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MTIB

MASKAYU

MTIB LAUNCHES TANGGAM DESIGN CENTRE

LEAN INTRODUCTION TO THE TIMBER INDUSTRY

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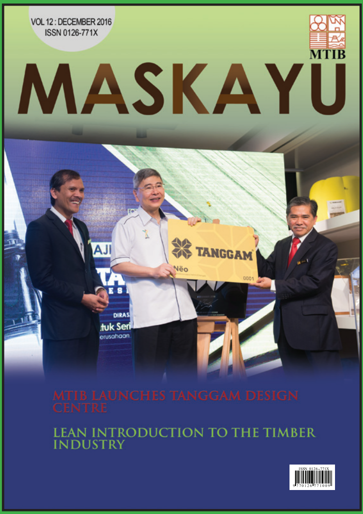

Cover *: YB Datuk Seri Mah Siew Keong, Minister of Plantation Industries and Commodities launched the TANGGAM Design Centre on 5 December 2016. Related story on pages 3 and 7.*

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MTIB LAUNCHES TANGGAM DESIGN CENTRE


TANGGAM designers posing with VIPs.

TANGGAM Design Centre or TDC is an MTIB initiative, supported by the government through allocation from the 10th Malaysia Plan. The main objective of TDC is to be able to provide design services and to be a design hub for designers, students, industries related or connected to design, and any other end-users who want to make use of the design facilities available at the premises. Located at Dataran Sunway, Kota Damansara, TDC is multi-functional and consists of three floors of 1,000 square feet each.

The ground floor is the display area for designers to showcase their products. At the first floor,TDC offers designers the opportunity to rent their own workspace in the form of studios or workstations, complete with facilities such as personal computers, printers, design software, land-lines and internet access. There are a total of 14 studios/ workstations available to be rented at a reasonable rate. At the same time, there are also post boxes available for rent.

The top floor consists of a resource centre and meeting rooms that can be converted into a mini conference room, complete with audio visual equipment for training, seminars, meetings and presentations. The conference room can accommodate up to 50 participants at any given time. The meeting rooms can cater up to 12 people each or they can be merged to become a bigger room for at least 30 people.

In more ways than one, TDC is a vision realised for MTIB, an avid advocate of world-class furniture designed and made by Malaysians. The Centre aims at developing a portfolio of exciting new designs that have international market appeal, manufactured and marketed by Malaysian furniture makers.

YB Datuk Seri Mah Siew Keong, Minister of Plantation Industries and Commodities launched TDC on 5 December. At the same time, MTIB also signed a Memorandum of Understanding (MoU) with Syarikat More Design Asia Sdn. Bhd. as the official retailer for TANGGAM products. During the ceremony, the Minister also introduced the TANGGAM Membership Programme to the designers and related parties. Three types of memberships are offered: Type one, “Neo” for TANGGAM designers and selected individuals, type two, “Hopea” for professionals and businesses and type three, “Dyera” for students.

TDC also aims to improve the quality of furniture designs in Malaysia to stimulate a change from the existing level of Original Equipment Manufacturer (OEM) towards the practice of Original Design Manufacturer (ODM) to finally achieve the status of Own Brand Manufacturing (OBM). MTIB believes that encouraging locally produced designers capable of attaining world-class reputation will facilitate the growth of the Malaysian furniture industry.

YB Datuk Seri Mah Siew Keong, Minister of Plantation Industries and Commodities signing a plaque to mark the official opening of TANGGAM Design Centre.

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INDONESIA
FAO Applauds Indonesia's Success With FLEGT Licensing Scheme

In a press statement posted on its website, FAO welcomed the first shipment of FLEGT-licensed timber to the European Union (EU). Indonesia is the first country to have successfully concluded all the requirements of the EUTR and through this has contributed to global efforts to stamp out illegal logging and promote the legal timber trade.

The FLEGT license opens up a 'green lane' for timber being imported to the EU, one of the world's largest consumers of timber products. Refer to FAO, Indonesia's FLEGT-licensing scheme is based on the country's Sistem Verifikasi Legalitas Kayu (SVLK), or timber legality assurance system, which ensures that timber has been harvested, transported, processed and traded according to Indonesian law.

Under the scheme, all wood-based product types listed in a Voluntary Partnership Agreement (VPA) between Indonesia and the EU and directly exported to European markets must now be accompanied by a FLEGT license issued by an Indonesian licensing authority. In turn, importers can place it on the market with no additional checks.

fordaq.com, 2 December

LAO PDR
Rise on Value of Wood, Furniture Products at Lao Wood Furniture Fair 2017

With the market continuously expanding in a rapid manner, the Lao Furniture Association (LFA) projects that the value of wood and furniture products at the Third Lao Wood Furniture Fair 2017 will rise. The Third Lao Wood Furniture Fair will be carried out in partnership with the Lao National Chamber of Commerce and Industry and the Trade and Product Promotion Department. The new furniture fair will be carried out from 7 to 15 January 2017 at the Lao-ITECC in Vientiane.

According to Vice President of the LFA Kongmala Phommalay, in 2015, the total value of products on display and to be retailed at the fair surpassed LAK10 billion (EUR1.10 million/USD1.23 million). The projected total value in 2016 should be between LAK15 billion and LAK20 billion.

Vientiane Times, 20 December

CHINA
Logistics Zone Specifically for Brazilian Timber Imports

A cooperation agreement had been signed between Dalian Port Group and Brazilian LNG Forestry Group to establish a logistics zone in Changxindao Port specifically for Brazilian timber imports.

The development of a timber logistics industry benefits from favourable conditions and an extensive area of land at Changxindao Port. Currently there are four berths at the Port with an annual capacity of 4.5 million tonnes. In addition there are eight fumigation chambers with a capacity of 1 million m^3 annually. According to the agreement a procurement platform, logistics trading venue and overseas forest resources storage area will be jointly built for imported timber from Brazil.

The area involved extends over 500,000 square metres and will support storage, processing, drying, logistics and trading of imported timber at Changxindao Port.

fordaq.com, 14 December

JAPAN
Housing Starts Grew in October 2016

Japan's housing starts in October increased 13.7% from a year before to 87,707 units, up for the fourth consecutive month, according to data from the Japanese Ministry of Land, Infrastructure, Transport and Tourism. Annualised housing starts decreased to 983,000 from 984,000 in the prior month. This was the lowest since January, when it totalled 873,000. The expected level was 964,000. Construction orders received by 50 big contractors increased 15.2% year-on-year in October but slower than the 16.3% expansion seen in September.

fordaq.com, 5 December

INDIA
Procedures for Wood Industry License Applications Streamlined

New regulations have come into effect making it easier and faster for enterprises to obtain manufacturing licenses. The changes are contained in the Wood Based Industries (Establishment and Regulation) Guidelines, 2016 as proposed by the Ministry of Environment, Forest and Climate Change. These Guidelines are applicable in all States and territories.

Prior to the introduction of these new guidelines

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to get a license companies had to apply to the Centrally Empowered Committee (CEC) located in New Delhi. This had to be done through individual state/territory Forest Departments. This often had to be followed up with costly visits to the capital.

Each State and Territory is required to constitute a State Level Committee (SLC) to implement new regulation and SLCs are required to meet at least once every three months. SLC will include one invited representative from industry nominated by the state sawmillers association and required to assess the availability of log raw materials for every mill once every five years and decide whether the mill should continue at its present location or move to an area with a better supply of logs.

To determine the log raw materials available in a given area, the SLVs will study in collaboration with institutes/universities which will take into account the volume of wood available locally as well as that coming across state boundaries. In the North Eastern States of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim wood based industries shall only be permitted within industrial estates. The mills utilizing only imported logs and the SLC will determine the impact of these mills on the viability of mills using domestic logs and if necessary move to protect these mills.

fordaq.com, 5 December

MIDDLE EAST
Regional Flooring, Carpet Market to Record USD10 Billion Revenue by 2026

A report by premier consulting services firm Future Market Insights stated that by 2026, the flooring and carpet market in the Middle East region will grow at a compound annual growth rate (CAGR) of more than 5% to record USD10 billion (EUR8.90 billion) in revenue. The "Flooring and Carpet Market: Middle East Industry Analysis and Opportunity Assessment, 2016-2026" report also revealed that the residential market will improve in 2016. With over 40% of the share by end-2016, the nylon segment will dominate the market.

It added that the growth of the Middle East flooring and carpet market will also be driven by other material segments of the market. The report also showed that Turkey, Oman, Bahrain, Kuwait, Iran, Egypt and the UAE will experience a good development in the market, with Kuwait and Qatar to become the major contributors to the growth of the region's flooring and carpet market. The market periphery of flooring and carpet will be affected by Qatar, which will host FIFA World Cup 2022.

Gulf Daily News, 14 December

GERMAN
Total Turnover of Furniture Industry Up

The German furniture industry increased its turnover by 2.5% in September 2016 vis à vis the comparative month of the preceding year to €1.702 billion. As in the preceding month, domestic as well as export business contributed to this increase. According to figures compiled each month by the German Furniture Industry Association (VDM) on the basis of statistics of the Federal Statistical Office, at €539.6 million export turnover was 3.6% above the preceding year's level in September. The domestic turnover increased by 2.0% to €1.162 billion. In August, at +10% in total (+8.4% domestic and +14.6% export), significantly higher rates of increase were recorded in each case. All subdivisions of the furniture industry contributed to this increase.

EUWID.com, 22 December

UNITED KINGDOM
Application Round for Woodland Grant Scheme to Open in January

A new application round for a grant scheme to help landowners and farmers in England create new woodland is set to open on 3 January and run until 1 March 2017. The Woodland Creation Grant will operate under the Countryside Stewardship scheme. The new woodland must contribute to meet diversity targets, tackle diffuse water pollution or reduce flood risk in order to receive support. The minimum area per application is 3 hectare. A supporting maintenance grant is also being offered, with GBP200 (EUR236.28/USD265.39) per hectare available for ten years. The woodland must feature native species but can include some non-native or advancing/honorary species. The capital grant is paid per item, with a GBP6,800 per hectare cap for capital items covering protection and planting.

