 9.87 billion, but in 2017 climbed to USD 10.94 billion. Log production from Industrial Plantation Forests (HTI) continues to increase each year too. In 2015, HTI production was 32.2 million cubic metres, rising to 32.6 million cubic metres in 2016, and in 2017 reaching 38.8 cubic metres.

Meanwhile, wood log production in forest concession areas continues to remain relatively stable from year to year. Records show that in 2015, HPH production was 5.84 million cubic metres, dropping to 5.38 cubic metres in 2016, and then in 2017 amounting to 5.34 million cubic metres.[4] Although the export of processed wood is mainly in the categories of plywood and wood-based paper, they are also dominant in such other wood derivative products as for decking, flooring, as well as moulding.

Even though a proportion of the country's forest area is destined for conversion for agricultural use, the country is still one of the world's largest producers and exporters of tropical timber products. These products are the end result of logging activities from the different forest categories of natural forests, industrial plantations and household-managed small-scale plantings, as well as from imported timber. As of today, Indonesia still produces

[3] Jenis Kayu Ekspor yang Sangat Diminati Pasar Internasional Saat Ini. Builder Indonesia. 16 Nov 2018. Available at: https://www.builder.id/jenis-kayu-ekspor/
[4] Ibid

a wide variety of timber derivative products including wood panels, plywood, pulp and paper, furniture and handicrafts.

By 2016, the export value of these products, among others, was USD 9.3 billion with the main export markets being Asian neighbours China, Japan and South Korea.[5] Indonesia is also by far the biggest Voluntary Partnership Agreement (VPA)-country trade partner of the European Union member countries, exporting timber products worth just over one billion euros in 2016.

More recent figures as reported by the Indonesian Ministry of Environment and Forestry (Indonesian: *KLHK*) reveal that exports of wood products through November 2018 had increased to some USD 11.07 billion, weighing around 14.83 million tons.[6] These figures had already exceeded those for the entire year of 2017 of some USD 10.75 billion, weighing around 13.97 million tons. Furthermore, expectations were that by the end of 2018 total exports would reach some USD 12 billion. In a breakdown of these figures, the source quoted that the export value of wood-panel products alone averaged USD 2.35 billion per year, while exports of plywood reached around USD 1.9 billion. The 2019 year end projection for plywood, meanwhile, suggests the value of exports would reach USD 3 billion.[7]

Meanwhile, based on Research Nester data, it is estimated that by 2023 the market value of plywood will be USD 75.2 billion.[8] Based on data from the Ministry of Environment and Forestry, in 2018 there were 254 fully licenced plywood companies, 158 of which actively produced 3,128,945 m^3 of plywood. A breakdown of this production saw 102 of the 165 licenced units on the island of Java actively produce 1,599,994 m^3, while of the 89 fully licenced units outside the island of Java, a total of 1,528,951 m^3 was produced by the 56 units in active production.

Figure 3: Sustainable Indonesian Teak (Indonesian: *Jati*) Furniture

Source: Garden Benches 2019

Moreover, regulation requires that Indonesian timber based and forest product industries must comply with the law regarding use of legal raw materials for carrying out their production. The Indonesian government has introduced a number of new measures to increase the sustainability of the nation's forests, including systems for the certification of

[5] Ibid
[6] Ekspor produk kayu olahan capai sekitar US$ 11 miliar. Kontan. 26 Nov 2018. Available at: https://industri.kontan.co.id/news/ekspor-produk-kayu-olahan-capai-sekitar-us-11-miliar
[7] Ibid
[8] Ibid

forests and chains of custody to ensure the legality of timber. This is one of the ways in which the value of Indonesian wooden goods can be enhanced in the eyes of customers, especially those in foreign markets.

Nevertheless, despite its extensive timber resources and natural competitive advantages in terms of raw materials, various bureaucratic hurdles have hampered the growth of the likes of the furniture sector in Indonesia. Entrepreneurs in the wood and forest products industry are strongly advised to keep abreast of and fully comprehend all changes that occur in regard to regulations in the field of raw materials and forest products, as regulations regarding requirements for the procurement and trade of timber and forest products can have either a direct or indirect effect on their industry.

In 2003, Indonesia created a system to control all timber export activities, plus it has also introduced a mandatory third-party certification approach for legality and sustainability.[9] Widely known as SVLK, the system has become the basis for the timber legality assurance system under Indonesia's Voluntary Partnership Agreement (VPA) with the European Union. The VPA includes all export regulations, and its coverage will expand on a step-by-step basis to include the domestic market.

It took almost 10 years of work in collaboration with in-country civil society organisations, the private sector and the EU institutions, but by the end of 2016 Indonesia finally managed to develop a reliable system for assuring that all timber products harvested or imported, transported, traded, processed and exported are indeed from a legal source and process.[10] This was marked on 15 November 2016 when Indonesia issued FLEGT licences for the first time to verified legal timber products exported to the EU.

This was an important step, for all FLEGT-licenced products will automatically meet the requirements of the EU Timber Regulation, making it easier for EU importers to place Indonesian timber onto the EU market. Since that date, particularly over the next 12 months or so, the nation has distributed more than 39,000 licences for shipments exported to all 28 EU Member States, with a total value of more than one billion euros.[11]

From an economic standpoint, comments from the Centre of Reform Economics (CORE) recommend that Indonesia expand its wood-products manufacturing capacity more extensively. Indonesia is without doubt one of the largest timber exporters in the world, but that does not make it the world largest exporter of processed wood, such as furniture, for instance. In fact, the latest data positions Indonesia's furniture export ranking at only number 17 in the world.[12]

As Indonesian timber was mostly exported to China, this then enabled the Chinese to become world leaders in the utilization of timber. Converting wood into a whole range of products, China has now become the number one exporter of furniture in the world. The moral of this is that there is considerable opportunity for business investors to partner with Indonesia and its government in boosting this sector to become more profitable both commercially and environmentally.

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[9] Indonesia-EUFLEGT Facility. 23 Apr 2019. Available at :http://www.euflegt.efi.int/indonesia
[10] Ibid
[11] Ibid
[12] Genjot Ekspor Mebel, Indonesia Harus Benahi Industri Hilir Kayu. Liputan 6. 9 Apr 2019. https://www.liputan6.com/bisnis/read/3937454/genjot-ekspor-mebel-indonesia-harus-benahi-industri-hilir-kayu

I. INDONESIAN FORESTS

1.1. Forest Reserve

All land in Indonesia falls under one of two categories. It is either Forest Area (Indonesian: *Kawasan Hutan*) or Non-Forest Area, also known as area for other purposes (Indonesian: *Areal Penggunaan Lain, APL*). According to a Ministry of Environment and Forestry document published in 2018, the country has 120.6 million hectares or 63% of its total land area designated as forest area, all of which is under the administration of the government. The country's remaining 37% of land area, meanwhile, is made up of non-forest public land.[13]

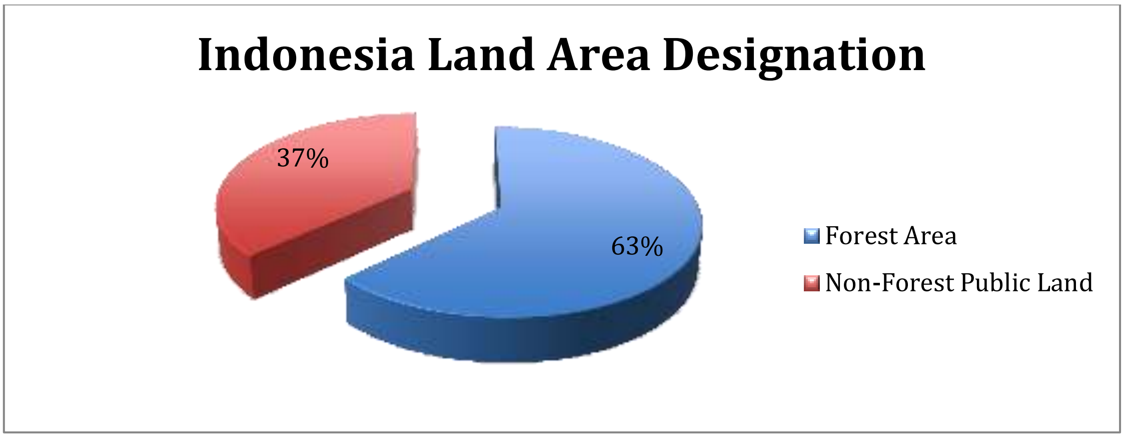

Chart 1: Indonesia Land Area Designation

Source: Ministry of Environment and Forestry Republic of Indonesia 2018

The first category, Forest Area is further divided into three sectors according to their function: Production Forest (Indonesian: *Hutan Produksi, [HP]*) covering a total area of 68.8 million hectares, or 57% of the Forest Area; Conservation Forest (Indonesian: *Hutan Konservasi*) covering a total area of 22.1 million hectares or 18% (with an additional 5.3 million hectares of marine conservation areas) and Protection Forest (Indonesian: *Hutan Lindung*) having watershed functions and covering the remaining 29.7 million hectares or 25% of the Forest Area. However, many parts of this statutory forest zone are, in fact, inhabited areas and have been for many generations. Some 31,957 villages are located within and around the forest zone, which according to the Ministry, accounts for 36.17 % of total villages in Indonesia as of year 2009. As the Ministry made functional allocations of the forest zone, from production forests managed by extractive industries to conservation forests managed by the national parks, inhabitants of these villages have faced a range of problematic situations and which have included a variety of cases of socio-ecological and gender injustice.

The second category, Non-forest Area or APL is administered by the National Land Agency and covers both state and private land. Around 30% of this non-forest area is formally titled as privately owned land. As in the forest zone, state land under the APL also contains traditional villages located within its boundaries and again these have been facing socio-ecological problems that have a strong gender dimension.

[13] The State of Indonesia's forests 2018. Ministry of Environment and Forestry Republic of Indonesia. July 2018.

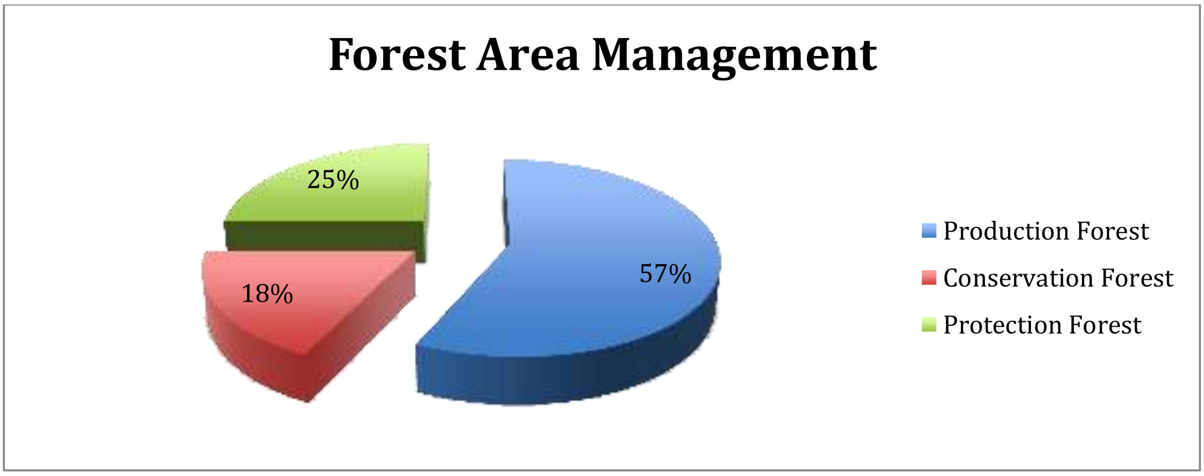

Chart 2: Forest Area Management in Indonesia

Source: Ministry of Environment and Forestry Republic of Indonesia 2018

As noted, the administration of Forest and Non-Forest Land in Indonesia falls under two different government agencies. The administration and management of the land is also developed based on the colonial legacies including legal framework and institutional arrangement.

Under Indonesia's Forestry Law No. 41 of 1999, its forests are classified as state forest and private forest. This law regulates that the government of Indonesia is the legitimate owner of all forest lands in the country that have no private entitlement. These state-owned forest lands are regulated in more detail by adopting the Rights and Resources Initiative (RRI)'s categories of forest tenure.[14] The state control over forest lands and resources is in line with RRI's first two categories of forest tenure, which are forest land administered by government, and forest land designated by government for indigenous peoples and local communities. In addition, the Ministry of Environment and Forestry has established integrated forest land use zoning to serve the production, protection, and conservation functions. The Ministry issues forestry concessionaire licences to private companies and state-owned companies within the production forest zone of state forest lands. Similarly, the state forest lands defined to serve conservation purposes are managed by the National Parks authorities within the Ministry. Meanwhile, state forest lands allocated for protection purposes are managed by the local governments.

In Indonesia, there are a limited number of privately owned forest lands. The owners of these private lands include individuals, cooperatives and firms.[15] These kinds of forests are commonly known as the people's forest (Indonesian: *hutan rakyat*). Following RRI's category of forest tenure, private ownership of forest land is in line with the fourth category such as forest land owned by individuals and firms that have the most extensive rights of exclusion, management and alienation.[16] In 2014, the RRI emphasized that concessionaires are not included in this category.

[14] Forest tenure reform in Indonesia. CIFOR. 26 Apr 2019. Available at: https://www.cifor.org/gcs-tenure/research/research-sites/indonesia/

[15] Ibid

[16] Ibid

1.2. Tree Species

A wide biodiversity can be found among Indonesia's many sections of vast tropical forest, including the types of timber that number approximately 4,000 species in total.[17] To date, however, classification of Indonesian timber for trade purposes is still limited to only 121 types of wood. This is due to the selection and grouping of wood species being based solely on the results of research on the types of wood most commonly traded. The grouping is used mainly for determining the forestry fees to be imposed.

Since 2003, the Decree of the Minister of Forestry number 163/KPTS-II/2003 has been used as the main reference point of this grouping. According to the decree, out of total of 121 species, traded timbers are clustered into four groups: Meranti Type Group (Commercial Group I) with 31 wood species; Mixed Jungle Woods Type Group (Commercial Group II) with 55 wood species; Eboni Type Group (Aesthetic Group I) with 3 wood species; and Aesthetic Wood Type Group (Aesthetic Group II) with 32 wood species. The majority (actually 90%) of all Indonesian wood species are still categorized as Commercial Group II: Mixed Jungle Woods (Indonesian: *Kelompok Rimba Campuran-KRC*).[18] The wood species for each group and their scientific name as referred to in this ruling are listed in the following tables:

A. Meranti Type Group (Commercial Group I)

NO	INDONESIAN TRADE NAME	LATIN SCIENTIFIC NAME (BINOMIAL NOMENCLATURE)
1.	Agathis	*Agathis spp*
2.	Balau	*Shorea spp; Parashorea spp*
3.	Balau Merah	*Shorea spp*
4.	Bengkirai	*Shorea laevis Ridl; Shorea laevifolia Endert; Hopea spp; Shorea kunstleri*
5.	Damar	*Araucaria spp*
6.	Durian	*Durio carinatus Mast; Durio spp, Coelostegia spp*
7.	Gia	*Homalium tomentosum (Roxb) Benth, Homalium Foetidum (Roxb) Benth*
8.	Giam	*Cotylelobium spp*
9.	Jelutung	*Dyera spp*
10.	Kapur	*Dryobalanops spp*
11.	Kapur	*Dryobalanops oblongifolia Dyer*
12.	Kenari	*Canarium spp, Dacryodes spp, Trioma spp, Santiria spp*
13.	Keruing	*Dipterocarpus spp*
14.	Kulim	*Scorodocarpus borneensis Becc*
15.	Malapari	*Pongamia Pinnata (L) Pierre*
16.	Matoa	*Pometia spp*
17.	Medang	*Cinnamomum spp*

[17] Indonesia Peringkat Pertama Koleksi Kayu Terbanyak di Dunia. Gatra. 18 Sep 2018. Available at: https://www.gatra.com/rubrik/teknologi/ilmu-pengetahuan/345912-Indonesia-Peringkat-Pertama-Koleksi-Kayu-Terbanyak-di-Dunia.
[18] Pengelompokan Jenis Kayu Perdagangan Indonesia Potensial Ditingkatkan. Ministry of Environment and Forestry Republic of Indonesia. 20 Dec 2016. Available at: http://www.forda-mof.org/berita/post/3290