Farmers Weekly, 12 December

BRAZIL
Rise in Wood Products Exports

In October 2016 Brazilian exports of wood-based products (except pulp and paper) increased 5.9% in value compared to October 2015, from USD210.0 million to USD222.4 million.

Pine sawnwood exports increased 10.9% in value between October 2015 (USD25.7 million) and

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October 2016 (USD28.5 million). Export volumes increased 20% over the same period, from 121,900 m^3 to 146,700 m^3. In contrast, tropical sawnwood exports fell 18% from 31,900 m^3 in October 2015 to 26,100 m^3 in October 2016. The value of exports fell also but by a higher margin dropping almost 20% from USD15.1 million to USD12.1 million over the same period.

In October, plywood exports increased year on year. Pine plywood exports increased 14% in value in October 2016 in comparison to October 2015, i.e. from USD30.2 million to USD34.5 million. Over the same period export volumes increased almost 19% from 109,400 m^3 in October 2015 to 129,800 m^3 October this year.

There was a big jump in tropical plywood exports in October as an 89% increase in the volume of exports was achieved (7,500 m^3 in October 2015 to 14,200 m^3 in October 2016). The value of tropical plywood exports also rose (approx. 55%) from USD3.6 million in October last year to USD5.6 million. However, the value of exports of wooden furniture fell in October this year from USD36.7 million in October 2015 to USD35.6 million this October.

Fordaq.com, 6 December

CHILE
Wood Products Export to Shrink in 2016

Chilean forestry exports will total Chile Peso 5.3 billion by value in 2016, 3% less than last year, as supply has increased and the economies of key export markets remain sluggish, an industry body said on Tuesday. The Chilean Wood Corporation (CORMA) said in a statement that exports in 2017 would remain steady or rise slightly to the Chile Peso5.3 billion to Chile Peso5.4 billion range.

CORMA predicted prices for long fiber products would begin to rise in the second half of 2017. Short fibre products would likely end 2017 at price levels similar to 2016, CORMA said, as new projects expand production. Chile's forest products industry, the nation's second biggest by exports after copper mining, is led by Empresas Copec subsidiary Arauco, Empresas CMPC, and Masisa.

maritimeprofessional.com, 27 December

CAMEROON
Increase Tax for Log Exports

The log export tax from Cameroon might increase to 20% from early 2017, if the Parliament adopts the proposal made by the government in the 2017 Finance bill currently under review without any changes, Business in Cameroon informs. The new rate would thus increase by 2.5%, while it's currently at 17.5%.

This projected increase can be explained in two ways. First of all, with the continuous drop in oil revenues, the Cameroonian government is planning to create new income sources or increase the contribution of existing sources, to replenish a treasury increasingly called upon due to the major ongoing projects in the country and additional expenditure incurred by the fight against Boko Haram, as reported by Business in Cameroon.

Thus, wood would be the adequate product to boost customs revenues. During 2015, there was a global volume of 938,455 tonnes of wood logs export from Cameroon to the world. Second, the increase on the log export tax would be like a government strategy meant to encourage logging operators to move into local processing. This could also create added value for the entire national economy, as well as it could be a source of employment.

fordaq.com, 15 December

SOUTH AFRICA
Construction Industry Continues to Face Tough Times

According to The Pricewaterhouse Coopers (PwC) fourth edition of 'South African Construction, 2016' highlights some of the trends in the construction industry. In a press release, "the tough economic conditions in 2016 did not spare the South African construction industry, with lower revenues, decreased spend on projects and a long term industry settlement." The press release continues saying there was some improvement in company performance in the later part of this year which has helped profitability and market performance.

Other analysts suggest the longer term future of the construction sector will be boosted through the government's National Development Plan and when increased social infrastructure spending kicks in. An additional boost for the medium term will be construction work for the 2022 Commonwealth Games. However, challenges will remain in the South African construction industry and calls have been made for South African companies to look for opportunities in other African markets.

Fordaq, 11 November

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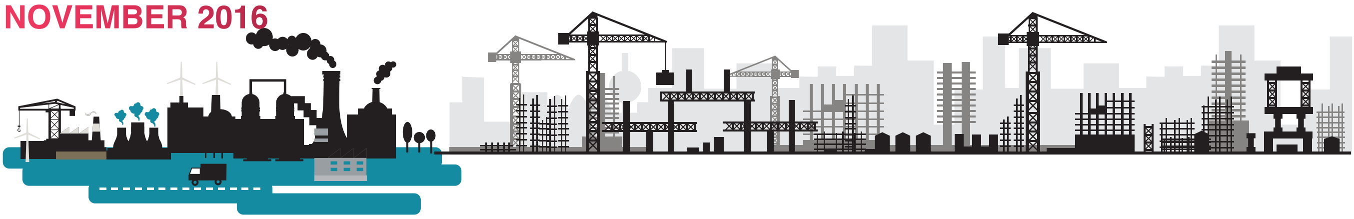
YB Datuk Seri Mah Siew Keong being brefed by YBhg Dato' Dr. Jalaluddin Harun, MTIB Director-General (right) on furniture designed by TANGGAM designers at TDC.

Encik Shahrul Anuwar Mohamed Yusouf, TANGGAM designer explaining rapid prototyping to the Minister (right).

In fact, these designers have been exposed to many international furniture fairs under the sponsorship of MTIB. The registration of MTIB's TANGGAM Trade Mark or label will protect the designs produced by these internationally acclaimed local young designers. This effort is hoped to provide sufficient protection to ensure that the intellectual properties being developed are relevant with current global economic development and technology enhancement.

NOVEMBER 2016



Malaysia: Westports Books RM1.5 Billion Revenue

For the nine months until 30 September 2016, the revenue of Malaysia-based Westports Holdings (Westports) increased year-on-year from RM1.20 billion (EUR260.68 million/USD292.79 million) to RM1.5 billion. Net profit of the port operator also improved from RM372 million to RM482 million. Additionally, Westports' net profit hiked 16.15% to RM151 million.

Source: The Star, 11 November

Malaysia: Better Result Posted by Bintulu Port in First Nine Months

Bintulu Port Holdings (Bintulu Port) of Malaysia registered a 5.30% year-on-year increase in its revenue from RM396.32 million (EUR86.09 million/ USD96.70 million) to RM417.50 million during the nine months ended 30 September 2016, while its net profit also improved 24.70% from RM85.53 million to RM106.68 million. Meanwhile, the revenue and net profit reported by Bintulu Port for July-September 2016 alone stood at RM138.43 million (up 5.80%) and at RM 36.61 million (up 25.20%), respectively.

Source : The Edge Financial Daily, 22 November

Finland: Traffic in Port of HaminaKotka Up by Some 2% in January-October 2016

Traffic in the Port of HaminaKotka in Finland grew by roughly 2% to approximately 11 million tonnes in January-October 2016 from January-October 2015. Exports increased by 2.6% and imports by 0.4% whilst transit traffic fell by 7.8%. Container traffic increased by 14.1% to 524,909 TEUs.

Source: Kymen Sanomat, 8 November

Canada: Port of Montréal's Viau Sector Sees New Terminal Inaugurated

Port of Montréal's Viau sector, Canada, has seen its new container terminal inaugurated by Marc Garneau, Minister of Transport. The port's capacity has been boosted by 450,000 TEUs as a result, yet the completion of the second phase of the works in the coming years is set to increase the Viau's sector capacity to 600,000 TEUs and that of the port's to 2.1 million TEUs overall. The scheme is part of a bigger project aimed at optimising the port's overall capacity, which has seen USD43.60 million (EUR38.82 million) in funds from Canada's Government via the National Infrastructure Component of the New Building Canada Fund. Up to USD27.2 million will be offered to the development of the new container terminal.

Source: Railway Pro, 22 November

Shipments of Timber and Timber Products through Ports in Peninsular Malaysia, November 2016

Products	Port Klang		Kuantan		Pasir Gudang		Tanjung Pelepas		Penang		Total all Ports m^3	% Change Nov 2016/ Oct 2016
	m^3	% Change Nov 2016/ Oct 2016	m^3	% Change Nov 2016/ Oct 2016	m^3	% Change Nov 2016/ Oct 2016	m^3	% Change Nov 2016/ Oct 2016	m^3	% Change Nov 2016/ Oct 2016		
Sawntimber	63,345	-2	12,073	204	1,858	12	496	15	12,627	2	90,399	8
MDF	32,156	-3	290	-47	8,726	2	8,875	28	18,808	-9	68,855	-1
Mouldings	11,492	9	286	24	1,741	31	329	-45	1,983	-4	15,831	7
Plywood	6,724	-21	0	0	0	0	94	-23	5,270	-43	12,088	-32
Veneer	1,210	142	3	100	144	31	8	-27	1,216	16	2,581	54
Particleboard	53,034	38	265	-44	427	23	0	0	1,459	-57	55,185	30
TOTAL	**167,961**	**8**	**12,917**	**147**	**12,896**	**7**	**9,802**	**21**	**41,363**	**-15**	**244,939**	**7**

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Russia: FESCO Reports on Preliminary Operating Results for Q1-Q3 2016

The transport group FESCO has published its preliminary operating results for January-September 2016. The port division of the group (the stevedoring company Commercial Port of Vladivostok, CPV) increased transhipment of general cargoes by 17.6% year on year, to 1.81 million tonnes. Container turnover fell by 9.5% to 234,600 TEUs.

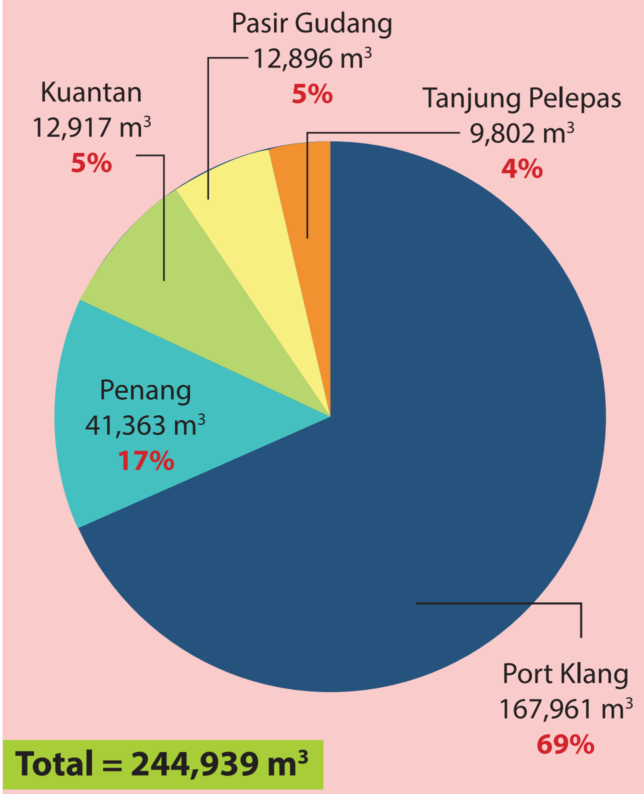
Source: Press release, FESCO, 23 November

Mexico: Handling of TEUs Increased by 2.2% in January-October 2016

The Mexican Secretariat of Communications and Transport (SCT) has informed that national ports handled 4.71 million TEUs between January and October 2016, which represented a 2.2% growth compared to 4.61 million units posted in the same period of 2015. Ports situated on the Pacific coast transported 3.27 million TEUs during the analysed interval, against 3.20 million reported in January-October 2015 (+2%). Manzanillo terminal registered 2.13 million TEUs (-0.4%) and Lazaro Cardenas handled 939,899 containers (+7.4%). Meanwhile, ports in the Gulf of Mexico recorded a growth of 2.7%, with 1.44 million TEUs during the period of reference in comparison with 1.40 million recorded the previous year. A total of 798,659 TEUs were handled at Veracruz port (+1.9%), whilst Altamira registered an advance of 4%, reaching 569,027 TEUs in January-October 2016.

Source: T21, 28 November

Timber Shipment through Ports in Peninsular Malaysia, November 2016



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Total exports of timber and timber products from Peninsular Malaysia in November 2016 increased 0.2% in value to RM1.9 billion over the previous month. However, cumulative export for the period of January to November decreased slightly 1% in value to RM20.0 billion against the same corresponding period in 2015.

SAWNTIMBER

Export of sawntimber in November 2016 increased 1% in volume however decreased 4% in value to 177,387 m^3 with a value of RM295.6 million as compared to the previous month. Cumulative export for the first 11 months of 2016 decreased 5% in volume however increased 6% in value to 1,768,452 m^3 totalling RM3.0 billion over the previous corresponding period.

Export of sawntimber to the EU for the month declined 53% to 5,958 m^3 from 12,646 m^3 in the previous month. Export to the Netherlands decreased 57% to 2,195 m^3 followed by Belgium at 8% to 1,401 m^3. Similarly, the UK and Germany reduced purchases by 79% to 526 m^3 and 65% to 681 m^3 respectively. Export to France and Italy declining by 48% to 296 m^3 and 4% to 307 m^3 respectively, due to slower demand from these markets towards the end of the year.

Total exports to West Asia increased 33% to 33,439 m^3 from 25,220 m^3 recorded in the previous month. Export to Yemen improved by 217% to 14,931 m^3 followed by Saudi Arabia at 39% to 2,222 m^3. In the meanwhile, export to the UAE and Oman decreased 29% to 4,892 m^3 and 9% to 5,969 m^3. Similarly, export to Bahrain decreased 67% to 744 m^3 from 2,271 m^3 recorded in the previous month.

Buying from ASEAN increased 13% to 66,404 m^3 from 59,006 m^3 registered in the previous month. Export to Thailand, a major buyer of sawntimber from Malaysia decreased 8% to 38,386 m^3 from 41,830 m^3 in the previous month. However, export to Singapore and the Philippines increased by 10% to 9,006 m^3 and 124% to 16,992 m^3 respectively.

Shipments to East Asia decreased 3% to 42,486 m^3 from 43,707 m^3 in the previous month. Similarly, export to China declined 7% to 25,527 m^3 followed by South Korea at 15% to 3,199 m^3. In the meanwhile, export to Taiwan and Japan increased 10% to 7,785 m^3 and 5,738 m^3 respectively.

Elsewhere, exports to the US decreased 39% to 519 m^3 whilst intake by Australia increased 12% to 1,147 m^3. On the other hand, demand from South Africa decreased 85% to 1,072 m^3 from 7,200 m^3 in the previous month.

The average FOB price of sawntimber decreased 5% to RM1,667 per m^3 from RM1,755 per m^3 in the previous month. Price of Dark Red Meranti (DRM) decreased 10% to RM1,545 per m^3 from RM1,708 per m^3 in the previous month. Similarly, price of DRM to the Netherlands decreased 4% to RM3,165 per m^3 from RM3,298 per m^3 in the previous month. Keruing was traded at RM1,428 per m^3, a decrease of 5% from RM1,509 per m^3 in the previous month.

PLYWOOD

Export of plywood in November increased 4% in volume and 5% in value to 224,156 m^3 valued at RM382.5 million as compared to the previous month.

Total exports to the EU decreased by 52% to 5,368 m^3. Similarly, exports to Belgium, Netherlands and the UK declined by 40%, 42% and 56% to 132 m^3, 467 m^3 and 3,877 m^3 respectively whilst Denmark, Germany and Italy did not make any purchases. Conversely, France and Ireland improved their intake by 1% and 30% to 212 m^3 and 680 m^3 respectively.

Exports to ASEAN region decreased as Brunei, Indonesia, Thailand and Philippines intake of plywood declined by 39%, 53%, 23% and 52% to 667 m^3, 28 m^3, 4,866 m^3 and 2,288 m^3 respectively. However, Singapore increased its intake by 3% to 2,566 m^3. In East Asia, Hong Kong, Japan, South Korea and Taiwan increased their intake by 1%, 16%, 46% and 100% to 5,032 m^3, 100,224 m^3, 33,950 and 16,712 m^3 respectively. On the other hand, China reduced its intake by 35% to 2,395 m^3.

Overall exports to West Asia decreased by 15% as compared to the previous month. Similarly, shipments to the UAE, Bahrain, Kuwait and Yemen reduced by 54%, 10%, 11% and 41% to 1,527 m^3, 582 m^3, 257 m^3 and 13,852 m^3 respectively. Meanwhile, Saudi Arabia and Qatar increased their intake by 9% and 7% to 1,070 m^3 and 376 m^3 respectively.

Elsewhere, exports of plywood to the US and Turkey increased by 23% and 129% to 12,937 m^3 and 256 m^3 respectively. However, South Africa, Mexico, Canada, Australia and New Zealand reduced their intake by 95%, 12%, 0.2%, 55% and 29% to 43 m^3, 3,622 m^3, 463 m^3, 2,495 m^3 and 103 m^3 respectively whilst Algeria and Mauritius did not make any

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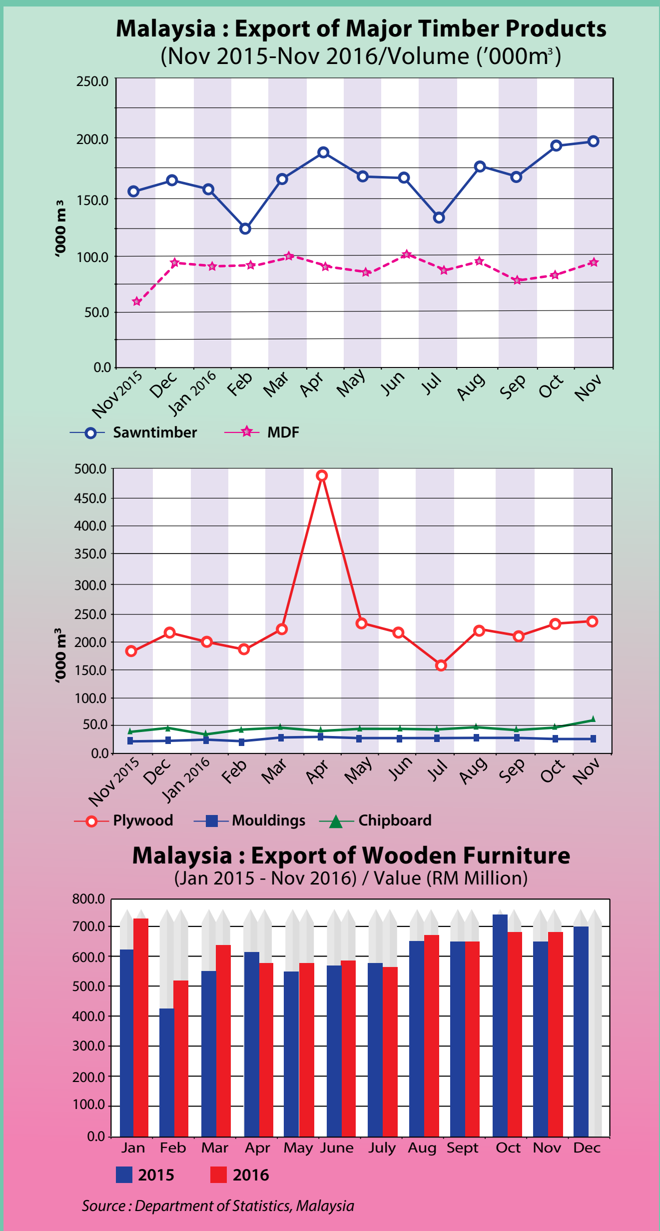
purchases.

The FOB price of plywood increased by 1% to RM1,706 per m³ from RM1,687 per m³ in the previous month.