18.	Meranti Kuning	*Shorea acuminatissima Sym, Shorea balanocarpoides Sym, Shorea faguetiana Heim, Shorea Scollaris, V. Sloot; Shorea gibbosa Brandis*
19.	Meranti Merah	*Shorea Palembanica Miq, Shorea lepidota BI, Shorea ovalis BI, Shorea Johorensis Foxw, Shorea leptoclados Sym, Shorea leprosula Miq, Shorea Platyclados sloot. Ex foxw*
20.	Meranti Putih	*Shorea Virescens Parijs, Shorea retionodes V.SI, Shorea Javanica K. et. Val, Shorea bracteolata Dyer, Shorea ochracea Sym, Shorea lamellata Foxw, Shorea assamica Dyer, Shorea koordesii Brandis*
21.	Merawan	*Hopea spp; Hopea dyeri; Hopea sangal Kort*
22.	Merbau	*Intsia spp*
23.	Mersawa	*Anisoptera spp*
24.	Nyatoh	*Palaquium spp; Payena spp, Madhuca spp*
25.	Palapi Heritiera	*Tarrietia spp*
26.	Penjalin	*Celtis spp*
27.	Perupuk	*Lophopetalum spp*
28.	Pinang	*Pentace spp*
29.	Pulai	*Alstonia spp*
30.	Rasamala	*Altingia excelsa Noronha*
31.	Resak	*Vatica spp*

B. Mixed Jungle Woods Type Group (Commercial Group II)

NO	INDONESIAN TRADE NAME	LATIN SCIENTIFIC NAME (BINOMIAL NOMENCLATURE)
1.	Bakau	*Rhizophora spp; Bruguiera spp*
2.	Bayur	*Pterospermum spp*
3.	Benuang	*Octomeles sumatrana Miq.*
4.	Berumbung	*Adina minutiflora Val; Pertusadina spp*
5.	Bintangur	*Calophyllum spp*
6.	Bipa	*Pterygota spp*
7.	Bowoi	*Serianthes minahassae Merr. & Perry (Syn. Albizia minahasae Koord.)*
8.	Bugis	*Koordersiodendron pinnatum Merr*
9.	Cenge	*Mastixia rostrata BI*
10.	Duabanga	*Duabanga moluccana BI*
11.	Ekaliptus	*Eucalyptus spp*
12.	Gelam	*Melaleuca spp*
13.	Gempol	*Nauclea spp*
14.	Gopasa	*Vitex spp*
15.	Gerunggang/Derum	*Cratoxylum spp*
16.	Jabon	*Anthocephalus spp*
17.	Jambu-jambu	*Eugenia spp*
18.	Kapas-kapasan	*Exbucklandia populnea R. Brown*
19.	Kayu kereta	*Swintonia spp*
20.	Kecapi	*Sandoricum spp*
21.	Kedondong Hutan	*Spondias spp*

22.	Kelumpang	*Sterculia spp*
23.	Kembang semangkok	*Scaphium macropodum J. B*
24.	Kempas	*Koompassia malaccensis Maing*
25.	Kenanga	*Cananga sp*
26.	Keranji	*Dialium spp*
27.	Ketapang	*Terminalia spp*
28.	Ketimunan	*Timonius spp*
29.	Lancat	*Mastixiodendron spp*
30.	Lara	*Metrosideros spp. dan Xanthostemon spp*
31.	Mahang	*Macaranga spp*
32.	Medang	*Litsea firma Hook f.; Dehaasia spp*
33.	Mempisang	*Mezzetia parviflora Becc; Xylopia spp; Alphonsea spp; Kandelia candel Druce*
34.	Mendarahan	*Myristica spp., Knema spp*
35.	Menjalin	*Xanthophyllum spp*
36.	Mentibu	*Dactylocladus stenostachys Oliv*
37.	Merambung	*Vernonia arborea Han*
38.	Punak	*Tetramerista glabra Miq*
39.	Puspa	*Schima spp*
40.	Rengas	*Gluta aptera (King) Ding Hou*
41.	Saninten	*Castanopsis argentea A. DC*
42.	Sengon (laut)	*Paraserianthes falcataria (L) Nielsen*
43.	Sepat	*Berrya cordofolia Roxb*
44.	Sesendok	*Endospermum spp.; mis. E. diadenum (Miq.) Airy Shaw, E. moluccanum (T & B) Kurz, E. peltatumMerr.*
45.	Simpur	*Dillenia spp*
46.	Surian	*Toona sureni Merr*
47.	Tembesu	*Fagraea spp*
48.	Tempinis	*Sloetia elongata Kds*
49.	Tepis	*Polyalthia glauca Boerl*
50.	Tenggayun	*Parartocarpus spp*
51.	Terap	*Artocarpus spp*
52.	Terentang	*Campnosperma spp*
53.	Terentang ayam	*Buchanania spp*
54.	Tusam	*Pinus spp*
55.	Utup	*Aromadendron sp*

C. Eboni Type Group (Aesthetic Group I)

NO	INDONESIAN TRADE NAME	LATIN SCIENTIFIC NAME (BINOMIAL NOMENCLATURE)
1.	Eboni Bergaris	*Diospyros celebica Bakh*
2.	Eboni Hitam	*Diospyros rumphii Bakh*
3.	Eboni	*Diospyros spp D. ebenum Koen, D. ferrea Bakh, D. lolin Bakh, D. macrophylla BI, D. cauliflora BI, D. areolata King et G*

D. Aesthetic Wood Type Group (Aesthetic Group II)

NO	INDONESIAN TRADE NAME	LATIN SCIENTIFIC NAME (BINOMIAL NOMENCLATURE)
1.	Bongin	*Irvingia malayana Oliv*
2.	Bungur	*Lagerstroemia speciosa Pers*
3.	Cempaka	*Michelia spp, Elmerrillia spp Dandy*
4.	Cendana	*Santalum album L*
5.	Dahu	*Dracontomelon spp*
6.	Johar	*Cassia spp*
7.	Kuku	*Pericopsis mooniana Thw*
8.	Kupang	*Ormosia spp*
9.	Lasi	*Adinauclea fagifolia Ridsd*
10.	Mahoni	*Swietenia spp*
11.	Melur	*Dacrydium junghuhnii Miq; Podocarpus; Dacrydium spp*
12.	Membacang	*Mangifera spp*
13.	Mindi	*Melia spp*
14.	Nyirih	*Xylocarpus granatum j. Konig*
15.	Pasang	*Quercus spp*
16.	Perepat Darat	*Combretocarpus rotundatus Dans*
17.	Raja Bunga	*Adenanthera spp*
18.	Rengas	*Gluta spp; Melanorrhoea spp*
19.	Ramin	*Gonystylus bancanus Kurz*
20.	Sawokecik	*Manilkara spp*
21.	Salimuli	*Cordia spp*
22.	Sindur	*Sindur (Sindora spp)*
23.	Sonokembang	*Pterocarpus indicus Willd*
24.	Sonokeling	*Dalbergia latifolia Roxb*
25.	Sungkai	*Peronema canescens Jack*
26.	Tanjung	*Mimusops elengi L.*
27.	Tapos	*Elateriospermum tapos Bl*
28.	Tinjau Belukar	*Pteleocarpus lampongus Bakh*
29.	Torem	*Manikara kanosiensis H.j. L. et B. M.*
30.	Trembesi	*Samanea saman Merr*
31.	Ulin	*Eusideroxylon zwageri T.et.b.*
32.	Weru	*Albizia procera Benth*

Source: Ministry of Environment and Forestry Republic of Indonesia 2019

In following sub-chapters, some commonly traded Indonesia-origin timbers are discussed.

1.2.1. Merbau

Scientific Name: *Intsia spp.*

The wood species Merbau or *Intsia Bijuga* (also known as Borneo teak, Johnstone River teak, Moluccan ironwood, Pacific teak and scrub mahogany) inhabits mangrove forests throughout Indonesia. The tree can grow to around 50 metres tall with a highly buttressed trunk within a range of 1.2-1.5 metres. The wood also has a variety of common names depending on country and region including ipil, taal (The Philippines) and kwila (New Zealand).

Distributed from East Africa to South-East Asia and Australia, Merbau wood has been extensively logged on the island of Papua (partly Indonesia and partly Papua New Guinea) and its surroundings. Specifically in Indonesia, *Intsia spp* is also found on almost all the provinces on the island of Sumatra (i.e. North Sumatra, Aceh, Riau, South Sumatra, Lampung, Jambi), as well as the Kalimantan sectors of Borneo (e.g. South Kalimantan and West Kalimantan), and the islands of Sulawesi (or Celebes), Maluku, East Nusa Tenggara and Java.[19]

Figure 4: left - Merbau tree in the forest; right - Processed merbau wood products ready for export to the USA from Semarang, Central Java.

Source: Multiple Sources 2018

Merbau is a hardwood with sizable international demand and widely used for the production of wooden decking, flooring, furniture, musical instruments, turned objects, and other specialty wood items. In terms of appearance, the wood is reddish-yellow to reddish-brown in colour. It also has an orange-brown colour when freshly cut, which ages to a darker colour as it matures. The colour between boards can be highly variable, however. There are also small yellow mineral deposits found throughout the wood, making it easier to separate from other similar looking woods.

Proven to be highly durable, it resists both rotting and attacks from insect pests. For this reason, plus the fact that it is usually sold in ample widths and lengths when available, it is regarded as a moderately priced hardwood for import. To summarize, merbau has excellent strength characteristics, along with excellent stability, making it ideally suited for use as wood flooring and other applications where strength is a key aspect.[20]

In addition to its high durability, merbau also has a low fracture and small shrinkage rate. Moreover, its solid and dense fibre structure ensures that products made from it stand up to

[19] Sifat Botanis dan Penyebaran Pohon Merbau (Instia Bijuga OK). 2 May 2019. Available at: http://www.silvikultur.com/pohon_merbau_intsia_bijuga.html

[20] Merbau. The Wood Database. 2 May 2019. Available at: https://www.wood-database.com/merbau/

the demands of the constant changing weather patterns experienced in tropical countries from the dry/hot season to the wet/monsoon season. Thus, this wood is also commonly used as frame material for housing doors or windows.[21]

Figure 5: left - Merbau wood used as flooring; right - merbau grain.

Source: Multiple Sources 2019

1.2.2. Meranti

Scientific Name: *Shorea spp.*

Meranti is one of species from the *shorea* genus that is native to South-East Asia, spreading from Northern India to Indonesia, Malaysia and the Philippines. The five main groupings for Meranti (known as Lauan) are: Light Red Meranti, Dark Red Meranti, White Meranti, Yellow Meranti, and Balau.

The meranti is in general a tall slender tree reaching from 20-60 metres in height and yet with a trunk diameter of only 1-2 metres. Classified overall as a hardwood of light to moderate weight, the specific wood can be recognized from its surface that ranges from pale pink, brownish-pink, dark red, through to brownish-red. The colour indicates the age of the meranti wood, with the darker the colour meaning the older and hence higher quality the wood.[22] In terms of rot resistance, meranti varies between species, although it is usually reported as being non-durable in regard to resistance to decay, plus it is also susceptible to insect attack.[23]

As meranti is easy to process, it is probably the most popular and most commercial type of wood especially in the South-East Asia region. Generally, it is used as a raw material for building construction and basic furniture. It can also be useful material for particle board, or as veneers for plywood. Apart from that, processed meranti wood may also be suitable for making pulp, an important ingredient in making paper, interior furniture, concrete forming boards, boatbuilding and general utility purposes.

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[21] Mengenal Sifat dan Karakter Kayu Merbau. Bio Industries. 3 May 2019. Available at: https://www.bioindustries.co.id/mengenal-sifat-dan-karakter-kayu-merbau-7496.html
[22] Manfaat dan Kelebihan Kayu Meranti, Kayu Khas Daerah Tropis. Dekoruma. 19 Jun 2018. Available at: https://www.dekoruma.com/artikel/70313/manfaat-dan-kelebihan-kayu-meranti
[23] White Meranti. Wood Database. 6 May 2019. Avaialable at: https://www.wood-database.com/white-meranti/

Figure 6: Meranti trees in Gunung Dahu Plateau, Leuwiliang, Bogor, Indonesia.

Source: Multiple Sources 2019

Plywood made from meranti wood has a distinctive export market. Wood of the red meranti sub-species specifically are mainly used to make housing frames. The colour is pink, dark red and pale red. This type of wood is found in many parts of Kalimantan. When compared with teak, merbau and glugu, red meranti wood is cheaper, and thus ideal for those on a restricted budget. However, it is recommended that frames from meranti wood should only be used for indoor purposes, as when used outside its lack of resistance to high heat or cold weather clearly shows.

Figure 7: left - Sawn meranti wood; right - White meranti grain.

Source: Multiple Sources 2019

Meranti is widely harvested and available worldwide. Despite being imported, it is generally moderately priced, although some specific species such white meranti are reported to be endangered.

1.2.3. Nyatoh

<u>Scientific Name</u>: *Palaquium spp*.

Closely related to meranti and widespread in various areas in Indonesia, nyatoh is nonetheless more easily found on the island of Sulawesi and its surrounds. In fact, almost all of the supply on Java originates from wood from the island of Sulawesi. In Indonesia, the tree from which nyatoh wood comes is called *pohon nagasari*.

Figure 8: left - Nagasari tree (Nyatoh); right - Nyatoh grain

Source: Multiple Sources 2019

Another slender tree soaring 30-40 metres in height with a trunk diameter of just 0.6-1 metres, this type of wood is very similar to meranti in having a good fibre texture. In great demand in Korea, Japan and Europe, nyatoh wood is widely used for doors, windows and frames as well as some interior furniture. Generally, the colour of nyatoh is lighter than that of teak, the front part being pink to brownish-red, while the porch is even lighter. This appearance makes nyatoh looks a lot like young teak.

In many cases it is used for furniture, or as raw material for making frames and windows. Sometimes it is also used for making plywood (multiplex), parquet and building material. The function of wood is in many ways inseparable from the beauty of the pattern of its grain.

1.2.4. Sungkai

<u>Scientific Name</u>: *Peronema canescens Jack* (Light wood).

Sungkai is a species included in the family *Verbenaceae* and in Indonesia is often referred to as *jati sabrang, ki sabrang* or *sekai.* Widely spread from South Sumatra, West Java, Central and South Sulawesi, to South, Central and West Kalimantan regions. Sungkai is useful for a range of purposes, for buildings, floors, wall boards, roof frames, house poles, doors, shutters, bridge building, sculptures, carvings, handicrafts and furniture such as dining tables, wardrobes, benches, bookcases, cabinets and luxurious veneers.

Figure 9: left - Sungkai trees in the forest; right - Sungkai grain

Source: Multiple Sources 2019

As sungkai wood is very light compared to other standard woods, much is industrially processed as a veneer and widely used as a plywood face coating. The appearance of Sungkai plywood is very attractive so it is widely exported for interior work. Sungkai wood also enjoys a good reputation in the furniture market.

Sungkai has a tree height of 10-30 metres and 5-10 metres of free stem length where the diameter reaches 0.5 metres. The stem is straight and slightly shallow notched, plus has no buttocks and twigs filled with fine hair. The outer bark is grey or light brown in colour, shallow grooved and lightly flaked in nature.[24]

1.2.5. Sengon (laut)

Scientific Name: *Paraserianthes falcataria.*

Sengon laut or jeungjing is a wood-producing tree that belongs to the *Fabaceae* family. Other commonly used names include sika, selawaku, bae, bai, wai, wahogon, batai, kalbi, albasiah or albise, while in English it is known as Moluccan, falcata, or white albizia.

Claimed to be the fastest-growing tree in the world, reaching 7 metres in just one year,[25] Sengon produces a light, white wood suitable for light construction, packaging crates, particle board and block board. The wood is a type of soft wood and has quite large pores and thus tends to be less suitable for use as frame or window material. Unlike teak or jati

[24] Kayu Sungkai, Harga, Kualitas, dan Kegunaan Kayu Sungka. Builder Indonesia. 13 July 2018. Available at: https://www.builder.id/kayu-sungkai-harga-kualitas-dan-kegunaan/
[25] Soerianegara, I. dan RHMJ. Lemmens (eds.). 2002. Sumber Daya Nabati Asia Tenggara 5(1): Pohon penghasil kayu perdagangan yang utama. PROSEA – Balai Pustaka. Jakarta.

wood which is used as material for walls and floors, sengon wood is more often used as material for framework boards for casting foundations.

Compared in price with other wood products such as teak, synthetic wood, and Wood Plastic Composite (WPC) wood, sengon wood tends to be cheaper and is thus widely known as an economical wood product.