VENEER

Exports of veneer for November 2016 showed a decrease of 15% in volume and 13% in value to 17,974 m³ at RM28.1 million as compared to the previous month. Similarly, exports to Taiwan, Singapore, Philippines, India and Australia declined by 67%, 24%, 13%, 10% and 23% to 3,285 m³, 32 m³, 436 m³, 286 m³ and 115 m³ respectively whilst Chile, Canada and Italy did not make any purchases.

Oppositely, China, South Korea and Viet Nam increased their intake by 156%, 25% and 90% to 3,170 m3, 9,435 m³ and 59 m³ respectively.



NOVEMBER 2016

The FOB price of veneer increased to RM1,564 per m³ from RM1,524 per m³, an increase of 3% from the previous month.

MEDIUM DENSITY FIBREBOARD (MDF)

Malaysia's exports of MDF for November showed an increase of 11% in volume and 10% in value from the previous month. Export totalled 92,449 m³ at RM104.5 million.

Exports to East Asia registered an increase of 16% to 13,936 m³ from 12,050 m³ in the previous month. Demand from China (including Hong Kong) and Japan increased by 17% to 261 m³ and 26% to 12,979 m³ respectively. However, Taiwan showed a marginal decreased of 2% to 442 m³ and South Korea reduced its intake by 76% to 254 m³.

Meanwhile exports to West Asia in November recorded a positive growth with an increase of 4% in volume to 38,520 m³ from 37,233 m³ in the previous month. Export to Saudi Arabia and Iran recorded an increase of 24% to 8,691 m³ and 60% to 7,787 m³ respectively, whilst Lebanon and Syria resumed their intake. On the other hand, Oman, Kuwait, the UAE, Bahrain, Jordan and Qatar reduced their imports by 1% to 1,948 m³, 17% to 5,429 m³, 34% to 8,834 m³, 46% to 359 m³, 47% to 288 m³ and 66% to 529 m³ respectively.

Furthermore, export to South Asia recorded positive growth by 0.2% in volume to 12,807 m³ from 12,785 m³ in the previous month. India and Bangladesh increased their intake by 2% to 4,308 m³ and 94% to 1,991 m³ respectively. Meanwhile, exports to Pakistan and Sri Lanka decreased by 4% to 5,095 m³ and 36% to 1,413 m³ respectively.

Export to the UK increased by 30% to 266 m³. Likewise demand from Australia and Mauritius increased by 39% and 69% to 2,919 m³ and 214 m³ respectively. However, demand from South Africa and the US decreased by 5% to 144 m³ and 36% to 1,684 m³ respectively.

In ASEAN, total export to ASEAN region for the month showed an increase of 36% to 18,572 m³ from 13,695 m³ in the previous month. Exports to Indonesia, Viet Nam, Philippines and Singapore increased by 4%, 36%, 81% and 213% to 2,966 m³, 12,201 m³, 3,113 m³ and 266 m³ respectively.

MOULDINGS

Exports of mouldings for the month increased by 1% in volume but decreased by 2% in value to

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LOGS

The supplies of logs were reported to be sufficiently available and accessible for the month. The average domestic prices of logs for most of the species were still hovering at last month's level.

Log prices for the species of Chengal, Balau and Merbau stood firm at RM4,000 per tonne, RM3,000 per tonne and RM2,700 per tonne respectively. Similarly, prices of Keruing, Kempas and Kapur continued to be traded at RM1,430 per tonne, RM1,670 per tonne and RM1,700 per tonne respectively. Prices of Dark Red Meranti and Red Meranti stood at RM1,900 per tonne and RM1,700 per tonne respectively. On the other hand, logs prices for Mixed Heavy Hardwood charted at RM958 per tonne whilst prices of Mixed Light Hardwood remained at RM1,200 per tonne.

SAWNTIMBER

The average sawntimber prices in the domestic market continued to be firm for most of the species.

The sawntimber prices of Chengal, Balau and Merbau maintained at RM6,638 per m^3, RM3,178 per m^3 and RM3,849 per m^3 respectively. Similarly, prices for Keruing and Kempas were traded at RM1,328 per m^3 and RM2,196 per m^3 respectively. Meanwhile, prices for Dark Red Meranti and Yellow Meranti sawntimber stood at RM2,013 per m^3 and RM1,342 per m^3 respectively. Sawntimber prices of Mixed Heavy Hardwood and Mixed Light Hardwood charted at RM794 per m^3 and RM1,130 per m^3 respectively.

PLYWOOD

The supply of plywood to the domestic market remained adequate for the month under review. Plywood of 4mm, 6mm, 9mm and 12mm of thicknesses were continued to be traded at RM14.60, RM22.00, RM34.50 and RM41.50 per piece respectively.

MEDIUM DENSITY FIBREBOARD (MDF)

In the domestic market, the supply of MDF was reported sufficient to cater the local market although the export market reported to be challenging. MDF prices remained stable at last month's level. MDF of 4mm, 6mm, 9mm and 12mm of thicknesses were sold at RM12.10, RM15.80, RM21.70 and RM28.10 per piece respectively.

INTRA-MALAYSIA TRADE* - NOVEMBER 2016

The shipments of sawntimber from Sabah to Peninsular Malaysia increased tremendously by 112.7% in volume to 319 m^3 from 150 m^3 recorded last month valued at RM699,000. Export of plywood stable at 9,572 m^3 worth RM16.2 million. Meanwhile, no exports of veneer recorded for the month.

Export of sawntimber from Sarawak to Peninsular Malaysia decreased by double digits or 22.2% to

INTRA-MALAYSIA TRADE – NOVEMBER 2016

From	Products	OCT 2016		NOV 2016		% Change in Volume Nov 2016 / Oct 2016	% Change in Value Nov 2016 / Oct 2016
		Volume (m^3)	Value (RM '000)	Volume (m^3)	Value (RM '000)		
SABAH	Logs	0	0	0	0	0	0
	Sawntimber	150	253	319	699	113	176
	Plywood	9,594	16,045	9,572	16,237	0	1
	Veneer	87	41	0	0	-100	-100
SARAWAK	Logs	0	0	0	0	0	0
	Sawntimber	1,142	1,194	889	959	-22	-20
	Plywood	7,347	9,876	8,175	10,442	11	6
	Veneer	7,416	10,130	3,822	5,351	-48	-47

Source : Department of Statistics, Malaysia

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889 m^3, valued at RM959,000. The shipments of plywood, however, increased by 11.3% in volume to 8,175 m^3 worth at RM10.4 million. Similarly, export of veneer fell sharply by 48.5% to 3,822 m^3 charting RM5.4 million.

No intra trade from Peninsular Malaysia to Sabah and Sarawak was recorded in November 2016.

** Source: Department of Statistics, Malaysia*

*AVERAGE DOMESTIC PRICES OF LOGS, SAWNTIMBER, PLYWOOD AND MDF IN PENINSULAR MALAYSIA NOVEMBER 2016 (VALUE IN RM)

SPECIES	LOGS/tonne	SAWNTIMBER/m^3		
	18" UP	GMS	STRIPS	SCANTLINGS
HEAVY HARDWOOD				
Chengal	4,000	6,638	7,062	8,828
Balau	3,000	3,178	3,249	3,531
Red Balau	2,500	2,987	3,037	3,213
Merbau	2,700	3,849	3,884	3,955
Mixed Heavy Hardwood	958	794	851	975
MEDIUM HARDWOOD				
Keruing	1,430	1,328	1,412	2,203
Kempas	1,670	2,196	2,295	2,331
Kapur	1,700	2,248	2,260	2,331
Mengkulang	1,100	1,483	1,554	1,624
Tualang	1,400	2,472	2,542	2,585
LIGHT HARDWOOD				
Dark Red Meranti	1,900	2,013	2,119	2,707
Red Meranti	1,700	1,907	1,977	1,977
Yellow Meranti	1,200	1,342	1,448	1,554
White Meranti	1,070	2,119	2,189	2,260
Mersawa	1,400	1,483	1,518	1,554
Nyatoh	900	777	812	847
Sepetir	1,100	1,283	1,335	1,469
Jelutong	1,100	1,518	1,554	1,730
Mixed Light Hardwood	1,200	1,130	1,222	1,236

MALAYSIAN RUBBERWOOD *Hevea brasiliensis*	LOGS/tonne	SAWNTIMBER/m^3			
		1" X 1"	2" X 2"	3" X 3"	4" X 4"
	150	745	1,000	1,022	1,127

PLYWOOD 4' X 8'	**4mm**	**6mm**	**9mm**	**12mm**
(RM per piece)	14.60	22.00	34.50	41.50
MDF 4' X 8'	**4mm**	**6mm**	**9mm**	**12mm**
(RM per piece)	12.10	15.80	21.70	28.10

Note: Log prices ex-batau. Sawntimber, plywood, MDF and Malaysian Rubberwood (*Hevea brasiliensis*) prices ex-mill

*** Prices are only indicative**

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18,621 m³ and RM61.7 million respectively. However, cumulative exports for the period of November 2016 decreased by 11% in volume and 2% in value to 215,854 m³ and RM744.0 million respectively as compared to the previous corresponding period in 2015.

Exports to the EU for the month recorded at 5,633 m³, a decrease of 18% compared to the previous month. The Netherlands, Germany and the UK reduced their purchases by 29%, 6% and 27% to 2,644 m³, 994 m³ and 401 m³ respectively, whilst, Italy did not make any purchases. On the other hand, Belgium increased its purchases by 17% to 542 m³.

Exports to ASEAN region increased as Viet Nam and Indonesia intake of mouldings increased by 149% and 106% to 115 m³ and 33 m³ respectively. However, Singapore reduced its purchases by 14% to 1,687 m³.

Meanwhile, exports to Japan, South Korea, China and Taiwan increased their intakes by 7%, 56%, 54% and 43% to 1,850 m³, 1,519 m³, 1,353 m³ and 166 m³ respectively. However, exports to Hong Kong decreased by 31% to 187 m³ compared to the previous month.