Figure 10: left - Sengon trees in the forest; right – Cutting sengon wood logs in Bengkulu, Indonesia

Source: Pedoman Bengkulu and Other Source 2019

Sengon has many advantages compared with natural wood such as teak or synthetic wood and composite wood.[26] These include:

- High economic value
- Cheap (cheaper than WPC board)
- Good quality material for sound muffling or ingredient to optimise sound absorption
- Light weight

However, sengon also has many disadvantages[27], as follows:

- Poor durability / damage (especially if frequently exposed to water), so it needs to be preserved first
- Prone to termite pests
- Easy to break.

1.2.6. Bengkirai

Scientific Name: *Shorea laevis.*

Bengkirai wood is also often referred to as Yellow Balau. This type of wood is found mostly in Indonesian tropical forest areas such as in Kalimantan (Borneo), as well as in a number of other regions in the Philippines and Malaysia. Bengkirai grows to some 40 metres in height and has a diameter up to 1.2 metres. Having a solid character with a distinctive brownish-yellow colour, bengkirai wood can dry within a period of 12 days up to 1 month at normal temperatures and be processed into various purposes for housing. Consisting of various kinds of textures such as smooth and slightly rough, bengkirai wood also has a high degree of hardness. In addition, bengkirai is of a slightly heavier weight than teak wood. Moreover, while bengkirai wood has a high potential for cracking, it can be easily repaired.

[26] Kayu Sengon, Kayu yang Ekonomis. WPC Kayu Asri. 4 Aug 2018. Available at: https://wpckayuasri.com/kayu-sengon/
[27] Ibid

Figure 11: Bengkirai trees in the forest

Source: Adam & Susan 2012

With its brownish-yellow appearance, bengkirai wood offers beauty through a natural, casual, though not excessive impression, even though it also offers an ideal backdrop for covering with a variety of paint colours. In addition, the neutral colour of bengkirai wood can help make the appearance of a house more aesthetic in various residential styles and concepts.

Figure 12: Wooden flooring made of bengkirai

Source: Lantai Kayu 2016

1.2.7. Sonokeling

Scientific Name: *Dalbergia latifolia Roxb.*

Also known around the world as East Indian Rosewood or Indian Rosewood, sonokeling is a beautifully grained wood that is a purple coloured black, or purplish-black with a reddish-brown colour. Besides being beautiful, sonokeling is also a strong and durable wood that can be used as building construction material. Sonokeling trees only grow in the forests of Central and East Java regions of Indonesia, and in decreasing numbers.

With a trunk size ranging from 30 metres tall and 0.6-1.2 metres in diameter, sonokeling is commonly used for fine furniture, musical instruments, veneer, and turned for other specialty wood objects.[28]

Figure 13: Sonokeling Tree Forest; Sonokeling grain

Source: GNFI and Wood Database 2019

Besides having a smooth texture and an attractive grain, sonokeling is also known to have a high level of strength and durability, especially on wooden terraces. Sonokeling is resistant to attacks by termites, insects, and fungi that would destroy other wood, even without the use of preservatives. With its superiority, Sonokeling wood is worthy of being considered as luxury wood of high economic value, its quality even being considered almost equal to teak. Sonokeling is generally readily available in both board and turning blank form. While prices are high for an imported hardwood, they are not as prohibitively so as for some of the scarcer rosewoods.[29]

1.2.8. Keruing

Scientific Name: *Dipterocarpus spp.*

Keruing is a member of the family of *Dipterocarpaceae* which has more than 15 species. Because of its many types, this wood is known by a host of names in the different regions such as fugitive (Kalimantan), curved (Sumatra), and dermala (Java). Keruing trees grow in tropical rainforests and these species often grow in places that are inundated by fresh water at any time, as well as in marshland. However, keruing also grows on dry sandy soil on ridges or red yellow podzolic soils at elevations of up to 1,000 metres above sea level.[30]

The common characteristic of keruing woods is the colour of their finished timber, being reddish-brown or a combination of red-brown and grey, whereas the colour of the wood itself is yellow or light brown with a rather rough texture. Trees can grow up to 50 metres, the lower 35 metres of which will be free from branches, while diameters can reach up to 1.2 metres.

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[28] East Indian Rosewood. Wood Database. May 2019. Available at: https://www.wood-database.com/east-indian-rosewood/

[29] Ibid

[30] Mengenal Kayu Keruing. Bisnis Kayu Komersil. 7 May 2019. Available at: http://bisniskayuindonesia.blogspot.com/2017/01/mengenal-kayu-keruing-dipterocarpus-spp.html

Keruing is classified as a hardwood and because of its toughness is often used for wood floors, roof structure, door and window frames, bearings, shipping, plywood walls and other building materials. Yet in all its uses, keruing wood must be first treated with preservatives where there is the possibility of attack by fungi, insects, or wood-destroying marine animals. Keruing wood that has been so treated is often also used as electricity poles in rural areas. [31]

Figure 14: left - Keruing used as roof structure; right - Keruing tree in the forest

Source: Multiple Sources 2019

1.2.9. Mahoni

Scientific Name: *Swietenia spp (Light wood).*

Mahoni, known in English as mahogany, is another wood that is commonly used to make frames and has a beautiful grain and smooth texture. Commonly ranging in colour from pink to dark red, the main producer of this wood in Indonesia is the island of Java. Mahoni has considerable strength characteristics even though they are slightly inferior to those of teak or merbau.

Figure 15: Mahoni trees in the forest

Source: Bibit Bunga 2019

Mahogany is a member of the *Meliaceae* family that includes 50 genera and 550 species of

[31] Ibid

flowering plants, mainly shrubs and trees. Mahogany is a large tree growing to 35-40 metres in height with a diameter of 1.25 metres. Straight rods are cylindrical and not sandy. The outer skin is blackish-brown, shallow grooved like scales, while the bark is grey and smooth when it's young, turning dark brown, grooved and peeling as it moves into old age.

The new mahogany blooms after seven years old, the flower crown being cylindrical, brownish-yellow and its flat seeds are black or brown in colour. Mahogany can be found growing wild in teak forests and other places close to the beach or planted near the road as a protective tree. The mahogany tree comes originally from the West Indies and can grow in brackish sand close to the beach.

Figure 16: left - Mahoni logs; right - Mahoni boards

Source: Multiple Sources 2019

Mahogany is widely used to make furniture in Jepara, Central Java. In the main, the species is used in anwer to customer preference for classic model furnture. Indeed, there has been great demand for such furniture from both Europe and America where mahogany is classed as one of the more expensive and luxurious woods.[32] Yet in regard to furniture needs, the European market is more familiar with teak wood as a tough wood, and many order it for outdoor furniture and also as raw material for marine vessels.

Over the last 35 years, Mahoni trees have been cultivated because the wood has a high economic value.[33] The quality of the wood is hard and very good for furniture, as well as carving and handicraft items. The fact that the quality of this wood is below that of teak is the reason why mahogany is nicknamed the second prima-donna after teak in Indonesia.

1.2.10. Tusam

Scientific Name: *Pinus spp.*

Tusam or more widely known as Pinus or Pines, are considered to be softwood trees. Pine trees grow all over the world, not only in Indonesia but also in Europe and the United States where there are also many pines that are used as packaging for imported goods. *Pinus*

[32] Kayu Mahoni Untuk Bahan Furniture Jepara. Mahoni Mebel. 7 May 2019. Available at: https://mahonimebel.com/blog/kayu-mahoni-bahan-furniture-jepara/

[33] Ibid

Merkusii (Merkus Pine), however, is the only type of pine that is native to Indonesia.[34] It is a versatile tree species that is continually being developed and expanded in future plantations for timber producers, sap production, and land conservation. It grows mostly in Sumatra, specifically in the area between Mount Kerinci and Gunung Talang.[35]

Figure 17: left - Pine tree forest; right - *Pinus Merkusii* in Indonesia

Source: Satu Jam 2019

P. Merkusii can reach 25 - 45 metres in height with a tree diameter up to 1 metre. In terms of colour, the porch wood is reddish-brown with whitish-yellow sapwood. Tusam wood also has an attractive grain, thus is very beautiful to use for furniture and interior needs. Furthermore, the light colour pine usually has a creamy white appearance, although certain colours can be somewhat different. Some varieties produce very white colours, while others lean towards a yellowish appearance. Bright colours make the pine easily painted to achieve almost any colour you want, or you simply use a transparent layer to protect the wood while allowing the its natural light colour be the centre of attention. The pine also has a prominent pore with wood eyes that are darker than the wood itself, thus giving it a different appearance.

1.2.11. Jati

Scientific Name: *Tectona grandis.*

Tectona grandis is famously known in the English-speaking world as teak. This wood species is native to South and South-East Asia, mainly India, Nepal, Sri Lanka, Indonesia, Malaysia, Thailand, Myanmar and Bangladesh but is naturalized and cultivated in many countries in Africa and the Caribbean. Long before the recent boom of teak wood from Vietnam and Burma, the quality of teak products from Indonesia was already popular in Asian and some European markets. In Indonesia, teak or jati wood is widely used as the main material for many varieties of furniture despite it being a non-categorized wood.

[34] All About Pinus. Kayu Pinus Bdg. 7 May 2019. Available at: http://www.kayupinusbdg.com/416393192

[35] Kayu Pinus (Pine). Tentang Kayu. 6 May 2019. Available at: http://www.tentangkayu.com/2008/06/kayu-pinus.html

Figure 18: left - Jati forest in Indonesia; right - Sawn jati wood

Source: Sambatan Konstruksi 2018

Capable of growing up to 30-40 metres in height and 1-1.5 metres in trunk diameter, jati is liked by so many because it is considered to have the best texture and striking grain patterns. The colour tends to be a golden or medium brown, with the colour darkening as it ages. The grain pattern also varies as there is teak wood with straight, curved and even eye-like shapes. This variation is influenced by the condition of the land used for planting and the process of cutting and sawing. While the eye-like pattern in particular, appears as a result of parts of wood that have branches. Due to this condition, which has a considerable influence on the display frame, some claim it to be the most beautiful of all types of wood.

Common uses for this species of wood include ship and boatbuilding, veneers, furniture, exterior construction, housing frames, carving, turnings, and other small to medium wood objects. For whatever purpose, jati is famous for its stability, durability and strong character. In addition, teak wood is also resistant to attacks by fungi or termites and other insects. [36] The price of this wood is generally determined based on size, origin and quality.

Moreover, jati is a wood that is very easy to process. Even though it offers hard and strong properties, teak is very easy to cut and work with. While this sees jati favoured by Indonesian craftsmen, at the same time it also makes the price of teak wood rise. After being sanded, teak usually has a slippery and oily surface, which is why most wood craftsmen or carpenters prefer to work on teak-based products rather than on other types of wood such as acacia.

Despite its widespread cultivation on plantations in Indonesia and worldwide, jati is considered a luxurious species of wood. It is perhaps one of the most expensive lumbers on the market, at least for the large quantity non-figured wood category in Indonesia. Other woods may be more costly, but are typically only available in small quantities, (i.e. Gabon Ebony or Snakewood), or they are valued solely for the figure of their grain (i.e. burl woods, Pommele Sapele, or Waterfall Bubinga).[37]

[36] 5 Jenis Kayu Asal Indonesia yang Cocok Dijadikan Kusen. Sambatan Konstruksi. 14 Jul 2018. Available at: https://www.sambatankonstruksi.com/5-jenis-kayu-asal-indonesia-yang-cocok-dijadikan-kusen/

[37] Teak. The Wood Database. 6 May 2019. Available at: https://www.wood-database.com/teak/

1.3. Forest Ownership

Most of Indonesia's forest belongs to the government (86.9%) with the remainder being so-called "Titled Forest". A titled forest is a forest located on land to which the land title is registered by private organizations or individuals. As described earlier, Indonesia has three categories of forest land: Conservation Forests, Protection Forests, and Production Forests. More than half of the Indonesian forest area is production forest, the vast majority being owned by the state, but directly managed by private corporations and institutions based on forest concessions.[38]

There are two distinct forms of forest resource management in Indonesia. These are the plantation industry, which up until recently was dominated by teak plantations in Java, and the selective forestry, located mostly on outer islands. Over the past two decades, however, plantation forestry for the pulp and paper industry has become a significant component of Indonesia's forest industry. Pulpwood plantations are dominated by acacia and eucalyptus species, which grow quickly in Indonesia's tropical climate.

1.4. Forest Management Unit

The establishment of Forest Management Units or FMU (Indonesian: *Kesatuan Pengelolaan Hutan-KPH*) at the local level as new and permanent management entities directly addresses related forestry issues and provides the basis for improved forest governance, planning, forest resources co-management, monitoring and stakeholder engagement.[39]

A Forest Management Unit can be defined as follows:

- A public service provider under the responsibility of central, regional and district authorities.
- An operational unit of manageable and controllable size covered by forests.
- A legally established permanent entity with clearly demarcated forest boundaries.

The FMU has clear economic, social and ecological management objectives stipulated by long-term management plans, annual work and business plans closely related to the main forest functions (e.g. protection forest, production forest). Operational and administrative tasks are determined by long-term management objectives and by forest managers (commercial companies, communities, state forest companies) operating in the area.[40]

All these areas, although being part of the same FMU, are managed differently and require different approaches. In addition an FMU might cover different types of forests including conservation, protection and production forest and will be named according to the most dominant forest type, as follows:

1. Conservation FMU (Indonesian: *Kesatuan Pengelolaan Hutan Konservasi-KPHK*) with the primary function of conserving plant and wildlife biodiversity and their ecosystem.
2. Protection FMU (Indonesian: *Kesatuan Pengelolaan Hutan Lindung-KPHL*), with the primary function of protecting life support systems to regulate water, prevent flooding,

[38] Indonesia. Timber Trade Portal. 13 May 2019. Available at: http://www.timbertradeportal.com/countries/indonesia/#industry-profile
[39] FAQ Forest Management Unit Kesatuan Pengelolaan Hutan. Forests and Climate Change Programme (FORCLIME).
[40] Ibid

control erosion, prevent seawater intrusion and maintain soil fertility.

3. Production FMU (*Kesatuan Pengelolaan Hutan Produksi-KPHP*) with the primary function of producing forest products.

Hence the management of these areas will be based on meaningful long-term and short-term management plans for each area with different types of management.

1.5. Forest Certification & Sustainable Forest Management

Forest certification through Sustainable Forest Management (Indonesian: *Pengelolaan Hutan Lestari-PHL*) is a forest management system in accordance with the principles of sustainable development. In other words, it is a certification scheme to ascertain whether the Forest Management Unit has managed the production forests sustainably and to ensure that circulating timber is legal. PHL has social, economic and environmental aims, and various forestry institutions are now in the form of sustainable forest management with various methods and tools available that have been tested from time to time.[41]

The "Forest Principles" adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 drew conclusions about sustainable forest management. Several criteria and indicators have been developed to evaluate the achievement of SFM in both country and at the management unit level. This is an effort to compile and provide an independent assessment of the extent to which the objectives of sustainable forest management have been reached. In 2007, the UN General Assembly adopted the Non-Legally Binding Instrument on All Forest Types. This instrument is the first, and reflects a strong international commitment to promote the application of sustainable forest management through a new approach that brings all stakeholders together.[42]

In accordance with these regulations, institutions that conduct assessments of sustainable production forest management must be accredited by the National Accreditation Committee. Institutions that conduct the assessments are referred to as Sustainable Production Forest Management Assessment Institutions (Indonesian: *LPPHPL*). Accreditation of these institutions is based on their competence in verifying timber legality by applying SNI ISO / IEC 17065: 2012 and Director General of Sustainable Production Forest Management Number: P.14/PHPL/SET/4/2016 concerning Standards and Guidelines for Implementing Management Performance Assessments Sustainable Production Forest (Indonesian: *PHPL*) and Timber Legality Verification (Indonesian: *VLK*).

Various efforts have been made by the Indonesian government to realize sustainable forest management for both community welfare and climate change, including community forest development, the government's commitment to reduce carbon emissions by 26% by 2020 in the Forestry sector, cooperation with other countries on climate change projects and the success of researchers in finding several superior seeds as well as the INCAS system (Indonesian National Carbon Accounting System) as one of the appropriate Monitoring and Reporting Systems in accordance with UNFCCC standards.[43]

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[41] Pengelolaan Hutan Lestari (PHL). Heart of Borneo. 9 May 2019. Available at: http://heartofborneo.or.id/id/sustainable-development/8/about

[42] Ibid

[43] Pengelolaan Hutan Lestari: Untuk Kesejahteraan Masyarakat dan Mitigasi Perubahan Iklim. Kementerian Lingkungan Hidup dan Kehutanan. 5 Aug 2015. Available at: http://www.forda-mof.org/index.php/berita/post/2196

1.6. Legal Issues Concerning Wood

Indonesian forest industry companies must only use legally acquired wood in their production. The companies shall know the origin of the wood. Knowing the origin of the raw material is a prerequisite for the sustainable use of forests.

Since the implementation of the Forest Law Enforcement, Governance and Trade (FLEGT) action plan in the European Union (EU) on 1 April 2016, EU member states require all timber products and timber exported from Indonesia to the EU have a Timber Legality Verification System (SVLK) certificate. This EU FLEGT plan is designed to fight illegal logging and improve forest management not only in Indonesia but throughout the world. Anyone importing timber or wood products into the EU must be able to reliably prove the legal origin of the wood. People selling wood product onwards are obliged to keep the documents that show where they bought the goods from and where they sold them to.

The obligation of the SVLK certificate has increased Indonesia's competitiveness in the international timber trade because this shows the country's commitment to monitor the legality of its timber industry. Even so, in October 2015 the Indonesian Government issued Minister of Trade Regulation No.89 / M-DAG / PER / 10/2015. This new regulation excludes 15 product groups (HS Code) from the SVLK verification system (an act of deregulation), thereby blocking SVLK targets because it opens up space for illegal timber to enter the supply network (it is known that illegal timber remains highly widespread across the country). This has thus made the EU question to what extent Indonesia is committed to ensuring timber legality and sustainable forest management in this the largest economy in South-East Asian and one of the key commodity producers in the world.

This exception threatens the implementation of the FLEGT action plan in the EU in April 2016 and therefore stakeholders hope that the EU and Indonesia can immediately harmonize their policies. At present, approximately 40% of wood products in the EU are from Indonesia. Moreover, timber exports in Indonesia to the EU experienced tremendous growth after Indonesia implemented the SVLK system in 2009.

The positive impact of the SVLK certificate in the timber trade in this country can also be seen from ASEAN member countries such as Vietnam, Myanmar and Malaysia, which do not as yet have an SVLK system, and which are now reportedly planning to send their representatives to Indonesia to study the SVLK system in order for their wood products to become more competitive in the international marketplace.

1.7. Trade: Production, Export and Import

According to The International Tropical Timber Organisation (ITTO), by 2015 the Indonesian wood industry produced about 75 million m^3 of logs, which is almost entirely used within the country. In the same year, the export of primary timber products accounted for a total export value of USD 2.483 billion, with plywood being the most important product and, to a lesser extent, also sawn timber.

The high domestic consumption of logs in the following table is mainly due to their use by domestic industry, specifically the pulp and paper industry and tertiary industries such as furniture production. Excluding pulp and paper, timber industries have in general been on the decline since the late 1990s. Pulp and paper demand, however, now makes up 50% of the log output in Indonesia, which mainly originates from plantations.

Table 1: Indonesia Wood Production and Export

	Production quantity (x 1000 m^3)	Imports quantity (x 1000 m^3)	Domestic consumption (x 1000 m^3)	Exports quantity (x 1000 m^3)
Logs (Ind. Roundwood)	75 040	560	75 541	59
Sawnwood	4 169	226	3 930	465
Veneer	761	16	742	35
Plywood	3 800	62	1 082	2 780

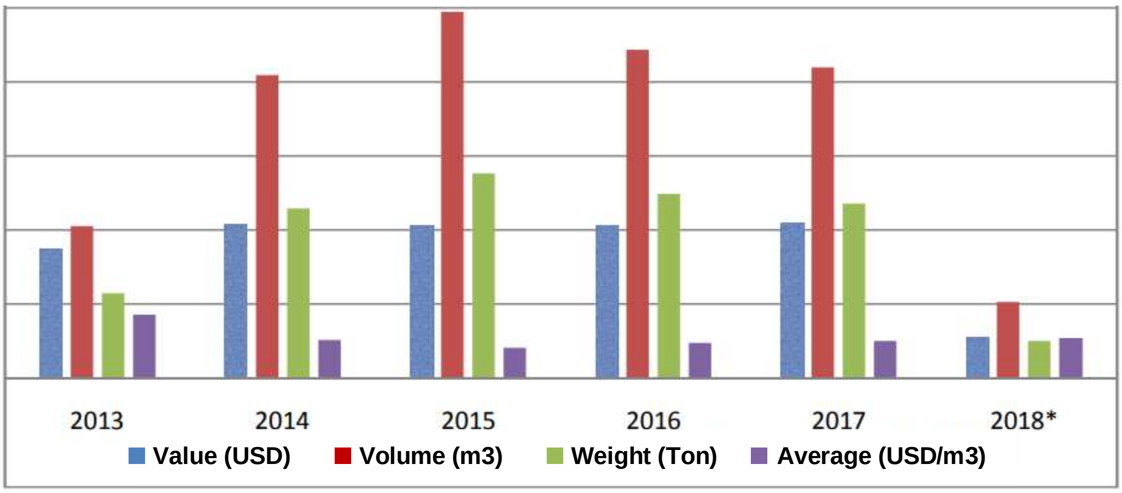
Source: The International Tropical Timber Organisation ITTO 2017.

Table 2: Export growth of woodworking products 2013-2018

NO	PARAMETER	TAHUN					
		2013	2014	2015	2016	2017	2018
1	Value (USD)	1,739,505,420	2,083,031,160	2,053,538,282	2,077,718,973	2,100,723,140	550,451,033
2	Volume (m3)	2,046,932	4,096,213	4,944,420	4,429,807	4,196,100	1,023,987
3	Berat (Ton)	1,146,291	2,293,898	2,768,897	2,480,712	2,349,835	497,583
4	AVG (USD/m3)	**849**	**508**	**411**	**469**	**501**	**538**

Table 3: Export realization of woodworking year 2018 (cut-off 25 Apr 2018).

NO	HS CODE	PRODUCT	NETT WEIGHT (KG)	VOLUME (M3)	VALUE (USD)	AVG-VOL (USD/M3)	AVG-NETT (USD/TON)
1	4407	S4S/FJS	22,977,095.80	35,730.42	16,581,062.28	464.06	721.63
2	4408	Venir/Lunchbox	21,699,139.15	27,947.89	24,968,278.25	893.39	1,150.66
3	4409	Moulding/Unfinish	164,495,084.71	191,514.95	183,499,223.36	958.15	1,115.53
4	4415	Paler/Cable roll, etc	1,582,642.35	2,976.13	2,267,925.85	762.04	1,433.00
5	4418	Housing Comp.	50,826,051.96	87,682.80	117,647,776.82	1,341.74	2,314.71
6	44129400	Wood Laminating	94,694,879.90	221,949.73	103,860,665.58	467.95	1,096.79
7	44219996	Barecore	140,495,837.44	454,522.32	99,866,020.16	219.72	710.81
8	44219999	W. Paving Blocks	262,913.00	830.74	742,917.35	894.28	2,825.72
9	94061090	Product Prefab	549,632.26	832.43	1,017,162.94	1,221.92	1,850.62
JUMLAH			**497,583,276.57**	**1,023,987.41**	**550,451,032.59**	**537.56**	**1,106.25**

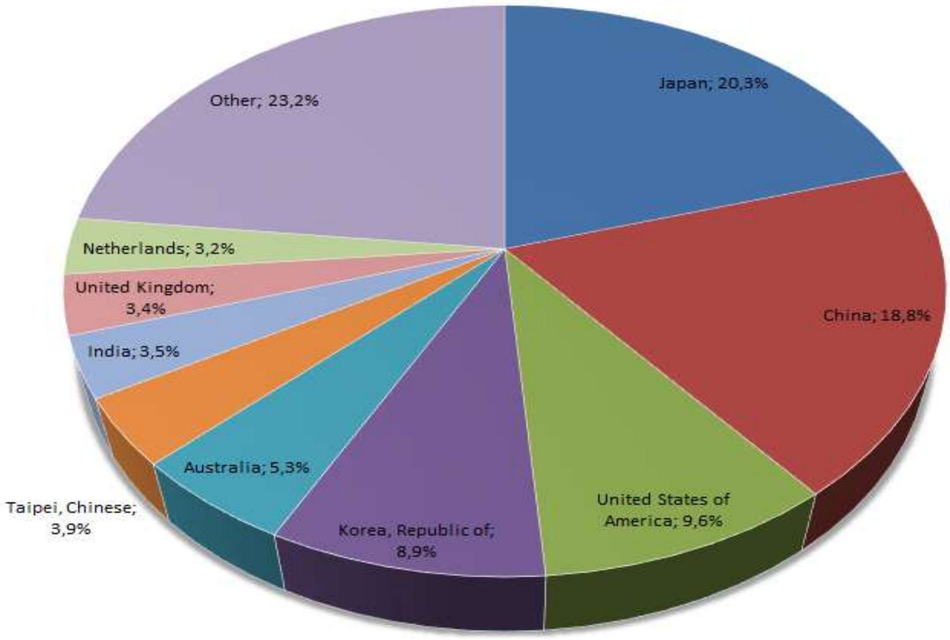


Graph 1: Woodworking export growth 2013-2018

Source: Indonesian Sawmill and Wood Working Association (ISWA) 2018.

Indonesia is a net exporter of timber and wood products and although exporting worldwide, Far-Eastern countries in particular are major destinations for national timber exports. Important exports include processed goods such as plywood, pulp and paper, mouldings and joinery, furniture, sawn timber and veneers. The following graph only accounts for the customs product code 44 Wood and articles of wood, wood charcoal. This alone contributes approximately 40% of the country's export of wood-based products, while pulp and paper products account for over 50%.[44] This validates the significance of the pulp and paper industry for the Indonesian wood products industry.

Top-10 export markets of Indonesia 2017



Source: International Trade Centre- ITC 2018.

The export of Indonesian processed wood products is indeed in a bright state. As of 4 October 2018, the export performance from the start of the year had already reached USD 9.4 billion or near the entire figure for 2017 of USD 10.94 billion.[45] This increase in exports was mainly due to the large increase in demand from existing markets. Currently the largest exports are still centred in the Asian region with a value of USD 6.63 billion, followed by exports to North America worth USD 1.21 billion and the European Union amounting to USD 843.79 million.

Among those processed wood products that contributed the most were panel products worth USD 1.96 billion, followed by paper products worth USD 3.02 billion and pulp valued at USD 2.12 billion. [46] In addition, there were also woodworking products, wood furniture, wood chip wood, handicrafts, veneers and prefabricated buildings that contributed to the export performance.

According to the Indonesian Carpentry and Wood Timber Industry Association (ISWA), the

[44] Indonesia Industry Profile. Timber Trade Poral. 17 May 2019. Available at: http://www.timbertradeportal.com/countries/indonesia/

[45] Ekspor kayu olahan Indonesia tahun ini bisa capai US$ 12 miliar. Kontan. 7 Oct 2018. Available at: https://industri.kontan.co.id/news/ekspor-kayu-olahan-indonesia-tahun-ini-bisa-capai-us-12-miliar

[46] Ibid

main markets for Indonesia's wood products are China and Japan. According to KLHK data published in November 2018, China dominated with a trade value of USD 2.76 billion and weighing 3.99 million tons. This was followed by Japan at USD 1.31 billion and weighing 1.5 million tons and the US valued at USD 1.21 billion and weighing 581,227 tons.

Indeed the performance of Indonesia's processed wood exports shows an increasing trend, and Indonesia has eclipsed Malaysia performance in exporting plywood to the East Asian market, especially Japan. Earlier that year, in June 2018, the volume of Indonesia's plywood exports to Japan reached 79,000 m^3 exceeding Malaysia's exports of only 77,500 m^3. Whereas in the whole of 2017, Indonesia exported only 783,900 cubic metres of plywood while Malaysia exported 1.16 million cubic metres to Japan.[47]

Beside China and Japan, data from the Ministry of Environment and Forestry (KLHK) also lists other important export destination countries for Indonesian wood products as the Netherlands, Australia, Korea, Taiwan, the United States, India, Malaysia, Taiwan, Vietnam and the United Kingdom. Woodworking products that have a strong export performance are all housing components such as for flooring, or wood pedestal and door leaf. There are also exported products in finished form or half-finished products.[48] The East Asian market such as Japan and South Korea, meanwhile, is relatively stable because it does have strong trade relations. This condition is slightly different from timber exports to the European Union, although these have recently begun to increase thanks to the Timber Verification and Legality System (SVLK) that produced the V-Legal or Timber Legality Certificate (SLK).

Table 4: Woodworking export realization to main export country destinations 2018.

NO	COUNTRY	NETT WEIGHT (KG)	VOLUME (M3)	VALUE (USD)	AVG-VOL (USD/M3)	AVG-NETT (USD/TON)
1	China	220,081,965.98	497,361.47	165,696,473.64	333.15	752.89
2	Japan	40,638,483.36	83,716.79	74,835,825.51	893.92	1,841.50
3	Australia	23,186,385.19	29,289.14	43,431,198.57	1,482.84	1,873.13
4	Netherlands	16,807,471.47	26,657.49	32,211,032.85	1,208.33	1,916.47
5	United States	13,997,087.90	23,984.44	30,678,060.63	1,279.08	2,191.75
6	India	40,209,418.80	43,202.06	30,602,059.43	708.35	761.07
7	South Korea	22,500,069.76	37,647.51	26,003,658.81	690.71	1,155.71
8	United Kingdom	11,935,760.94	22,736.11	25,237,157.08	1,110.00	2,114.42
9	Germany	12,685,697.34	20,019.77	22,611,879.83	1,129.48	1,782.47
10	Taiwan	26,476,671.65	78,601.40	18,809,823.24	239.31	710.43
11	Malaysia	12,458,313.28	31,209.56	10,162,272.14	325.61	815.70
12	New Zealand	3,957,039.49	4,730.98	7,726,851.28	1,633.25	1,952.68
13	Saudi Arabia	7,103,712.64	20,304.56	6,893,364.57	339.50	970.39
14	South Africa	4,236,369.16	8,661.50	5,422,612.94	626.06	1,280.01
15	France	2,536,574.28	3,456.77	4,416,934.19	1,245.34	1,741.30
16	Other Countries	38,772,255.33	92,317.86	45,711,827.88	495.16	1,178.98
JUMLAH		**497,583,276.57**	**1,023,897.41**	**550,451,032.59**	**537.60**	**1,106.25**

Source: Indonesian Sawmill and Wood Working Association (ISWA) 2018.

[47] Ibid

[48] Ekspor produk kayu Indonesia terus meningkat. Kontan. 12 Nov 2018. Available at: https://industri.kontan.co.id/news/ekspor-produk-kayu-indonesia-terus-meningkat

II. MAJOR WOOD PRODUCT MANUFACTURING

2.1. Wood Logs

Wood logs, as known as Logs Timber or in Indonesian called *Kayu Bulat* or *Kayu Gelondongan*, are all wood cut or harvested that can be used as raw material for upstream wood processing (Indonesian: *Industri Pengolahan Kayu Hulu* or *IPKH*) production. One of the most desirable wood logs is Meranti. This type of wood is the most popular within Indonesia and is also very popular abroad because it can be processed into a top quality product.

Figure 19: Pile of freshly logged wood logs

Source: Agro Indonesia 2018.

The log production is produced from natural forest through the activities of Forest Concession Companies (Indonesian: *HPH or IUPHHK*), activities for Timber Utilization Permits (Indonesian: *IPK*) in the context of opening forest areas, rights forest activities or community forests, from Industrial Plantation Forests (Indonesian: *HTI*) from all forest exploitation activities.[49]

Wood logs production in the country has fallen by around 13.6% or 1.5 million m^3 in the first quarter of 2019 compared to the same period last year. According to the Indonesian Forest Entrepreneurs Association (APHI), round wood production in January-March 2018 reached 11.75 million m^3, while log production in the first three months of 2019 was around 10.15 million m^3. This decline continued the correction of realization in January-February 2019 compared to January-February 2018, which reached 21%.