Elsewhere, exports to Australia and the US increased by 3% and 49% to 3,333 m³ and 1,283 m³ respectively. However, export to Canada decreased by 20% to 83 m³.

FOB unit value reduced to RM3,313 per m³, a decreased of 3% compared to the previous month.

BUILDERS JOINERY AND CARPENTRY (BJC)

Total BJC cumulative exports from November 2016 increased 10% to RM1.09 billion as compared to RM991.9 million in the corresponding period last year. Export to the EU increased 9% to RM292.8 million. Similarly, exports to the UK, Germany, Denmark, France, Turkey and Italy increased by 9%, 231%, 3%, 2%, 144% and 81% to RM161.1 million, RM25.3 million, RM18.5 million, RM17.6 million, RM6.3 million and RM5.3 million respectively, whilst Netherlands imports increased by 13 folds to RM4.7 million. However, exports to Belgium and Sweden decreased by 14% and 70% to RM42.0 million and RM4.4 million respectively.

In Asia, exports to Thailand, Taiwan, Saudi Arabia, Qatar, South Korea and Bahrain decreased by 3%, 13%, 52%, 63%, 20% and 99% valued at RM31.4 million, RM41.8 million, RM2.9 million, RM2.7 million, RM2.4 million and RM20,000 respectively. However, exports to Singapore, Japan, India, Pakistan, Viet Nam and the UAE grew 11%, 6%, 4%, 20%, 16% and 0.3% to RM131.3 million, RM71.7 million, RM61.9 million, RM46.1 million, RM34.6 million and RM3.9 million respectively.

Exports to Australia and the US increased by 27% and 13% to RM187.8 million and RM98.1 million respectively. However, South Africa and Mauritius reduced their purchases by 16% and 46% to RM16.5 million and RM387 thousand respectively.

FURNITURE

Malaysia's exports of wooden and rattan furniture for the period under review in 2016 picked up momentum by 4% increment compared to the corresponding period of 2015. Total shipments recorded RM6.9 billion against RM6.6 billion in 2015.

Purchase of wooden furniture from Malaysia for the January to November 2016 duration increased by 4% from RM6.6 billion to RM6.8 billion compared to the corresponding period in 2015. Demand for wooden furniture for the month was positive across most major markets. Demand from the US remained steady as exports rose 5% from RM2.3 billion to RM2.4 billion. Consumption by Japan grew by 6% to RM614.9 million, whereas intake by Australia improved by 16% to RM562.8 million.

Similarly, demand from Singapore and the UK recorded an increase of 22% to RM435.1 million and 16% to RM388.7 million respectively. However, Canada, the UAE and Saudi Arabia reduced their intake of wooden furniture by 13%, 12% and 25% to RM240.3 million, RM179.4 million and RM141.6 million respectively.

On the other hand, imports by India increased 1% to reach RM139.2 million. Likewise, the Philippines also increased its imports by 29% to RM145.4 million. Conversely, demand from South Korea recorded a slight drop of 2% to RM112.2 million.

Meanwhile, exports of rattan furniture increased by 38.0% to RM38.3 million from RM27.8 million in the corresponding period in 2015. France increased its consumption by 16 folds to RM5.8 million. Demand from Singapore also increased by 1% to RM6.2 million. Similarly, imports by Australia, India and China grew at 123%, 45% and 101% to RM4.4 million, RM4.4 million and RM1.0 million respectively. Imports by the UK increased by 6% to RM2.8 million. However, demand from the US and Thailand weakened by 50% and 52% to RM852,000 and RM609,000 respectively.

MTA TIMBER WORKSHOP 2016

Attendees during the workshop.

Forestry in Malaysia is divided into three regions: Peninsular, Sabah and Sarawak. Each of them has its own policies, laws and regulations to ensure a sustainable supply of timber and timber products. However, lack of integration between the three regions has caused the timber industry in each region to develop independently and create niche products which appeal to certain markets. With the global trading market being driven by demand for legal source of timber and sustainable management of timber, it is becoming increasingly competitive. Therefore, for the purpose of ensuring inclusiveness and uniformity, timber industry players from all the three regions need to work together and aim towards a more sustainable forest management.

To ensure those targets were achieved between the three regions, Malaysian Timber Association (MTA) organised the MTA Timber Workshop 2016. The workshop was held in Kuching, Sarawak on 13 December with the theme “One Nation, One Timber Industry”. The objective of this workshop was to facilitate discussion and sharing of knowledge from industry players, policy makers and timber agencies and to encourage key stakeholders from all three regions to discuss ways to integrate and work together as one industry.

The introductory remarks were delivered by Dato’ Low Kian Chuan, President of MTA. In his speech he stated that the timber industry in Malaysia faced many challenges such as shortage of raw material, increasing cost of production and shortage of workers. Despite these issues, he stressed that industry players still needed to catch up with other global competitors and that support from government bodies was crucial in determining the sustainability of the timber industry in Malaysia.

The workshop was divided into four sessions which were Policy, Raw Materials, Marketing and Trade, and Industry Development (downstream industry). The sessions worked as a platform for the three regions to find a mutual understanding in terms of developing the timber industry as one. During the Policy session, moderated by Dato’ Supperamaniam Manickam, Distinguished Fellow, Institute for Strategic and International Studies Malaysia, the discussion was on current policies and opportunities between the Peninsular, Sabah and Sarawak in terms of boosting timber export performance and at the same time, increase domestic timber usage as well as trade between regions.

During the Raw Materials session, moderated by Encik Raymund Tan Get Seng, Vice President II, Timber Association of Sabah, the participants discussed the inadequate supply of raw material especially from natural forests and the future of alternative raw material. The Marketing and Trade session was moderated by Dr Peter Kho, General Manager, Sarawak Timber Association, and the discussion was about current challenges in trade activities such as FTA, ILPA, CARB and FLEGT. Finally, during the Industry Development session, moderated by Encik Tham Khow, Advisor/ Coordinator – Timber Task Forces, Timber Industry Forum, they discussed the possibility of creating new high value-added products. The action plan was to boost downstream industry especially in Sabah and Sarawak.

The workshop drew a participation of more than 60 people from timber associations, representatives from ministries and MTIB.

CAPACITY BUILDING PROGRAMME UNDER THE ASEAN WORKING GROUP ON PAN-ASEAN TIMBER CERTIFICATION

Delegates posing for the camera.

Representatives from eight member states of the Association of Southeast Asian Nations (ASEAN) shared their achievements in developing reliable Timber Legality Assurance System (TLAS) at the Fifth Sub-Regional Training Workshop in Jakarta, Indonesia from 6 to 8 December.

In November 2016, Indonesia became the first country to issue the Forest Law Enforcement, Governance and Trade (FLEGT) licenses to verified legal timber products exported to the European Union (EU). Indonesia shared its experiences on developing the TLAS and Voluntary Partnership Agreement (VPA) implementation structures, fostering multi-stakeholder participation and implementing FLEGT licensing procedures, during the Meeting.

"Indonesia has met the EU's high standards through a comprehensive participatory process involving all stakeholder groups", says Dr. Putera Parthama, Director-General Sustainable Forest Management, Ministry of Environment and Forestry (MoEF), Indonesia. "While FLEGT licensing and access to the EU market are important outcomes of our VPA, our efforts also ensure our forests support sustainable development, improve livelihoods and help us to address climate change. The whole effort from the supply side must be paired with equal effort at the demand side. In other words, the EU market must totally close itself to non-legally-verified timber products, including wood products re-exported by third countries".

Participants also discussed the potential and readiness of ASEAN to have a regional mechanism for mutual recognition of timber legality and to develop a common position on timber legality for trade. As ASEAN Member States are committed to combating illegal logging and the trade in illegally logged timber through improving FLEGT, Indonesia's experience will provide important lessons for other ASEAN Member States in the negotiation and implementation of VPAs, as well as in developing regional approaches to prevent trade in illegal timber products.

Viet Nam, meanwhile, is expected to sign its VPA with the EU in March 2017, having begun negotiations in 2010. The country is a major hub for the global timber trade, importing wood from more than 80 countries for processing and re-export. "How to incorporate the legality of imported wood is one of the most important topics that took up a lot of negotiation time" said Mr Huynh Van Hanh, standing vice-chair of the Handicraft and Wood Industry Association in Viet Nam who gave a presentation on behalf of the Vietnamese delegation.

Thailand, another major timber importer and processor in the region, reported that it would begin field tests of its timber legality definition in 2017. Mr. Banjong Wongsrisoontorn, Director of the Forest Certification Office in Thailand's Royal Forest Department informed the workshop that Thailand

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had submitted its draft VPA annexes on legality definition, product scope and supply chain control to the EU in 2016.

Lao PDR is also finalising its legality definition and is hoping to conclude VPA negotiations with the EU in 2018. "The VPA process is complex", said Dr. Khamfeua Sirivongs, Head of the FLEGT Standing Office and Deputy Director of Forest Technique Standard Development Division, in the Lao Ministry of Agriculture and Forestry. He added, "One of our main challenges would be to keep stakeholders in the private sector and civil society engaged".

Field trip.

Malaysia, Myanmar, Cambodia and the Philippines are also taking steps to strengthen their national timber legality assurance systems.

The Malaysian Government will introduce a legality requirement for timber products imported into Peninsular Malaysia starting from 3 January 2017. The Malaysian Government recognises that legality verification is necessary to meet current market demand, not just in the EU", said Cik Eleine Juliana Malek, Principal Assistant Secretary of the Timber, Tobacco and Kenaf Industries Development Division, of Malaysian Ministry of Plantation Industries and Commodities.

Myanmar, which is preparing for a VPA, is carrying out a gap analysis of its timber legality assurance system, which it developed in 2013. "The analysis is being done to strengthen the Myanmar timber legality assurance system to meet international legality requirements", said Mr. Phyo Zin Mon Naing, Assistant Director of Forest Department, of Myanmar's Ministry of Natural Resources and Environmental Conservation.