The APHI also projects that industrial forest (HTI) wood logs production this year will increase by 10% compared to last year's production of 40.13 million m^3. This is supported by the increasing trend in demand for processed wood for the world's pulp and paper products. Meanwhile, according to data from the Ministry of Environment and Forestry (KLHK), the logs production in the second quarter of 2018 reached 21.87 million m^3 with plantation

[49] Produksi Kayu Bulat Perusahaan Hak Pengusahaan Hutan (HPH) Menurut Provinsi (M3). Data. 17 May 2019. Available at: https://data.go.id/dataset/produksi-kayu-bulat-perusahaan-hak-pengusahaan-hutan-hph-menurut-provinsi-m3

forests (HT) contributing 86.35% or 18.88 million m^3 and natural forest (HA) contributing 13.65% or 2.89 million m^3.[50] Whereas, according to KLHK data, the realization of wood logs production in 2018 reached 48.73 million m^3 with the contribution of plantations (HT) reaching 82.36% or 40.13 million m^3 and the contribution of natural forests (HA) of 17.64% or 8.59 million m^3.[51]

The export of Indonesian wood logs has been banned since 2001 through an agreement between the then Indonesian Minister of Forestry and Minister of Industry and Trade, with consideration being the occurrence of illegal logging and illegal trade actors which disrupted Indonesian forest sustainability. However, since 2017 until today there has been discussion among the ministries in the government about revoking this ruling. The idea sounded by the Ministry of Environment and Forestry argues that with the price of wood logs falling in the country this must be raised through allowing exports.[52] Nevertheless, this proposal has met resistance from the Ministry of Trade and the Ministry of Industry. One of the reasons for the rejection by the two ministries is that exports will disrupt the flow of domestic raw material needs and in turn disturb the downstream industry.[53]

The government seeks to improve export performance and maintain the stability of the trade balance this year through various means. A number of policies are being studied, including the simplification of export licences in technical ministries through the reduction of commodities that must include Surveyor Reports (LS) as well as reduction of restrictions (Indonesian: *Lartas*) for wood logs.[54] The Indonesian Minister of Trade said that the policy is expected to provide acceleration and procedural convenience for exporters in conducting trade transactions abroad as they will be more easily able to export without the need to duplicate permits.

2.2. Sawn Timber

Sawn timber (*Kayu Gergajian* in Indonesia, or lumber in North America) is simply the wooden boards cut from the logs. This wood is a result of conservation of logs by using a machine to produce boards of a regular shape with parallel sides and angles of the elbow with a thickness of no more than 6 cms and moisture content of not more than 18%.

The main application of sawn timber is for architectural material, furniture or for shipping supplies of wood. Development and export of sawn timber (plus also processed wood industry) began in Indonesia around 1986.[55] This followed the issuance of the government

[50] Kuartal I/2019, Produksi Kayu Bulat Turun 1,5 Juta Meter Kubik. Ekonomi Bisnis. 15 Apr 2019. Available at: https://ekonomi.bisnis.com/read/20190415/99/911822/kuartal-i2019-produksi-kayu-bulat-turun-15-juta-meter-kubik

[51] Ibid

[52] Ekspor Kayu Bulat: Setelah 16 Tahun Berlalu . Kalimantan Bisnis. 27 Nov 2017. Available at: https://kalimantan.bisnis.com/read/20171127/452/712757/ekspor-kayu-bulat-setelah-16-tahun-berlalu

[53] Kemenhut Pertimbangkan Kembali Buka Ekspor Kayu Bulat . Tempo. 24 Nov 2017. Available at: https://bisnis.tempo.co/read/1036623/kemenhut-pertimbangkan-kembali-buka-ekspor-kayu-bulat

[54] Pemerintah Kaji Pelonggaran Izin untuk Kemudahan Ekspor. Kata Data. 25 Jan 2019. Available at: https://katadata.co.id/berita/2019/01/25/pemerintah-kaji-pelonggaran-izin-untuk-kemudahan-ekspor

[55] Peluang Besar Industri Kayu. Kompasiana. 5 Jul 2011. Available at: https://www.kompasiana.com/industri09teguhpermana/550063baa333112f75510a6d/peluang-besar-industri-kayu

regulation prohibiting the export of logs and only allowing sawn timber and processed wood in the form of cabinets, chairs, laminated panels, etc. to be exported.

Sawmills are the primary form of wood processing using mechanical saws and auxiliary tools to convert felled wood logs into usable timber of repeatable dimensions, which can then be further processed into finished products by secondary and tertiary wood processing.

Figure 20: Conversion of wood logs to sawn timber

Source: Tentang Kayu 2019.

The export of these products was initially limited to wood products of 4,000 square millimetres cross-sectional area. Issuance of the 2008 Minister of Trade i regulation No.20/M-Dag/PER/5/2008, however, revised this to permit Surface Four Side / S4S of size 12,000 square millimetres to be exported as well.[56] At that time, the policy was expected to increase the demand for related wood raw materials by up to 10%.

Figure 21: Sawn timber

Source: Tentang Kayu 2019.

From sawn timber, wood can be processed further and such processed or engineered wood has long been used as a replacement for the more expensive, and increasingly rare, natural wood. The name itself relates to the results of combining remnants from the process of sawing timber with chemicals to produce a brown and cheaper that resembles natural wood. Several types of processed wood are produced in Indonesia as will be described below.

[56] Pemerintah Longgarkan Ekspor Kayu Gergajian. Kemenperin. Available at: http://www.kemenperin.go.id/artikel/2015/Pemerintah-Longgarkan-Ekspor-Kayu-Gergajian

2.3. Wooden Board

2.3.1. Plywood

As a basic requirement for construction including housing development, the demand for plywood will always exist in Indonesia. According to data from the Ministry of Public Works and Public Housing, national needs for housing facility currently reach 13.5 million units, while as of 2015 housing needs in Indonesia were estimated to reach 800,000 homes / year.[57]

Countries in East Asia are the main export destinations for Indonesian plywood. By June 2018, the volume of Indonesian plywood exports to Japan reached 79,000 cubic metres, with the figures for the year before indicating that Indonesia exported 783,900 cubic metres of plywood to Japan in 2017.

Meanwhile, data from the Forestry Industry Revitalization Agency (BRIK) showed that export performance of wood panelling and plywood wood products in 2011 increased by 3.7% to 2.8 million m^3 from 2.7 million m^3 in 2010. The national export value also increased, from USD 1.2 billion in 2010 to USD 1.5 or 25% higher in 2011.

As an example, plywood exporting company PT Kayu Lapis Indonesia exports some 156,000 cubic metres of plywood per year to export markets not only in Japan but also the United States, Europe, Australia, Singapore, Hong Kong and Taiwan. Of these countries, the US market dominates, recording 60% of total sales.[58] Besides being used for housing interiors, the company reports that requests also come from hotels and restaurants.

To fulfil its need for wood raw materials, Kayu Lapis Indonesia has production forests in Sampit and Sorong, West Papua, of 220,000 hectares and 500,000 ha, respectively.

During what is considered its golden age from 1970 to 1998, Indonesia's plywood industry became one of the largest sources of foreign exchange with the value of exports reaching 4.6 billion US dollars in 1993. Over time, however, the industry's performance has slowed and export value of the plywood industry in 2016 was recorded as only being worth USD 1.6 billion.[59]

The government seeks to restore the glory of the Indonesian plywood industry by optimizing its continued growth as a renewable natural resource. The Minister of Industry himself believes that with optimization of the performance of this sector and given its proven potential, it can soon be redeveloped to make a major contribution as in the past.

2.3.2. Block Board

Block board is a product manufactured by processing plywood and thus is more expensive than the traditional material. Block board is wood-based board consisting of a core of softwood strips between the two layers of wood veneer. The strips are placed edge to edge and enclosed between hardwood veneer sheets before being glued under high temperature

[57] Menyisir laba dari menjual lembaran tripleks. Kontan. 31 Oct 2015. Available at: https://peluangusaha.kontan.co.id/news/menyisir-laba-dari-menjual-lembaran-tripleks
[58] Kayu Lapis naikan target ekspor 5%. Kontan. 22 Mar 2012. Available at: https://industri.kontan.co.id/news/kayu-lapis-naikan-target-ekspor-5
[59] Pemerintah berupaya kembalikan kejayaan kayu lapis Indonesia. Antara News. 20 May 2019. Available at: https://www.antaranews.com/berita/771873/pemerintah-berupaya-kembalikan-kejayaan-kayu-lapis-indonesia

and pressure. Block board has a thickness ranging from 12 mm to 18 mm with the same surface width as plywood. The two most common types on the Indonesian market are teak block (the outermost layer being teak wood) and sungkai block (the outermost layer being sungkai wood).

Figure 22: left - Plywood; right - block board

Source: Gharpedia 2019.

One of Indonesia's public listed wood processing companies, PT Tirta Mahakam Resources Tbk (TIRT) develops wood products by using sengon wood as a material for making block board. The company admitted in Jun 2017 that in addition to expanding the export market, the company's product development also focuses on polyester products.[60] Almost 95% of TIRT products, such as floor base, general plywood, concrete panels, block board, polyester plywood and polyester block boards, are sold abroad to Japan, China and the United States. In 2016, TIRT earned a profit of IDR 42.2 billion from revenues of IDR 234 billion, while the first quarter of 2017 saw it gain profits of IDR 5 billion from revenue of IDR 185.5 billion.[61]

2.3.3. MDF and Particle Board

MDF, acronym for Medium Density Fibreboard, is made from wood fibres mixed with chemical resin, which is then compressed at high temperature and pressure until it becomes a sheet of board. MDF has the advantage that due to being made of wood fibres, it can be easily cut or formed, yet it retains stable strength characteristics. In addition, various finishing can be applied to its surface, such as paper laminate, PVC, HPL, or wood paint.

Particle board is cheaper than MDF, .in fact it is the cheapest of all processed wood products, but at the same time is the lowest quality. Similarly to MDF, it is made from wood powder, but in this case the wood powder used is rough and tends to be irregular in size and shape. Again though, the powder is then mixed with chemical resin before being subjected to high pressure bonding.

One disadvantage of this type of wood, however, is that its pores are large enough to affect its resistance to water, while In addition, there are limitations to the loading that it can withstand as it will bend under heavy loads. For finishing, meanwhile, its rough wooden sheets prevent it from being painted and thus veneer coating or fancy paper are commonly used.

[60] Tirta Mahakam jajaki ekspor ke Eropa Timur. Kontan. 12 Jun 2017. Available at: https://investasi.kontan.co.id/news/tirta-mahakam-jajaki-ekspor-ke-eropa-timur
[61] Ibid

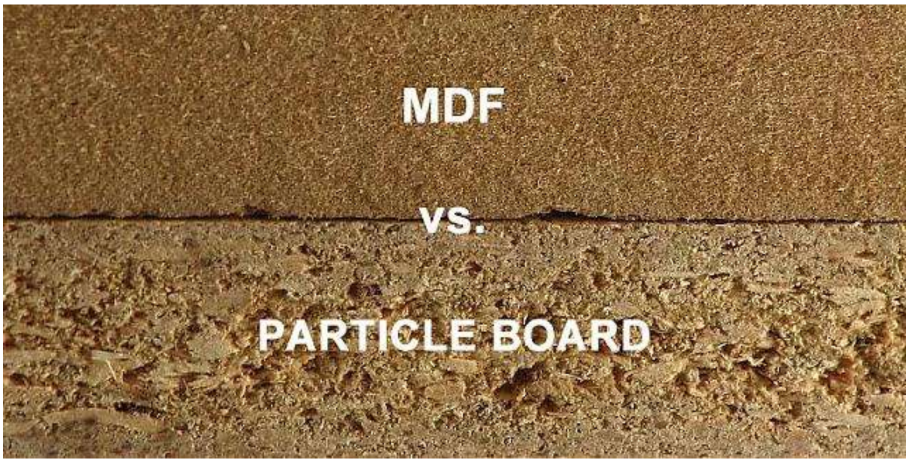


Figure 23: MDF and particle board.

Source: Kayu Kita 2019.

A national source reported that MDF's wood craft business is promising as the competition in Indonesia is still low.[62] While there are a numbers of craft items made from natural wood, few use MDF wood as a raw material. Moreover, designs are important aspects in these items as they will differentiate one source from another. The head of one successful Indonesian SME, Jova, described how wooden crafts made by his company are custom-made or follow the design suggested by consumers.[63] For example, for consumers wanting invitation cards made from MDF wood, Jova will first consult with the client about the desired design before printing. This makes for a product that owes its individuality to the ideas of the customer.

2.4. Wood for Construction

Wood is one of several construction materials that have long been known to the public. Factors such as simplicity in workmanship, lightness, environmental compatibility have made wood a construction material well-known in the field of lightweight construction.[64] The use of wood as a construction material is not only based on its strength, but also based on its beauty.

PT Green Resource Material Batam Indonesia is a producer of environmentally friendly wood building materials that is aggressively targeting the potential of the Indonesian construction market for the sustainable development of housing and commercial buildings.

The company said that in the past few years the demand for its products has increased by around 30% to 50%, requiring industry assistance using environmentally friendly building materials and choosing biowood GRM. One way the company promotes its products is by participating in the large-scale construction events such as The Big 5 Construct Indonesia annually held in Jakarta International Expo in the capital. Meanwhile, based on data from the UOB Asian Enterprise Report 2014, the construction sector is one of the four main business

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[62] Mencoba bisnis kerajinan unik dari kayu MDF. 4 Oct 2018. Available at: https://www.elshinta.com/news/157304/2018/10/04/mencoba-bisnis-kerajinan-unik-dari-kayu-mdf

[63] Ibid

[64] Jenis Kayu untuk Bahan Konstruksi Bangunan. Vedcmalang. 14 Apr 2014. Available at: https://www.vedcmalang.com/pppptkboemlg/index.php/menuutama/departemen-bangunan-30/1115-yono

sectors that are developing in Indonesia and have attracted a 28% foreign investment.[65]

The use of wood in construction around the world may include for load bearing walls, pole framed wood elements house, modular construction, exterior cladding, windows and doors, fire protection, wooden buildings, log houses and log construction junction.[66]

2.5. Furniture and Crafts

Indonesia has long been known as one of the world's leading manufacturers of furniture and handicrafts, its teak and rattan products being sought after on both local and international markets. Furniture is part of the interior wood products category, which also includes roofs, walls, floors, trims and mouldings, doors, and other decorative Items. National discussions frequently centre on how this industry can help improve community economics through cooperation between industry and social forest management communities.

Figure 24: Indonesian crafts made from teak root, plus indoor & outdoor furniture made from teak wood

Source: Multiple Sources 2019

The Indonesian furniture and craft industry not only targets the domestic, but increasingly that overseas where the European Union is still the largest market for Indonesian furniture and handicraft exports, accounting for 65% of total exports. The remainder, meanwhile, heads to the United States, Middle East and Asia. [67] According to The Indonesian Furniture and Handicraft Industry Association (HIMKI) the export value of the furniture industry in 2017 reached IDR 27 trillion, while in 2018, Indonesian furniture exports continued to grow, reaching USD 2 billion or around IDR 29 trillion.[68]

2.6. Pulp and Paper

Indonesia currently ranks among the world’s top 10 producers in the pulp and paper industry, its 2018 paper production reaching 16 million tons and pulp 11 million tons. Based on Ministry of Industry records, the paper industry was ranked first and the pulp industry

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[65] Ibid

[66] Typical structural systems. Wood Products. 22 May 2019. Available at: https://www.woodproducts.fi/content/uniform-recommendations-finnish-large-wooden-buildings

[67] Ekspor Mebel dan Kerajinan Ditargetkan US$ 2,9 Miliar. Berita Satu. 10 Jan 2018. Available at: https://www.beritasatu.com/ekonomi/472736/ekspor-mebel-dan-kerajinan-ditargetkan-us-29-miliar

[68]Investasi Sektor Hilir Produk Kayu Perlu Diarahkan ke Luar Jawa. Bisnis. 13 Aug 2018. Available at: https://ekonomi.bisnis.com/read/20180813/99/827549/investasi-sektor-hilir-produk-kayu-perlu-diarahkan-ke-luar-jawa-

ranked third in the export of forestry products during 2011-2017. The two industries contributed a total of USD 5.8 billion in foreign exchange in 2017, pulp exports to such major destinations as China, South Korea, India, Bangladesh and Japan amounting to USD 2.2 billion, while paper exports amounting to USD 3.6 billion were mainly destined to Japan, the United States, Malaysia, Vietnam and China.[69]

In more specific terms, Indonesia ranks tenth largest in pulp production globally and sixth in paper production, while in the Asian region, Indonesia is the third ranked producer in the pulp industry and fourth in the paper industry.[70] As a single unit, the pulp and paper industry is one of the sectors whose development is prioritized in accordance with Government Regulation Number 14 of 2015 concerning the National Industrial Development Master Plan.

Figure 25: Employee at a PT Riau Andalan Pulp and Paper (RAPP) paper factory in Riau.