Cambodia is implementing recommendations from an independent timber trade flow study conducted in 2014, and is building its capacity to engage in a VPA process, said Mr. So Lorn, Deputy Director of the Department of Forest Industry and International Cooperation in Cambodia's Forestry Administration.

"An open, transparent process and trust-building through dialogues were both crucial to the VPA's multi-stakeholder approach", said Ms. Mardi Minangsari, of Indonesia's Independent Forestry Monitoring Network, who has tracked the process as a civil society representative for 15 years.

MTIB was represented by Puan Sunita Muhamad from Licensing and Enforcement.

Participants posing during a mill visit.

MAHA 2016

Visitors at MTIB pavilion.

In line with its function to promote timber and timber products, MTIB recently participated in MAHA 2016. The Fifth Malaysia Agriculture, Horticulture and Agrotourism International Exposition (MAHA 2016) was held at the Malaysia Agro Exposition Park Serdang (MAEPS), on 1-11 December.

YAB Datuk Sri Mohd Najib Tun Haji Abdul Razak, Prime Minister of Malaysia officiated MAHA 2016, on 4 December . In his opening remarks, he urged the younger generation to explore imtensive farming so that the agricultural industry could move forward in line with the development and the increasing number of the Malaysian population. He added that MAHA is viewed not only as a domestic tourism product for those involved in the agricultural sector, but more importantly, it involves the entire chain of food supply nationwide, from wholesalers as to hypermarket and supermarket operators. The Prime Minister said MAHA had also become an educational platform for young children to learn more about future agriculture sector.

Apart from local entrepreneurs and traders, MAHA 2016 has attracted the interest of companies from almost 20 countries including those from Fiji, South Korea, South Africa, India, Sri Lanka, Ecuador, Pakistan, Bangladesh, Algeria, Australia, Iran, Spain, Canada, China, Thailand, Viet Nam, Japan and Tunisia. They participated under the Agro Trade International and Corporate Participation cluster.

The exhibition managed to attract four million visitors and recorded RM380 million in sales transactions. The whopping number of visitors and the sales figures that went beyond the initial conservative target of RM200 million is a remarkable achievement for the biennial event since it was first held in 2008.

MTIB's pavilion showcased wood carvings, wooden souvenirs, gaharu products such as Karas coffee, perfume, honey as well as Karas tea. The companies which took part under the banner of MTIB were Nature Life Resources, Grow Project Works, Palmabrand Exclusive Sdn. Bhd., Lanchang Edible Garden, Rina Craft, Rehal Dho, Anjung Delima Resources Sdn. Bhd. and LDY Décor Works Sdn. Bhd.They reported very encouraging sales throughout the event.

Representatives from Nature Life Resources attending to a visitor during MAHA 2016.

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LEAN INTRODUCTION TO THE TIMBER INDUSTRY

In the era of tough competition in the present globalised and liberalised world, only organisation which are capable of overcoming challenges will remain competitive and be able to survive in the long run. Nevertheless, there are many obstacles and challenges facing businesses especially on cost effective measures in operations, customer demands and on quality production inputs. Thus, LEAN management system can offer an alternative in overcoming problematic areas through continuous improvement of products services.

The LEAN management system which has long been implemented throughout the world is most popular particularly in the manufacturing sector (also known as the LEAN manufacturing system). Due to the effectiveness of this system, it has gained popularity in Malaysia especially in the manufacturing and services sectors. However, the LEAN management system is still new to the Malaysian timber industry.

MTIB has been introducing the LEAN management programme to the Peninsular Malaysia timber industry since 2014 to reduce production costs, increase productivity and remove non-value added processes (waste). The programme also aimed to help the nation's mission to reduce dependency on foreign workers in the long term and to improve workplace tidiness, efficiency and safety. The timber industry is a labour-intensive industry and the working environment is not conducive if it is 'dirty, dangerous and dusty'. As a result it does not attract local workers to the industry. LEAN management is an initial approach that MTIB is looking into to uplift the position of the timber industry in the face of growing challenges from a highly competitive environment. One of the major benefits of this programme is getting more done with less people. With standardised work and increased efficiencies, the ability to do the job with less people becomes a very real possibility.

WHATS IS LEAN?

LEAN is defined as a collection of principles and methods that focuses on identifying and eliminating non-value added activities throughcontinuous improvement of products for the benefit of customers and in the pursuit of perfection. Additionally, LEAN is also a collection of integrated tool which is effective in reducing cost in the manufacturing process.

They are many definitions for the concepts behind the LEAN production and the Toyota Production and for the concepts behind the LEAN Production System (TPS); the concept brings together all the essential factors required for LEAN success. Mr.Taicchi Ohno, the Father of TPS, Kanban Production Engineer of Toyota, explains that "LEAN enables the production and delivery of the right amount of high quality products and services (as defined by the customers) at the right time for the first time while minimising wastes and being open to change".

The core idea of LEAN manufacturing is actually quite simple…relentlessly work on eliminating waste from the manufacturing process.

THE SEVEN WASTAGES OF LEAN

In the manufacturing sector, LEAN works by eliminating wastages in order to improve the manufacturing process as a whole. Wastages can be in many forms and the main idea is to reduce irrelevant costs to the customers' perspective. There are seven different types of cost cutting wastages using the LEAN strategy.

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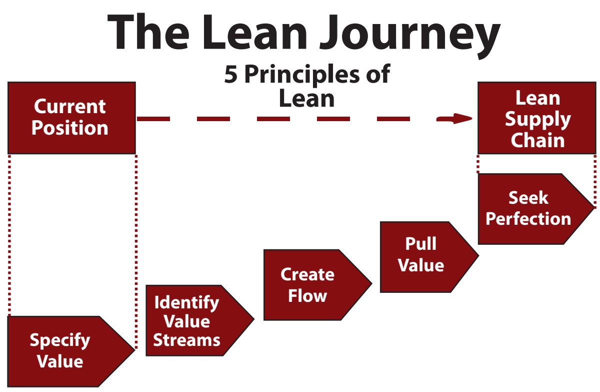
NO.	TYPES OF WASTE	DESCRIPTION/NATURE/TYPE
1.	Over production	Making something before it is truly needed. This is a particularly serious form of waste because it leads to excess inventory that is often used to mask other underlying problems and inefficiencies.
2.	Waiting period	Time when work-in-process is waiting for the next step in production (no value is being added). It can be truly illuminating to look at the time from order to shipment and ask – how much of that time is actually spent on true value added manufacturing.
3.	Transport	Unnecessary movement of raw materials, work-in-process or finished goods.
4.	Motion	Unnecessary movement of people (movement that does not add value).
5.	Over processing	More processing than is needed to produce what the customer requires. This is often one of the more difficult wastes to detect and eliminate.
6.	Inventory	Large unwanted quantities of products are stored in warehouses. The product (raw materials, work-in-process, or finished goods) quantities go beyond supporting the immediate need.
7.	Defects	Production that is scrap or requires rework.

FIVE PRINCIPLES OF LEAN



Below are the underlying principles of LEAN:

- **Specify Value** – Define value from the customers' perspective and express value in terms of a specific product or service.
- **Identify Value Streams** – Mapping of steps - Value added and non-value added, that brings a product or service to the customer.
- **Create Flow** – The continuum flow of products, services and information that will be in continuous throughout.
- **Pull Value** – The actual demand of products/ services though the value stream will not be provided unless they have received the signal from downstream customers.
- **Seek Perfection** – Through the flow of activities and elimination wastages, work perfection is hoped to be derived for customers as a whole.

20 ESSENTIAL LEAN TOOLS

1. 5S

What is 5S?
Organise the work area:

- Seiri/Sort (separate and eliminate that which is not needed)
- Seiton/Set In Order (organise remaining items)
- Seiso/Shine (clean and inspect work area)
- Seiketsu/Standardise (write standards for above)
- Shitsuke/Sustain (regularly apply the standards)

How does 5S help?
It eliminates waste that results from a poorly

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organised work area (e.g. wasting time looking for a tool).

2. Gemba (The Real Place)

What is Gemba?
A philosophy that reminds us to get out of our offices and spend time on the plant floor – the place where real action occurs.

How does Gemba help?
It promotes a deep and thorough understanding of real-world manufacturing issues – by first-hand observation and by talking with plant floor employees.

3. Visual Management

What is Visual Management?
Visual indicators, displays and controls used throughout manufacturing plants to improve communication of information.

How does Visual Management help?
It makes the state and condition of manufacturing processes easily accessible and very clear – to everyone.

4. Total Productive Maintenance (TPM)

What is Total Productive Maintenance?
A holistic approach to maintenance that focuses on proactive and preventative maintenance to maximise the operational time of equipment. TPM blurs the distinction between maintenance and production by placing a strong emphasis on empowering operators to help maintain their equipment.

How does Total Productive Maintenance help?
It creates a shared responsibility for equipment that encourages greater involvement by plant floor workers. In the right environment this can be very effective in improving productivity (increasing up time, reducing cycle times, and eliminating defects).

5. Standardised Work

What is Standardised Work?
Documented procedures for manufacturing that capture best practices (including the time to complete each task). Must be "living" documentation that is easy to change.

How does Standardised Work help?
It eliminates waste by consistently applying best practices. Forms a baseline for future improvement activities.

6. Heijunka (Level Scheduling)

What is Heijunka?
A form of production scheduling that purposely manufactures in much smaller batches by sequencing (mixing) product variants within the same process.

How does Heijunka help?
It reduces lead times (since each product or variant is manufactured more frequently) and inventory (since batches are smaller).

7. Kaizen (Continuous Improvement)

What is Kaizen?
A strategy where employees work together proactively to achieve regular, incremental improvements in the manufacturing process.

How does Kaizen help?
It combines the collective talents of a company to create an engine for continually eliminating waste from manufacturing processes.