Source: Tribun Bisnis 2016.

The domestic pulp and paper industry is expected to continue to grow in 2019, Indonesian Pulp and Paper Association (APKI) figures projecting a 5% increase by the end of this year. Moreover, market opportunities are still open as pulp and paper production capacity is increasing due to expansion. The market continues to show positive growth signs with world demand still increasing by around 2%.[71] Over the past year, the value of paper and paper products exports reached USD 7.26 billion, up 15.15% on an annual basis from USD 6.30 billion the previous year..

Ministry of Industry records show that to date there are 84 pulp and paper companies operating in Indonesia, the largest including PT Riau Andalan Pulp and Paper or RAPP, and the Sinar Mas Group (e.g. PT Tjiwi Kimia Tbk., PT Indah Kiat Pulp & Paper, and PT OKI Pulp and Paper). The largest in Indonesia, the Sinar Mas Group is ranked second largest paper and pulp producer on a global basis.

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[69] Menangkap Peluang Bisnis Industri Pulp dan Kertas. Marketeers. 10 Oct 2018. Available at: http://marketeers.com/menangkap-peluang-bisnis-industri-pulp-dan-kertas/

[70] Industri pulp dan kertas Indonesia Masuk 10 Besar Dunia. Bisnis. 27 Jan 2019. Available at: https://ekonomi.bisnis.com/read/20190127/257/882862/industri-pulp-dan-kertas-indonesia-masuk-10-besar-dunia

[71] Ibid

RAPP, meanwhile, has a production capacity of 12 million tons per year with a workforce of some 70,000 people, while its products reach 120 countries on 6 continents. At present, RAPP produces three types of paper, namely customer roll, cut size, and folio. The three types of paper are partly used to meet domestic needs with Paper One, while some are exported to 75 countries that include Japan, Australia, Asia Pacific countries and the Middle East. In addition to producing paper, RAPP also produces some 1.2 million tons of pulp per year, the world's ninth largest pulp producer that supplies around 7% of the world's pulp needs.[72]

The Indonesian Pulp and Paper Association (APKI) said that in January-February 2019, paper exports were recorded at 780.04 tons, which is already an increase of almost 1% on the 772.9 tons exported in the first quarter of 2018. Pulp exports, meanwhile, had experienced a contraction at just 597.31 during January-February compared to the 695.91 tons exported in the first three months of 2018, a decline in export tonnage of 14% to date.[73]

Through February 2019, the total export value of pulp and paper was USD 486.25 million, down compared to the export value of the same period the year before. By the end of March 2019, however, exports of the two commodities have rebounded to show a slight increase of 5.90% to USD 610.92 million compared to the first quarter last year of USD 576.88 million.

2.7. Wood Pellets

Wood pellets are a potential alternative energy source, especially in the industrial sector, be it medium or large scale. Wood pellets are processed from round wood or wood waste into compacted powder so that they are cylindrical of 6-10 mm diameter and 1-3 cm in length with an average density of 650 kg/m^3 or 1.5 m^3/ ton.

The wood pellets have a heating value of about 4,000 kcal/kg compared to the 11,000 kcal/kg for LPG, meaning that three kg of wood pellets are equivalent to one kg of LPG. Yet with LPG currently priced at around IDR 12,000/kg, while wood pellets cost around one-sixth of that or IDR 2,000 / kg, savings of some 50% can thus be made when substituting wood pellets as fuel.

State-owned enterprise, PT Energy Management Indonesia (Persero) came on stream to produce wood pellets, which are environmentally friendly compared to coal, in June 2015. The factory, established on a 10-hectare site, is able to produce 36,000 tons of wood pellets per year, sufficient if converted into a power plant to produce at least 5 megawatts (MW) of electricity. Wood pellets already have a solid market in South Korea, Japan, Europe, the USA, and Canada.[74]

[72] Operasikan Pabrik Baru, RAPP akan Jadi Produsen Kertas Terbesar Kedua di Dunia. Tribun Bisnis. 17 Nov 2016. Available at: http://www.tribunnews.com/bisnis/2016/11/17/operasikan-pabrik-baru-rapp-akan-jadi-produsen-kertas-terbesar-kedua-di-dunia

[73] Ekspor Kertas Naik Tipis, Ekspor Pulp Terkoreksi. Bisnis. 10 Apr 2019. Available at: https://ekonomi.bisnis.com/read/20190410/99/909916/ekspor-kertas-naik-tipis-ekspor-pulp-terkoreksi

[74] Juni, PT EMI Targetkan Produksi Wood Pellet Pengganti Batubara. BUMN. 17 Feb 2015. Available at: http://bumn.go.id/emi/berita/0-Juni-PT-EMI-Targetkan-Produksi-Wood-Pellet-Pengganti-Batubara

 

Figure 26: Indonesian wood pellets used as biomass fuel

Source: Bebeja Agribisnis 2013.

As one of the largest markets for Indonesian wood pellets, South Korea is an example of a country that is actively trying to find supplies of raw materials in Indonesia. In 2012, the South Korean government launched the use of renewable energy sources to meet at least 2% of its energy needs. The latest target is for the use of biomass energy to provide 10% of its needs by 2022, of which an estimated 60% will use wood pellets as fuel. [75] Based on IEA data from Bioenergy Task 40, Global Wood Pellet Industry Market and Trade Study in 2011, world wood pellet production was close to 20 million tons, almost equal with production capability. However, needs for 2020 are estimated at 80 million tons.[76]

The price of wood pellets fuel ranges from IDR 1,600/kg upwards, which is lower than the purchase price of wood pellets from neighbouring countries. Currently the South Korean market needs a supply of 4,000 tons/month. To meet this demand, businesses across the country, are starting to plant fast-growing timber that requires minimal maintenance and high in energy content, species such as *Leucaena leucocephala*, *Calliandra calothyrsus*, and *Gliricidia sepium*.[77]

In 2013, the Ministry of Forestry invited South Korean investors to partner with holders of community plantation forests (HTR) as suppliers of wood pellets. In addition to originating from industrial timber plantations (HTI), investors can also collaborate with community holders of timber forest product utilization licences (IUPHHK) HTR as suppliers of wood pellet raw materials by planting sengon, jambon, and kaliandra wood species.[78]

[75] Investor Korsel Ditawari Bangun Pabrik Pelet Kayu. Bisnis. 5 Sep 2013. Available at: https://ekonomi.bisnis.com/read/20130905/99/161085/investor-korsel-ditawari-bangun-pabrik-pelet-kayu

[76] Ibid

[77] Peluang Bahan Bakar Pelet Kayu. Bebeja. 13 Nov 2013. Available at: http://www.bebeja.com/peluang-bahan-bakar-pelet-kayu/

[78] Ibid

III. BUSINESS OPPORTUNITY AND CHALLENGES

3.1. Ever Promising Export Market

According to the Indonesian Forest Entrepreneurs Association (APHI), the continuing trade war between the USA and China provides Indonesia with a golden opportunity to enter the American market and strengthen its wood industry exports. Indonesia's national wood industry has the potential to do so because the previous major wood supplier, China, was proven to have carried out illegal dumping, the results of which have seen the United States impose sanctions on the country.[79]

Meanwhile, on the other shore of the Atlantic Ocean, exports of timber and its binary products are far easier to accomplish to the European Union thanks to thee FLEGT or Forest Law Enforcement, Governance and Trade licence facility. The European Union Parliament officially ratified the FLEGT licence certificate on 15 August 2016, and as the Ministry of Environment and Forestry explained, with the certificate exporters will no longer need to undergo due diligence in the destination country.

The existence of this legal certification can increase the value of exports. Based on research, China is Indonesia's main destination for timber exports with around 40% of total exports each year. The share of exports to the European Union, meanwhile, is only around 10% of the total. In 2015, the value of its total exports to the European Union amounted to USD 882,234,291 or 8.9% of the global export value of USD 9,859,389,633. From 1 January - 1 August 2016, meanwhile, the value of global exports amounted to USD 5,445,734,927 of which the value of exports to the European Union had risen to 13% or USD 708,387,394. [80]

One example in particular is Germany where the Indonesian Ministry of Commerce has been working with the German government to increase exports of light wood from Indonesian producers. Since 2016 at an event called Trade Expo Indonesia, the German Directorate General of National Export Development (PEN) and the Import Promotion Desk (IPD) signed two agreements on the Strategy Paper on Lightweight Timber Indonesia and the Service Agreement on Interzum 2017.[81]

The two commitments have different goals, the Strategy Paper being to promote Indonesian light wood to Europe, while the Service Agreement was related to Indonesia's participation in the 2017 Interzum exhibition in Cologne, Germany. In this exposition, six Indonesian companies exhibited light wood products and promoted the timber legality verification system (SVLK). This cooperation is proof of the bright future for the export of Indonesian light wood products, especially to Europe. Moreover, the European market is very promising for light wood products because the demand continues to increase with many Europeans using light wood in the caravan, automotive, and kitchen utensils industries.[82]

[79] Ada Perang Dagang, RI Bisa Ambil Celah Ekspor Kayu ke AS. Detik Finance. 4 Jul 2018. Available at: https://finance.detik.com/berita-ekonomi-bisnis/d-4098291/ada-perang-dagang-ri-bisa-ambil-celah-ekspor-kayu-ke-as

[80] FLEGHT, bikin ekspor kayu ke Uni Eropa tak ribet.Kontan Industri. 22 Aug 2016. Available at: https://industri.kontan.co.id/news/fleght-bikin-ekspor-kayu-ke-uni-eropa-tak-ribet

[81] Peluang Ekspor Kayu Ringan Indonesia Makin Besar ke Eropa. Katadata. 14 Oct 2016. Avaiable at: https://katadata.co.id/berita/2016/10/14/peluang-ekspor-kayu-ringan-indonesia-makin-besar-ke-eropa

[82] Ibid

3.2. Abundant Raw Material

Besides improvement in the assurance of wood legality, Indonesia is also superior in the diversity of wood products it can bring to market. As briefly discussed earlier in the report, Indonesia is a vast country rich indeed in the number and variety of forest resources, and as such ideally situated to support this industry. The reasons for this include not only the competitive cost of manpower for production, but also that locally based businesses benefit from the ready availability of a wide range of national raw materials.

Yet a ready availability of raw materials is not in itself enough for the industry to develop, for sustainability in provision of the raw materials is vital. Thus, timber industry players in Indonesia continue to encourage the development of Industrial Plantation Forests (HTI) to increase the supply of raw materials.

Meanwhile, the state administration through government-owned enterprise Perum Perhutani, also continues to increase the quantity of wood products fabrication by utilizing the availability of abundant wood raw materials. In addition to having abundant raw material, the company explained that it would increase production volume by adding new wood processing plants. Some regions are becoming the target for the enlargement of Perhutani's production volume, namely in East Java and Central Java.[83]

In short, the national furniture industry has great potential to grow and develop because it is supported by abundant sources of raw materials and supporting law, not to mention skilled craftsmen. The government is thus prioritizing the development of this export-oriented labour-intensive sector, encouraging it to become more productive and competitive through strategic policies that maximize the potential of the wood products industry in Indonesia.

3.3. Huge Demand and Growing Domestic Market

Looking forward, Indonesia is expected to be the third biggest domestic market out of 10 developing countries that will dominate the global economy by 2028.[84] The prediction is based on Oxford Economics' analysis of those countries having the fastest economic growth. The country is predicted to become the engine of the global economy in the coming years. Endowed with abundant natural resources and increasingly not dependent on foreign funding, Indonesia seems likely to become a key player in the future with 5.1% growth.[85]

For wood products specifically, the Indonesian government through the Ministry of Trade keeps encouraging the development of the domestic light wood market through the Indonesian Lightwood Cooperation Forum (ILCF). In year 2018, an event involving Indonesian Light Wood Association (ILWA) and the Swiss Import Promotion Programme (SIPPO) was held in the city of Solo, Central Java Province.

Indonesia's burgeoning middle class economy is another potential market that has not been fully exploited as yet. Even in a time of decline in world demand for wood, the national timber

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[83] Bahan Baku Kayu Melimpah, Perum Perhutani Tambah Pabrik Olahan. JPNN. 22 May 2015. Available at: https://www.jpnn.com/news/bahan-baku-kayu-melimpah-perum-perhutani-tambah-pabrik-olahan

[84] Indonesia Diprediksi Masuk 3 Besar Negara yang Mendominasi Ekonomi Global pada 2028. Kompas. 26 Feb 2019. Available at: https://ekonomi.kompas.com/read/2019/02/26/093100526/indonesia-diprediksi-masuk-3-besar-negara-yang-mendominasi-ekonomi-global

[85] Ibid

industry can still garner profits for those concentrating on working the domestic market. National demand for timber is actually huge with an average consumption per year of 5,163 million cubic metres of logs. This amount has still not been fully fulfilled by domestic industry. [86] Thus, Indonesian wood industry players have to import wood to meet domestic needs, as the national timber industry is not only oriented towards the export market.

Figure 27: Wooden eyeglasses and watch frames made in Indonesia

Source: Bisnis 2018.

With increasing demand comes growing consumer appreciation of Indonesian-made wooden products. Besides creative products such as wooden frames for both spectacles and wristwatches, demand for more traditional products such as paper is also providing strong potential for domestic growth, as well as for exports. Based on data from the Ministry of Industry, paper consumption in Indonesia is currently only around 32.6 kg per capita. In comparison, per capita paper consumption in the US is around 324 kg, Belgium 295 kg, Denmark 270 kg, Canada 250 kg, and Japan 242 kg. [87] This shows that the opportunity for the marketing of paper is wide open in the domestic market based on the current low domestic per capita consumption. Thus the pulp and paper industry in Indonesia also has the opportunity to continue to grow.

According to the Ministry of Industry, the actual production of the pulp industry in Indonesia is currently around 6.9 million tons per year, while that of the paper industry is 11.8 million tons per year. Pulp exports in 2012 were recorded at 3.196 million tons worth 1.546 million US dollars, while paper exports were 4,229 million tons worth 3.972 million US dollars. At present, the world needs around 394 million tons of paper per annum.[88] Moreover, that demand is expected to grow at an average of 2.1% per year so that the world's paper demand in 2020 is estimated to reach 490 million tons.

[86] Industri kayu nasional fokus garap pasar domestic. Kabar Bisnis. 18 Jun 2009. Available at: https://www.kabarbisnis.com/read/283512/industri-kayu-nasional-fokus-garap-pasar-domestik

[87] Pasar Kertas Domestik Terbuka. Kemenperi. Available at: http://kemenperin.go.id/artikel/7793/Pasar-Kertas-Domestik-Terbuka

[88] Ibid

3.4. Strong Indonesian Wood Brand

According to PT Tirta Mahakam Resources Tbk, a publicly traded company that focuses their sales on Japan, the Japanese export market is very liquid because of the specifications of the wood they buy from Indonesia to fulfil architectural needs for buildings in earthquake-prone areas. The specifications requested by Japanese importers are mainly wood that can curve or twist under pressure and is good for storing or holding water absorption. This shows how strong the brand of Indonesian wood is overseas.

According to National Development Planning Agency (Indonesian: *Bappenas*), Indonesia's efforts to strengthen exports should not only be about increasing the volume of commodities, but should also be about manufacturing commodities into more valuable products. The Central Statistics Agency (BPS) meanwhile announced that Indonesia booked a USD1.09 billion trade surplus in March 2018 after posting a trade deficit for three consecutive months from December 2017 to February 2018.[89] The BPS recorded a trade deficit of USD 8.57 billion a year before, citing the decline in global prices for palm oil and coal as main contributors to the weakening of Indonesia's exports. [90]

As for European Union, it is indeed a large and growing net importer of wood furniture, especially large furniture for offices, kitchens and bedrooms. In wood furniture, Indonesia accounts for 10% of all imports. However, the type of furniture supplied by Indonesia to the EU market is mainly in the form of small figurines and wood pieces rather than the more lucrative office, kitchen and bedroom furniture, where Indonesia's market-share only equals 4%.

The reason for this is that Indonesia is less organized and exporters tend to be small in size. They therefore find it easier to ship individual containers to the European Union rather than to ship larger volumes that require accredited certifications on the source of their materials for their furniture items and, for their labour usage, certification of safety standards, occupational hazards, and compliance with child labour laws. These requirements are time-consuming and costly for Indonesian exporters to the EU market.[91]

On the production side, the Indonesian industry is famous for its micro-enterprises or those having less than ten workers. These enterprises often have subcontracting arrangements with the larger manufacturers, supplying them with components and semi-finished products for the finishing and assembling of furniture.

Despite the obstacles created by the industry's regulatory measures in the European Union, there is considerable potential for Indonesia producers to strengthen the brand in the markets for office, kitchen and bedroom furniture, especially by integrating into the value chains of large distributors. The brands from Indonesia have a competitive advantage in the EU market for their lower prices derive from low labour and resource costs relative to EU producers. It also has a large skilled labour force in the wood furniture industry relative to an aging labour force in the European Union.

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[89] RI lags behind Vietnam, Thailand, Malaysia on exports: Minister. Jakarta Post. 9 Apr 2019. Available at : https://www.thejakartapost.com/news/2019/04/09/ri-lags-behind-vietnam-thailand-malaysia-on-exports-minister.html

[90] Ibid

[91] Indonesia's Trade Access to The European Union: Opportunities and Challenges. November 2010. A project implemented by TRANSTEC & EQUINOCCIO.

IV. REGULATION AND STANDARDS

3.1. Forest governance

Indonesia's Forestry Law No.41/1999 is the primary judicial instrument that governs forestry matters in the country. Prior to 2015, forest areas were classified into two categories based on their status, the first being state forest (Indonesian: *hutan negara*) and the second being forest subject to rights (Indonesian: *hutan hak*). With the reformation on forestry sector in 2015, the Indonesia government has issued Ministry of Environmental and Forestry regulation No. P.32/ 2015 where forest areas are classified as:

a) State forest (Indonesian: *Hutan Negara*)
b) Forest subject to rights (Indonesian: *Hutan Hak*)
c) Indigenous forest (Indonesian: *Hutan Adat*)

As briefly discussed in Chapter I: Forest Reserves, the government recognizes that forest areas can fulfil three distinctive functions:

a) Conservation
b) Protection
c) Production

Based on its function, the three main administrative forest categories for state forests in Indonesia are as follows:

1. **Production Forest (Indonesian: *Hutan Produksi*)**, the most common type with sub-categories such as:
    a. **Permanent Production Forest, (Indonesian: *Hutan Produksi Tetap – HP*)**. The Permanent Production Forest has characteristics such as less steep slopes, less sensitive soil types and less precipitation intensity, which taken together dictate these areas may be selectively logged in a normal manner.
    b. **Limited Production Forest, (Indonesian: *Hutan Produksi Terbatas – HPT*)** refers to those parts of the Production Forest with specific characteristics such as steep slopes, sensitive soil type and high precipitation intensity, which taken together, dictate that these areas be logged less intensively than is permitted in permanent production forests.
    c. **Convertible Production Forest (Indonesian: H*utan Produksi yang dapat di Konversi – HPK*)** refers to those parts of production forest that is permissible to be converted to other non-forestry land use.
2. **Protection Forest (Indonesian: *Hutan Lindung – HL*)** e.g. for watersheds
3. **Conservation Forest (Indonesian: *Hutan Konservasi – HK*)** which includes Nature Reserves, Nature Conservation areas and Hunting Parks (KSA/KPA/TB).

The definition of those three forest categories is stipulated in government regulation "Peraturan Pemerintah Republik Indonesia Nomor 44 Tahun 2004 mengenai Perencanaan Hutan" along with criteria of each forest.[92]

All timber production from state forests, both natural forest and plantation, can only be

[92] Indonesia Legality Profile-Framework. Timber Trade Portal. 4 Apr 2019. Available at: http://www.timbertradeportal.com/countries/indonesia/#legality-profile

permitted in the production forest. Under Regulation Number 6 from 2007, with its latest revision (Peraturan Pemerintah Republik Indonesia Nomor 3 Tahun 2008) forces all concession holders wishing to produce timber within the state forest (natural forest and plantation) to develop 10-year forest management plans and annual operational plans. IHMB (Indonesian: *Inventarisasi Hutan Menyeluruh Berkala*) or Periodic Comprehensive Forest Inventory will be the basis to determine annual harvest levels by considering standing stock potency of forest stand and growth of commercial species at a particular size of forest area. Technical guidance to develop the Periodic Comprehensive Forest Inventory can be found in Regulation P.33 from 2014.

Only forest areas designated as production forest timber production are allowed. Both concession licence holders of natural forest and plantations must follow the sylvicultural system set by the government, as stipulated in Ministry of Forestry regulation P.11/2009. Ministry to ensure aspect of sustainability in managing the state forest is complied.

3.2. Legal Rights to Harvest

3.2.1. State Forest

For the case of State Forest or in Indonesian *Hutan Negara, a*ny entity that aims to conduct timber production, whether in natural forest or plantation forest with a production function, must hold a concession licence granted by the government. For natural forest, the permit is 55 years maximum with a possible extension, whilst a plantation licence is granted for 100 years maximum without any omission for an extension.

For land conversion permit licence holders (*Izin Pemanfaatan Kayu – IPK*), based on government regulation Nr. 6/2007 the validity of the licence is only for one year without any possibility of extension. Once a business entity is provided a permit from the government then it must develop a 10-year Forest Management Plan (*Rencana Kerja Izin Usaha Pemanfaatan Hasil Hutan Kayu/RKUPHHK*) based on a Periodic Comprehensive Forest Inventory (*Inventarisasi Hutan Menyeluruh Berkala - IHMB*), and Annual Operational Plan.

For IPK (*Izin Pemanfaatan Kayu*) or land conversion permit licence holders, the licencee is only obliged to develop an Annual Operational Plan (*Rencana Kerja Tahunan - RKT*) based on merchantable standing stock.

Licence holders also need to comply with several international conventions such as CITES, IUCN, CBD and national regulations, such as Undang-Undang Nomor 5 Tahun 1990 tentang Konservasi Sumberdaya Alam Hayati dan Ekosistemnya for the protection of flora and fauna where the licence holder is restricted from harvesting, keeping and/or selling protected species under any circumstances.

Both in 10-years forest management plan (*Rencana Kerja Izin Usaha Pemanfaatan Hasil Hutan Kayu/RKUPHHK*) based on a IHMB (*Inventarisasi Hutan Menyeluruh Berkala*) or Periodic Comprehensive Forest Inventory and annual operational plan (*Rencana Kerja Tahunan/RKT*), the licence holder for natural forest and plantations need to delineate protected areas such as river riparian, germ plasm conservation areas (*Kawasan Pelestarian Plasma Nutfah - KPPN*), community/indigenous sites (economic, religious and historical), permanent sample plots for growth and yield, wildlife preservation areas, seed bank site, etc.[93]

[93] Ibid

Furthermore, prior to the initial operational/timber harvesting activities concession licence holders must develop and implement an Environmental Impact Assessment, as set out in Ministry of Environment Regulation Nr. 5/2012. This assessment also includes a Social Impact Assessment toward surrounding local communities. Potential impacts of forestry operations (in natural forest, plantations or during forest conversion) on the ecosystem, landscape, hydrology, species composition and wildlife habitat are studied.

3.2.2. Private Forest

For the case of Private Forest or in Indonesian *Hutan Hak, l*egal rights to harvest have lesser requirements as it is private land and the size of the ownership is on average between 0.25 – 1 ha. The governance of private land is not within the Ministry of Environmental and Forestry but instead falls under the National Land Agency (*Badan Pertanahan Nasional/BPN*). Act No 5/1960, is the basic agrarian legislation. Under the current SVLK-standard, legal rights to harvest on private land are related to land ownership where there must be a record of ownership from the relevant authority.[94]

3.3. Taxes and Fees

Concession licence holders operating in state forest are obliged to settle a licence fee (Iuran Izin Usaha Pemanfaatan Hasil Hutan Kayu - IIUPHHK) for their valid licence of management rights in accordance with government regulation No. 12/2014. This licence fee is calculated differently in three different regions (Sumatra & Sulawesi; Kalimantan & Maluku, and Nusa Tenggara & Papua) and incurred per year per hectare per licence by the concession licence holder. An additional fee applies to plantations if the concession licence holder is converting natural forest to plantation with a clear-cut system with artificial regeneration called Sistem Tebang Habis Permudaan Buatan (THPB), where the fee incurred is per licence per hectare and per year.

For timber production from state forest, a concession licence holder must settle two kinds of fees: Reforestation Fund (Dana Reboisasi - DR) and Forest Resources Provision (Provisi Sumber Daya Hutan - PSDH). The fees incurred are based on three different diameter classes of roundwood:

a. *Kayu Bulat (KB)*, diameter > 49 cm
b. *Kayu Bulat Sedang (KBS),* diameter 30-49 cm
c. *Kayu Bulat Kecil (KBK)*, diameter < 30 cm

The fees vary per species group, such as Meranti (Shorea), Rimba Campur (Mixed Timber Species) and Kayu Indah (Fancy Timber Species) and per region (Sumatra & Sulawesi; Kalimantan & Maluku, and Nusa Tenggara & Papua). Dana Reboisasi (DR) is set at a fixed price in USD per cubic metre whilst forest resources provision (*Provisi Sumber Daya Hutan/PSDH*) is incurred based on benchmark price times 6-10%.

For private forest, as it is an individual property, there are no requirements to pay any fees on timber production and the only applicable regulation is that the land owner must settle property tax (Pajak Bumi dan Bangunan - PBB) on an annual basis to the local revenue agency (*Dinas Pendapatan Daerah - Dispenda*). As for communities, the requirements on taxes and fees are the same as for private forests.[95]

[94] Ibid
[95] Ibid

3.4. Trade and transport

Transporting timber from the forest gate to the mill must be accompanied by a Legal Transport Document, a *Surat Keterangan Sahnya Hasil Hutan – SKSHH* in case of state forest and a Nota Angkutan in case of private forest. *Surat Keterangan Sahnya Hasil Hutan (SKSHH)* has an attachment of a log list called DKB (*Daftar Kayu Bulat*) that specifies barcode ID, tree species, length, diameter and volume.

If a concession licence holder intends to deliver the timber to a different island then it is obliged to have an inter-island transport permit (Indonesian: *Pedagang Kayu Antar Pulau Terdaftar - PKAPT*).

Once the mill receives the timber, it will process it. To export timber products, a manufacturer must hold a valid SVLK certificate and for each shipment the product must be accompanied by a V-legal document. To be able to receive a V-Legal document the exporter needs to hold a Forestry Industry Products Registered Exporters Certificate (ETPIK) issued by the Ministry of Trade. After issuance of the V-Legal document the exporter prepares an Export Declaration Document, which is submitted to Customs. Customs then issues an Export Approval Document for Customs clearance.

3.5. Timber Legality Verification System

Indonesia requires all forestry business units to obtain a mandatory assessment of sustainable forest management. The assessment must be carried out by an independent third-party certification body that has been accredited by the National Accreditation Committee or Komite Akreditasi Negara (KAN). The Indonesian Timber Legality Assurance System (TLAS) or Timber Legality Verification System (Indonesian: *Sistem Verifikasi Legalitas Kayu-SVLK*) is therefore a programme developed by to assure global stakeholders that Indonesian wood products were harvested legally and tracked throughout the supply chain. Since 2001, representatives from various stakeholders, including civil society organisations, the government, and the private sector, have played an active role in the development of this system through various discussions and consultations.[96]

SVLK provides incentives for legality and sustainability aspects by opening market access for verified legal timber products, and preventing market access for illegal products. SVLK also supports the implementation of forestry sector governance reforms, including improving the quality of information, transparency, capacity and community rights. In this scheme, timber is considered legal only if the source, production, processing, transportation and timber trading processes are successfully verified and meet the applicable laws and regulations in Indonesia.

The timber legality verification system is indeed implemented to ensure that all timber products circulating and traded have a convincing legal status.[97] Moreover, neither domestic nor foreign consumers need any longer suspect the legality of wood originating from Indonesia. The forest management unit is fully reliable and trustworthy about the validity of its timber products. Wood-based industries are confident in the legality of the source of their raw materials, making it easier to convince buyers abroad.

[96] Regulasi bagi Industri Berbasis Kayu dan Hasil Hutan. Ir. Sere Saghranie Daulay,M.Si Widyaiswara Madya - Pusdiklat Industri. 2015.
[97] Ibid

3.6. Negative List of Investment

Revising the list first published in 2014, on 18 May 2016, the Indonesian government issued the new Indonesian Negative Investment List (The 2016 Negative List or in Indonesian *Daftar Negatif Investasi-DNI*) pursuant to Presidential Regulation No. 44 of 2016. The issuance of the 2016 Negative List has been anticipated since the government released the tenth instalment of the national economic stimulus programme (Economic Policy X). This seeks to streamline investment and business licence procedures, as part of the government's effort to boost foreign direct investment and liberalize the Indonesian economy. Various efforts have been made by the Indonesian government to create a climate conducive to investment. One of them is by providing clarity on investment in the country, both by local and foreign investors through this endeavour.

Based on this new list, the Trading sector in Indonesia is now open to up to 100% foreign ownership where this was previously not possible or specifically regulated. According to the Indonesian Coordinating Ministry for the Economy, these business fields have been opened for investment on the basis that either they already face sufficient domestic competition or require advanced technology and/or greater funding. However, in some instances, this is subject to certain conditions or restrictions.

As for the wood products industry specifically, Indonesian rule governs that foreign investors must obtain recommendation for sustainable raw material supply from the Ministry of Environment and Forestry (KLHK) to undertake the following businesses in the country:

1. Veneer Wood Industry;
2. Plywood Industry;
3. Laminated Veneer Lumber (LVL) Industry;
4. Wood Chips Industry;
5. Wood Pellet Industry;
6. Wood Pulp Industry;
7. Exploitation of timber forest products of natural forest.

However, since 2018 when the government published the Economic Policy XVI, there are also some industries that were previously restricted to KLHK's approval that have now been opened to direct foreign investments by only complying to requirement of having partnership with local entities or reserved for SMEs. They are namely, as follows: [98]

1. Carving Handicraft Industry from Wood Except Furniture Industry;
2. Kitchenware Industry From Wood, Rattan and Bamboo;
3. Wood, Rattan and Cork Industry (that is not elsewhere classified);
4. Wooden Goods Industry (Mouldings and Construction Material Components);
5. Wooden Ships for Marine Tourism and Fishing Industry;
6. Wooden Ship Tools and Equipment Marine and Fishing Industry.

Special case for the industry of Sawn Wood with capacity above 2,000 m^3/annum, as not only do they require a recommendation for sustainable raw material supply from the Ministry

[98] Premier Insight: The government launches 16th policy package. Indo Premier. 19 Nov 2018. Available at : https://www.indopremier.com/ipotgo/newsDetail.php?jdl=Premier_Insight___The_government_launches_16th_policy_package&news_id=346692&group_news=RESEARCHNEWS&taging_subtype=IPS&name=&section=

of Environment and Forestry (KLHK), but it also is reserved for SMEs. In other words, this business field requires the business player to have both approval from KLHK in material supply and of being commercializable for investment activities reserved for Small, Micro, and Medium-scale Enterprises and Cooperatives, Partnership, capital ownership, specific locations, special licences/ permits, and investors from the Association of Southeast Asian Nations (ASEAN) countries.

Figure 28: Plywood or plymill operational facility of PT.SLJ GLOBAL Tbk in Kalimantan Timur, Indonesia

Source: SLJ global Official Website 2019.

The government relaxed the above stated forestry industry sectors to be open for Foreign Investment (Indonesian: *Penanaman Modal Asing-PMA*) hence they no longer need to obtain the recommendations from the KLHK. On the other hand, foreign investors shall comply with the maximum percentage share requirement and partner with Micro, Small and Medium Enterprises (MSMEs), Cooperative (Indonesian: *Koperasi*) or Domestic Investment (PMDN).[99] This endeavour is intended to increase investment in the upstream sector of the wood products industry, which eventually will increase the efficiency of export production.

By creating the XVI Economic Policy Package, not only has the government performed a relaxation on the negative investment list (DNI) but it has also expanded the provision of tax holidays. This package is one of the government's strategies to face the global economy and attract foreign capital and investment into Indonesia. This format of the XVI Economic Policy Package aims at the medium - long term (national economic resilience). But there is also a short-term element to strengthen the confidence of the fund owner so that capital inflows (such as short-term capital inflows and Foreign Direct Investment) may enter.

Both coverage of the policy package will be harmonized, supporting each other. In addition, the government also evaluates the effectiveness of the DNI relaxation policy in 2018 whether or not the investment target goal is achieved. Finally, the government also regulates foreign exchange earnings from natural resource exports. The Minister of Finance also added that the previous tax holiday policy had attracted new investments. It is expected that with the XVI policy package, which will expand the sector and the Standard Classification of Indonesian Business Fields (Indonesian: *Klasifikasi Baku Lapangan Usaha Indonesia-KBLI*), the number of investments in Indonesia will increase.