8. Just-In-Time (JIT)

What is Just-In-Time?
Pull parts through production based on customer demand instead of pushing parts through production based on projected demand. Relies on many lean tools, such as Continuous Flow, Heijunka, Kanban, Standardised Work and Takt Time.

How does Just-In-Time help?
It's highly effective in reducing inventory levels, improves cash flow and reduces space requirements.

9. Takt Time

What is Takt Time?
The pace of production (e.g. manufacturing one piece every 34 seconds) that aligns production with customer demand. Calculated as Planned Production Time/Customer Demand.

How does Takt Time help?
It provides a simple, consistent and intuitive method of pacing production. Is easily extended

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to provide an efficiency goal for the plant floor (Actual Pieces/Target Pieces).

10. Continuous Flow

What is Continuous Flow?
Manufacturing where work-in-process smoothly flows through production with minimal (or no) buffers between steps of the manufacturing process.

How does Continuous Flow help?
It eliminates many forms of waste (e.g. inventory, waiting time, and transport).

11. Kanban (Pull System)

What is Kanban?
A method of regulating the flow of goods both within the factory and with outside suppliers and customers. Based on automatic replenishment through signal cards that indicate when more goods are needed.

How does Kanban help?
It eliminates waste from inventory and overproduction; eliminates the need for physical inventories (instead relying on signal cards to indicate when more goods need to be ordered).

12. Single-Minute Exchange of Dies (SMED)

What is Single-Minute Exchange of Dies?
Reduce setup (changeover) time to less than 10 minutes. Techniques include:

- Converting setup steps to be external (performed while the process is running)
- Simplifying internal setup (e.g. replace bolts with knobs and levers)
- Eliminating non-essential operations
- Creating Standardized Work instructions

How does Single-Minute Exchange of Dies help?
It enables manufacturing in smaller lots, reduces inventory, and improves customer responsiveness.

13. Jidoka (Autonomation)

What is Jidoka?
Design equipment to partially automate the manufacturing process (partial automation is typically much less expensive than full automation) and to automatically stop when defects are detected.

How does Jidoka help?
After Jidoka, workers can frequently monitor multiple stations (reducing labor costs) and many quality issues can be detected immediately (improving quality).

14. Poka-Yoke (Error Proofing)

What is Poka-Yoke?
Design error detection and prevention into production processes with the goal of achieving zero defects.

How does Poka-Yoke help?
It is difficult (and expensive) to find all defects through inspection, and correcting defects typically gets significantly more expensive at each stage of production.

15. Andon

What is Andon?
Visual feedback system for the plant floor that indicates production status, alerts when assistance is needed, and empowers operators to stop the production process.

How does Andon help?
It acts as a real-time communication tool for the plant floor that brings immediate attention to problems as they occur – so they can be instantly addressed.

16. Root Cause Analysis

What is Root Cause Analysis?
A problem solving methodology that focuses on resolving the underlying problem instead of applying quick fixes that only treat immediate symptoms of the problem. A common approach is to ask why five times – each time moving a step closer to discovering the true underlying problem.

How does Root Cause Analysis help?
It helps to ensure that a problem is truly eliminated by applying corrective action to the "root cause" of the problem.

17. Value Stream Mapping

What is Value Stream Mapping?
A tool used to visually map the flow of production. Shows the current and future state

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of processes in a way that highlights opportunities for improvement.

How does Value Stream Mapping help?
It exposes waste in the current processes and provides a roadmap for improvement through the future state.

18. PDCA (Plan, Do, Check, Act)

What is PDCA?
An iterative methodology for implementing improvements:

- Plan (establish plan and expected results)
- Do (implement plan)
- Check (verify expected results achieved)
- Act (review and assess; do it again)

How does PDCA help?
It applies a scientific approach to making improvements:

- Plan (develop a hypothesis)
- Do (run experiment)
- Check (evaluate results)
- Act (refine your experiment; try again)

19. Hoshin Kanri (Policy Deployment)

What is Hoshin Kanri?
Aligning the goals of the company (Strategy), with the plans of middle management (Tactics) and the work performed on the plant floor (Action).

How does Hoshin Kanri help?
It ensures that progress towards strategic goals is consistent and thorough – eliminating the waste that comes from poor communication and inconsistent direction.

20. KPIs (Key Performance Indicators)

What are KPIs?
Metrics designed to track and encourage progress towards critical goals of the organisation. Strongly promoted KPIs can be extremely powerful drivers of behaviour – so it is important to carefully select KPIs that will drive desired behaviour.

How do KPIs help?
The best manufacturing KPIs:

- Are aligned with top-level strategic goals (thus helping to achieve those goals)
- Are effective at exposing and quantifying waste (OEE is a good example)
- Are readily influenced by plant floor employees (so they can drive results)

BENEFITS OF LEAN IMPLEMENTATION

Reduced paperwork	Improved lead times (waiting times)
Improved work flow	Reduced inventory levels and costs
Improved productivity	Improved quality of service/ product
Better teamwork	Engaged workers
Reduced stress	Improved cycle times
Reduced overall operating costs	Organised workplace
Improved customer satisfaction (internal and external)	Space reduction
	Reduced staff turnover

CRITICAL SUCCESS FACTORS IN LEAN IMPLEMENTATION

The LEAN philosophy helps organisations to be competitive in the world market. LEAN is the latest practice, which creates value added profit for customers using fewer resources. The ultimate achievement for an organisation is to be able to meet with customers' demand of today. With this time management process, it becomes much simpler and more efficient in decision making.

LEAN can be adopted in every business process in agriculture, manufacturing as well as in the services sector. In order to compete in today's vast competitive market, the traditional concept of mass production is no longer applicable. Companies need to transform to new ideas of LEAN as many Japanese companies have developed, produced and distributed products using half or less human efforts, capital investment, floor space, tools, materials, time, and overall expenses for the company to prosper.

The success of LEAN implementation depends very much on the willingness of the company to transform from conservative ways of doing things to the latest practices. This will not succeed overnight as it involves efforts and commitment from all levels of employees. The critical success factors (CSFs) of the LEAN project need to be explored and concurrently developed into a well-planned strategic actions. Identifying CSFs in LEAN is essential as a reference to guide the company on the crucial requirements

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before beginning on any LEAN project. Based on the experiences of LEAN implementers, the CSFs of LEAN transformation are as follows:

a. Leadership Commitment

Twenty percent of the effort in LEAN transformations are represented by using LEAN tools and techniques. Eighty percent of the other efforts are based on commitments shown by the top management. The leaders' exposure to LEAN benefits and the seriousness of sustaining the business are through cost saving and work process efficiency. This will allow leaders to change practices, behaviours and existing mindsets. Furthermore, interventions from the leaders are necessary for adequate resources allocation and for a well efficient organisation. It is important for the top management to constantly monitor the progress of the project and provide direction to the implementation teams.

b. Cultural Change

The implementation of change must go hand in hand with operational matters, so that all employees can understand the mechanism and what must be done to address problem in the organisation. The willingness for transformation can be solved by identifying and understanding the need for change, having clear and consistent leadership and direction, and creating a strong new team. However, the success of the transformation should go through a well transformation plan which is based on adequate strategies and well-defined implementation methodologies. Failure in organisational and individual changes may result in excess expenditure and time wastages.

c. Excellent Project Management

An excellent management project must include a definition of objectives and development of both work and resource plan. It also needs to keep track of the projects to have the right knowledge and skills being applied to the project activities so everyone in the organisation will know their roles and responsibilities. With the excellent LEAN project management approach within the company, work schedule and punctuality will be effectively practiced.

d. Effective Communication

There is a need for everyone to be aware of and understand the LEAN concept and the process of LEAN implementation. Most importantly, each individual and organisation involved in LEAN transformation must understand how the transformation affects them. This is where the communication process plays a crucial role in ensuring the successful implementation of LEAN. Building acceptance begins with a solid communication plan. It should cover the scope, objectives and tasks of the LEAN implementation project. The leadership team must communicate and often go through several effective communication tools such as WhatsApp group, email, brochure, newsletter, meetings as well as morning assemblies. Communication is not a one-time event. Consistent and ongoing messages will keep everyone informed.

e. A Great Implementing Team

The LEAN implementing team should consist of individuals with creative minds, chosen for their multiple skills, past excellent achievements, reputation and job flexibility. The task of this team is to create the initial, detailed project plan and schedule for the entire project, assign responsibilities for various activities and also to determine the due date. They should also be entrusted with the responsibility of making decisions in LEAN implementation.

f. Training and Education

Employee training provides a prime opportunity to expand LEAN knowledge. This will increase the level of confidence and allow them to perform better in LEAN implementation. A series of LEAN training should be included in the Human Resource development plan that will create a supportive LEAN environment.

g. Performance Evaluation

The LEAN project achievement needs to be integrated with the annual performance evaluation. By providing rewards and recognitions as a mechanism of motivation, it will greatly influence the implementation teams to be involved in the LEAN management programmes.

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MASKAYU Vol 12 / 2016

FURNITURE DEMAND IN PERU

Introduction

With an area of 1,285,216 sq km, Peru is the third-largest country in South America after Brazil and Argentina, ranking it amongst the world's 20 largest nations. Peru is located on the western side of South America. Its territory borders Ecuador, Colombia, Brazil, Bolivia and Chile. The country has permanent sovereignty over 1'285,215 sq km (110,122 sq. miles) of land and 200 marine miles of the Pacific Ocean, as well as 60 million hectares (231,661 sq. miles) in the Antarctic.

Economy

Over the past decade, Peru has been one of the region's fastest-growing economies, with an average growth rate of 5.6% in a context of low inflation (averaging 2.9%). A favourable external environment, prudent macroeconomic policies and structural reforms in different areas combined to create a scenario of high growth and low inflation.