[99] Pengusaha tak takut investor asing kuasai industri kayu. Alinea. 27 Nov 2018. Available at: https://www.alinea.id/bisnis/pengusaha-tak-takut-investor-asing-kuasai-industri-kayu-b1UAj9f6H

Table 5: Indonesia 2016 Negative Investment List Related to Wood Product Industry

2016 NEGATIVE LIST					
No.	Line of business	KBLI Code	Conditions		
			Reserved for SMEs	Partner-ship	Other
1	Carving handicraft industry from wood except furniture industry	16293	☑	-	
2	Kitchenware industry from wood, rattan and bamboo	16294	☑	-	
3	Wood, rattan, and cork industry that is not elsewhere classified	16299	☑	-	
4	Wooden goods industry (mouldings and construction material components)	16221	-	☑	
5	Wooden ships for marine tourism and fishing industry	30111 and 30120	-	☑	
6	Wooden ship tools and equipment marine and fishing industry	30113	-	☑	
7	Sawn timber industry with production capacity above 2,000 m^3/year	16101	☑	-	Recommendation of continued raw material supply from the Ministry of Environment and Forestry
8	Veneer industry	16214	-	-	
9	Plywood industry	16211	-	-	
10	Laminated Veneer Lumber (LVL) industry	16212	-	-	
11	Wood chip industry	16299	-	-	
12	Wood pellet industry	16295	-	-	
13	Exploitation of timber forest products of natural forest	02120	-	-	
14	Pulp industry (from wood)	17011	-	-	

Source: Presidential Regulation of the Republic of Indonesia No.44 2016

V. CONCLUSION

The wood products industry sector plays a very important role in stimulating other main business sectors in Indonesia. The government believes the successful rise of this industry will bring great fundamental changes in the structure of the country's economy. The Ministry of Environment and Forestry has stated that the country's wood industry must succeed in increasing contributions to the national economy. For example the national plywood industry was in its prime as a non-oil commodity export in 1987-1997 with the contribution of foreign exchange averaging USD 3.4 billion per year from an average export amount of 8.4 million m^3 per year. To get back to or even surpass this past glory, the government continues to push for efforts to strengthen the industry, especially in regard to productivity development and exports. These and the fact that law, incentives and legality system have improved, make foreign investors keener to conduct such business in the country.

In the last few years the trend of the business sector has continued to increase thanks to growing market demand and improvement from the country's law makers. This has resulted in an overall contribution of the forestry sector to national GDP that is dominated by the timber industry. As for the markets Asian, North American and European Union countries dominate the destination of Indonesian processed wood exports. The proportion in 2018 increased compared to 2017, which rose by 18.52%. Processed timber exports in 2018 are projected to reach USD 12 billion. Types of processed wood include prefabricated buildings, chip wood, shale, wood furniture, panels, paper, pulp, veneer, and woodworking.

Regulation-wise, one thing has importantly improved the industry. The FLEGT (Forest Law Enforcement, Governance, and Trade) is an EU policy on the problem of illegal logging and trade in forest products that occur globally. The Indonesia - European Union FLEGT - Voluntary Partnership Agreement negotiations officially began in 2007. After a lengthy discussion, Indonesia and the European Union agreed to begin full implementation of the FLEGT licence on 15 November 2016. With this agreement, Indonesia became the first country to obtain a FLEGT Licence from the European Union. The FLEGT licencing scheme is based on a mandatory verification system known as the Timber Legality Verification System (SVLK) developed by representatives of forestry stakeholders in Indonesia. The Indonesian SVLK guarantees that all wood products harvested or imported, transported, traded, processed and exported are subject to all national legislation.

One of the wood-product industries most important sectors for the country is the furniture industry as it uses 100% domestic raw materials, absorbs a lot of native labour, and the exports generate lucrative foreign exchange. Other essential industries include wood log, sawn timber, wooden board, wood for construction, crafts, pulp and paper and wood pellets.

Some challenges remain however. The Indonesian Wood Panel Association (APKINDO) revealed that several challenges regarding the difficulty of the wood products industry sector still exist. According to the organization, the dissolution of the timber export trade system and the opening of the log export tap became one of the causes. The opening of this log export gave an opportunity for similar industries in other countries, to live again. Then in 2001 the export faucet was again closed, but because it had already developed it became difficult to control, as a result the export of wood-products including plywood fell. Other challenges are the high production costs due to the increase in the prices of logs, fuel oil, electricity basic tariffs, plus regional minimum wages and other supporting materials also cause Indonesian wood-products to lose their competitive edge.

Relevant Contacts and Trade Fairs

A. Relevant Contacts

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B. Trade Fairs

Jogja International Furniture & Craft Fair Indonesia (JIFFINA) 2019

The successful JIFFINA continued its creativity by presenting the Fourth Edition of Jogja International Furniture & Craft Fair Indonesia. JIFFINA is the finest furniture exhibition in Yogyakarta Province and potentially in Indonesia. The event saw more more than 300 exhibitors from the Java-Bali region displaying their latest furniture designs and updated collections of furnishings and stylish designed crafts.

The "Four Day" exhibition attracted over 4,000 buyers globally as JIFFINA demonstrated that the combination of skilled craftsmen, superior materials, and advances in design have contributed to the strong growth that Indonesia's furniture industry has made on world markets.

By participating in the JIFFINA fair, industry players in Indonesia have the opportunity to display their high-quality furniture and craft products, thus enabling them to expand their share of the export market.

For details about the 2020 event, please check the following website on a regular basis.

Website: https://jiffina.co.id/

Venue: Jogja Expo Center, Yogyakarta, Indonesia.

Date: 13-16 March 2019

Figure 29: JIFFINA 2019 Poster

Source: JIFFINA Official website.

Indogreen Environment & Forestry Expo 2019

This is the largest Forestry and environmental exhibition in Indonesia, held annually since 2009. The expo is organized by the Ministry of Environment and Forestry (KLHK) in collaboration with PT. Wahyu Promo Citra.

For details of the 2020 event, please check the following website on a regular basis.

Website: https://www.indogreen-ina.com/

Venue: Celebes Convention Center Makassar, South Sulawesi Province, Indonesia.

Date: 4-7 April 2019

Figure 30: Indogreen Environment & Forestry Expo 2019 Poster

Source: Indogreen Official website.

IFMAC & WOODMAC 2019

The International Furniture Manufacturing Component Exhibition IFMAC & WOODMAC is an international trade fair concerning components for the furniture industry. This exhibition is the communication and information platform in the industry and offers the exhibiting companies the opportunity to make presentations to an audience of experts, while visitors can find in-depth and comprehensive information on the latest developments, trends, services and products in various fields.

The expo is the Only Dedicated Exhibition for Furniture and Woodworking Sector. Unique craftsmanship such as Indonesian furniture is in high demand, especially from global market.. IFMAC is the leading procurement source where 250 industry leaders will gather for three days exhibition to fulfil market demand. WOODMAC on the other hand stands as Indonesia's prime exhibition that introduces modern technology and equipment as well as top-grade tooling needs with focus on higher automation in woodworking processes.

Held alongside IFMAC, WOODMAC will provide great business opportunities that Indonesia's furniture and woodworking industries offer by optimising the use of high-tech machinery that are critical for the country's onward progress in these sectors. The expo targets various types of visitor such as from manufacturers, wholesalers, retailers and trading companies supplying/dealing. Both IFMAC and WOODMAC are the place where leading industry professionals in Indonesia gather to attract global buyers and market leaders to gain monumental transaction.

Website: https://www.ifmac.net/index.php

Venue: Jakarta International Expo (JI Expo) Kemayoran, Jakarta, Indonesia

Date: 9-12 October 2019

Figure 31: IFMAC 2019 Poster

Source: IFMAC Official Website

Trade Expo Indonesia 2019

For the past few years, Indonesia has achieved a positive trend of export growth in a variety of products and services to the global market, which has to be both maintained and further improved, because Indonesia is also competing with other countries in exploring global opportunities. To keep on improving national export performance, the Ministry of Trade has been proactive in inviting and bringing in buyers and investors to deal directly with Indonesian providers of export products and services at the annual tradeshow of Trade Expo Indonesia (TEI).

TEI is an international B2B-focused tradeshow that is designed to boost export product growth and export market expansion. The 34th TEI in 2019 explores the theme “Creating Products for Global Opportunities” to promote quality products made in Indonesia for the global market, develop business networks, investment and present showcases of Indonesian premium and best products. Along with the exhibition, TEI also present a series of parallel activities consisting of Trade, Tourism and Investment Forum, Business Matching, Business Counselling, Regional Discussion, Overseas and Local Trade Mission, Export Start-Up Competition and Talk Show. Trade Expo Indonesia 2019 presents numerous carefully-categorized products, encompassing Manufacturing Products, Strategic Industry Products, Creative Products & Services, Furniture, Food & Beverage Products, Craft and Lifestyle Products and Local Champion Products.

Website: http://www.tradexpoindonesia.com/

Venue: ICE BSD City, Tangerang, Indonesia.

Date: 16-20 October 2019.

Figure 32: Trade Expo 2019 Poster

Source: Trade Expo Official Website

Pulp & Paper Asia (Indo Paper) Exhibition and Conference 2019

The Fourth Edition of Pulp & Paper Asia is Indonesia's premier business event in the pulp, paper and board industry that offers key professionals in the paper business an unrivalled platform to source for machinery, equipment, services and supplies, and seek new technology, solutions and trade information, network and make contacts with the world's leading pulp and papermakers in the region annually.

In the past, the event has generated more than USD 250 million worth of potential transactions and attracted over 4,500 visitors from more than 10 countries during the two-day event. It has also featured over 80 exhibitors from more than 15 countries.

Website: http://www.pulppaperasia.com/

Venue: Jakarta International Expo (JI Expo) Kemayoran, Jakarta, Indonesia

Date: 16-17 October 2019

Figure 33: Indo Paper 2019 Poster

Source: Pulp Paper Asia Official Website 2019

IFEX 2020

Indonesia International Furniture Expo (IFEX) is the Largest Furniture & Craft Products Exhibition in the country. The exposition offers the largest range of specialty furniture and craft products which uncovers the perfect blend of good design and fine craftsmanship inspired by the natural wealth of Indonesia. It serves as the nation's biggest meeting places for buyers, traders, manufacturers and contract project purchasers where buyers can buy directly from the makers.

The outstanding success of 2019 edition confirms the stronger forte and popularity of Indonesian furniture in the global marketplace and has set the stage for an even greater show in March 2019. IFEX is now recognized as a must-attend furniture & craft show in Asia and forms a part of the Asia Furniture Show circle in March each year.

Being a flagship event for the Indonesian furniture industry, IFEX is Indonesia's stage to the world and strongly supported by the industry and government to facilitate Indonesia's furniture trade globally, by connecting Indonesia's furniture and craft manufacturers and exporters to thousands of trade buyers across the globe.

IFEX showcases the industry with the largest range of specialty furniture and craft products, perfectly blending innovative design and fine craftsmanship inspired by the wealth of Indonesia's natural resources. IFEX has become the real furniture marketplace serving the industry and opening business opportunities.

Website: https://ifexindonesia.com/

Venue: Jakarta International Expo (JI Expo), Jakarta, Indonesia

Date: 12-15 Mar 2020 (tentative)

Figure 34: IFEX 2019 Poster

Source: IFEX Official Website

Megabuild Indonesia 2020

Megabuild indonesia was launched in 2014, as a refreshed branding for Renovation and Construction Expo (RENEX) which had been held annually since 2002. With the new branding of MegaBuild Indonesia, part of the Reed Exhibitions portfolio of 34 building & construction exhibitions worldwide (www.reedexpo.com), MegaBuild Indonesia aims to be Indonesia's leading architecture, interior design and building exhibition and conference, organized by the industry for the industry.

Megabuild Indonesia 2020 will be featuring 6 dedicated segments to cater to the needs of the industry where the market converges, making MegaBuild Indonesia 2020 the perfect one-stop platform that showcase a full range of building materials, design solutions, systems and technology for the fast growing building & construction industry in Indonesia.

This event is supported under International Marketing Activities Programmeme (iMAP).

Website: https://www.megabuild.co.id/en-gb.html

Venue: Jakarta Convention Center (JCC), Jakarta, Indonesia.

Date: 19-22 March 2020 (Tentative).

Figure 35: Megabuild Indonesia 2019 Poster

Source: Megabuild Indonesia Official Website.

Abbreviations

APHI	Indonesian Forest Entrepreneurs Association.
APL	Area for other purposes (Indonesian: *Areal Penggunaan Lain*).
Bappenas	National Development Planning Agency / Ministry of National Development Planning of the Republic of Indonesia (Indonesian: *Badan Pembangunan Nasional / Kementerian Perencanaan Pembangunan Nasional Republik Indonesia*).
BPN	National Land Agency (Indonesian: *Badan Pertanahan Nasional*).
Dispenda	The local revenue agency (Indonesian: *Dinas Pendapatan Daerah*).
DR	Reforestation fund (Indonesian: *Dana Reboisasi*).
EUR	European Union Euro currency.
FLEGT	Forest Law Enforcement, Governance and Trade.
HA	Natural Forest (Indonesian: *Hutan Alam*).
HP	Production Forests (Indonesian: *Hutan Produksi*).
HTI	Industrial Plantation Forests (Indonesian: *Hutan Tanaman Industri*).
IDR	Indonesian Rupiah currency.
INCAS	Indonesian National Carbon Accounting System.
IPD	Import Promotion Desk.
IPK	Timber Utilization Permits (Indonesian: *Izin Pemanfaatan Kayu*).
IPKH	Upstream wood processing (Indonesian: *Industri Pengolahan Kayu Hulu*).
ISWA	Indonesian Carpentry and Wood Timber Industry Association.
IUPHHK	Forest Concession Companies.
KAN	National Accreditation Committee (Indonesian: *Komite Akreditasi Negara*).
KBLI	Standard Classification of Indonesian Business Fields (Indonesian: *Klasifikasi Baku Lapangan Usaha Indonesia*).
KLHK	Ministry of Environment and Forestry.

KPH Forest Management Units (FMU) or (Indonesian: *Kesatuan Pengelolaan Hutan*).

KPHK Conservation FMU or (Indonesian: *Kesatuan Pengelolaan Hutan Konservasi*).

KPHP Production FMU or (Indonesian: *Kesatuan Pengelolaan Hutan Produksi*).

KPPN Germ plasm conservation areas (Indonesian: *Kawasan Pelestarian Plasma Nutfah*).

KRC Mixed Jungle Woods (Indonesian: *Kelompok Rimba Campuran*).

Lartas Restrictions (Indonesian: *Larangan Terbatas*).

LPPHPL Sustainable Production Forest Management Assessment Institutions.

LS Surveyor Reports.

LVL Laminated Veneer Lumber.

PBB Property tax (Indonesian: *Pajak Bumi dan Bangunan*).

PEN National Export Development .

PHL Sustainable Forest Management (Indonesian: *Pengelolaan Hutan Lestari*).

PHPL Management Performance Assessments Sustainable Production Forest.

PKAPT Inter-island transport permit (Indonesian: Pedagang Kayu Antar Pulau Terdaftar).

PMA Foreign Investment (Indonesian: *Penanaman Modal Asing*).

PSDH Forest Resources Provision (Indonesian: *Provisi Sumber Daya Hutan*).

RKT Annual Operational Plan (Indonesian: *Rencana Kerja Tahunan*).

RKUPHHK Forest Management Plan (Indonesian: *Rencana Kerja Izin Usaha Pemanfaatan Hasil Hutan Kayu*).

RRI Rights and Resources Initiative.

SVLK Timber Legality Verification System.

THPB Artificial regeneration (Indonesian*: Sistem Tebang Habis Permudaan Buatan*).

TLAS Indonesian Timber Legality Assurance System.

UNCED United Nations Conference on Environment and Development.

USD United States Dollar currency.

VLK Timber Legality Verification.

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The EIBN is a partnership project between six European bilateral chambers of commerce in Indonesia (BritCham, IBAI, Dancham, EKONID, EuroCham, IFCCI) and two counterparts in Europe (EUROCHAMBRES, CCI Barcelona). The EIBN's aim is to promote Indonesia and ASEAN as high potential trade and investment destinations for companies from all EU28 member states – especially SMEs – and support them in their endeavour to explore the full market potential in Indonesia. The project was initiated and co-founded by the EU.

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