Peru emerged as the star of South American economies in 2016. Its robust growth was underscored by soaring metal exports and the election of business-friendly President Pedro Pablo Kuczynski. In late December, the government published a change to the Fiscal Transparency and Responsibility Law (FTRL). Under the new rule, the fiscal deficit target will be based on the nominal deficit rather than the structural shortfall. While this gives the government more flexibility and eases monitoring, it also increases the government's responsibility to stay fiscally prudent.

Despite Peru's strong macroeconomic performance, dependence on minerals and metals exports and imported foodstuffs makes the economy vulnerable to fluctuations in world prices.

Basic Indicators Population – 31.9 Million
Age Structure - 15-64 years (58.9%)
GDP/GDP Grow – 3.3% , GDP per capita – USD5,993
Inflation Rate – 3.6%
Export Value - USD34.20 billion

Forest Resources

According to the FAO statistics Peru has around 74.0 million hectares of forested land, which constitutes to 57.8% of the total land area. Around 72.8 million hectares are primary or otherwise naturally regenerated forest and around 1.2 million hectares are planted forest. Most plantations are located outside the Amazon in the Andes, with the main commercial species being *Eucalyptus globulus*. The main forest category in Peru is humid rainforest in the Amazon, but there are also significant areas of arid and semi-arid forests on the coasts and semi-humid forests in mountain and inner-mountain valleys.

The estimated average annual deforestation in Peru is quite low, around 0.2%, where about one-third of the forest estate is degraded or secondary. The Peruvian government has an interesting website on deforestation, with specified data per province for several time periods, since the year 2000, which indicates a loss of almost 1.5 million hectares of forests to other land uses in 15 years. The Peruvian government, identify a range of direct causes of deforestation which include the development of new infrastructure such as highways; new settlements in the Amazon Basin, including

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the expansion of urban centres; the expansion of the agricultural frontier, including for cash crops and shifting cultivation; the expansion of oil exploitation and hydro-electric schemes; mining in the southern part of the Peruvian Amazon; illegal logging; and the illicit cultivation of coca. Indirect causes of deforestation include migration to the Amazon region; agricultural policies favouring cash-crop development; development policies that favour energy generation; and new investment opportunities due to globalisation.

According to FAO, around 82.5 percent of forested lands is publicly owned, covering the protected natural areas and the permanent production forests. Management rights of these areas is divided among public administration (67%), private companies (12%), and communities (21%). The remaining 17.5 percent of the forested lands in Peru is privately owned, primarily by agricultural units, whether indigenous communities, rural communities or private properties. However, tenure over a significant proportion of the Peruvian forest area, particularly by indigenous people, is still disputed due to problems with regard to land titleing by the state.

The forests of Peru are one of the most species diverse of the world, but only a few tree species are used for export. However, due to the degraded state of a significant part of the forests more and more lesser-known species are exploited. The 10 most significant Peruvian timber species, in terms of production volume, include:

- Tornillo (*Cedrelinga catenaeformis*)
- Cumala (*Virola spp., Iryanthera spp.*)
- Cumaru, Shihuahuaco (*Dipteryx odorata*)
- Lupuna (*Chorisia integrifolia*)
- Capirona (*Calycophyllum spruceanum*)
- Capinuri (*Clarisia biflora*)
- Bolaina (*Guazuma crinite*)
- Cachimbo (*Cariniana domesticate*)
- Radiata Pine (*Pinus radiate*) from timber plantations.
- Eucalyptus (*Eucalyptus globulus*) from timber plantations.

Timber Production

According to ITTO statistics, the industry of Peru produced in 2014 about 1.6 million m^3 of logs, which is almost entirely consumed by the domestic market. Exports of primary timber products in 2014, dominated by exports of sawnwood, had an export value of around 79.4 million US dollars.

Product	Production quality (x 1000 m^3)	Imports quality (x 1000 m^3)	Domestic consumption (x 1000 m^3)	Exports quality (x 1000 m^3)
Logs (Ind. Roundwood)	1,564	1	1,562	3
Sawnwood	690	122	437	374
Veneer	8	0	6	3
Plywood	88	49	116	20

Source: FAO Statistics

There are about 250 sawmills in Peru, most of which have a small installed capacity (averaging 2900 m^3 per year). Only about 25% of sawmills have band-saws and a capacity of 10,000 m^3 per year or more. According to local sources (Customs Peru SUNAT), there are many more sawmills. Solid timber exports are dominated by tropical sawn hardwood and mouldings together with small volumes of plywood. In Peru it is not permitted to export logs from natural forests, but Peru has never evolved an internationally competitive wood manufacturing sector and exports of value added products such as wood furniture have remained at low levels (Oliver, 2013).

Export for Timber and Timber Products

Export can be observed from the table below the largest markets for Peruvian wood product exports are China, Mexico and the United States of America, although other countries in South America and the EU are also important export markets.

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Peru: Export of Timber and Timber Products, 2011-2015

(Value : USD'000)

Importers	2011	2012	2013	2014	2015
World	**160,874**	**158,729**	**152,368**	**162,901**	**144,587**
China	57,851	52,360	54,936	66,105	56,160
Mexico	41,987	37,137	28,207	31,893	30,691
USA	24,240	29,061	32,264	26,161	22,427
Dominican Republic	6,002	7,506	9,622	8,293	8,908
France	4,481	5,065	4,717	7,169	6,160
Australia	1,557	1,958	994	1,508	2,315
Belgium	825	1,928	1,295	1,060	2,068
Denmark	68	445	559	1,427	1,866
Netherlands	904	1,618	1,475	1,918	1,736
South Korea	468	660	576	1,012	1,505

Source: ITC

Malaysia's Export of Timber and Timber Products to Peru

In 2015, export of Malaysian timber and timber products to Peru registered a decrease of 5.1% from RM20.5 million to RM19.4 million in the previous corresponding period. Peru ranked 57th with almost 1% of Malaysia's total market share. Wooden furniture was the main product exported with a total value of RM19.4 million.

Malaysia: Export of Major Timber Products to Peru, 2011 – 2015

(Value: RM)

Product	2011	2012	2013	2014	2015
BJC	0	142,224	211,584	18,151	0
Wooden Furniture	15,806,501	18,284,432	19,221,654	20,450,457	19,418,916
TOTAL	**15,806,501**	**18,426,656**	**19,433,238**	**20,468,608**	**19,418,916**

Source: MTIB and DOSM

Malaysia's Import of Timber and Timber Products from Peru

Import of timber and timber products from Peru is minimal . In 2015, totalled import worth RM145.4 thousand, recording an increase of 29.2% over the previous corresponding period. Major products imported was sawntimber.

Malaysia: Import of Major Timber Products from Peru, 2011 – 2015

(Value: RM)

Product	2011	2012	2013	2014	2015
Sawntimber	211,279	170,723	528,147	112,526	145,404
TOTAL	**211,279**	**170,723**	**528,147**	**112,526**	**145,404**

Source: MTIB and DOSM

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Malaysian Wood
Standing on Excellence

TIMBER VERIFICATION SERVICES

Timber has always been a preferred material in homes and other buildings as it creates warmth and coziness, and also highlighting elegance. While it is widely used in developed countries, Malaysian consumers tend to avoid timber based on perceived quality and maintenance problems.

Defects such as splitting, delamination, decay and insect attacks can be easily avoided if the right quality and correct specification of timber is selected and used from the outset.

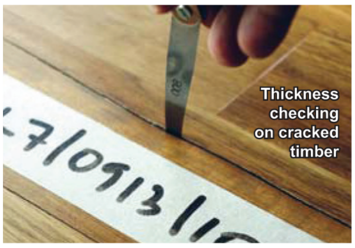
The Malaysian Timber Industry Board (MTIB) offers timber verification services that can assist you to ensure the timber you choose is of the right quality and correct specification for its intended usage and application. The services include timber grading, identification of species, determination of moisture content, determination of preservatives and other services.

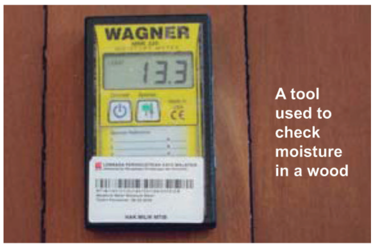
You can be rest assured that your products meet quality standards and hence extend the lifespan with minimal maintenance cost if it is verified to specification.


Checking moisture content

Services

1. Timber Grading
2. Identification of Species
3. Determination of Moisture Content
4. Determination of Preservative


Thickness checking on cracked timber



A tool used to check moisture in a wood

For more information and enquiries:

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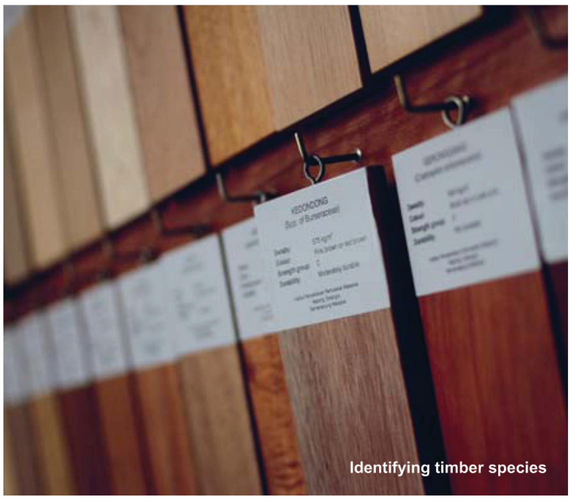
Identifying timber species

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Import Tariff

Peru's import duty on timber and timber products ranges from 0-6%. Details are as follows:

HS Code	Product	Duty (%)
4401	Fuel Wood	0-6
4402	Wood Charcoal	0
4403	Logs	0
4404	Hoop Wood	0
4405	Wood Wool and Wood Flour	0
4406	Sleepers	0
4407	Sawntimber	0
4408	Veneer	0
4409	Mouldings	0-6
4410	Chipboard/Particleboard	6-6
4411	Fibreboard	6-6
4412	Plywood	6-6
4413	Densified Wood	6-6
4414	Wooden Frame	6-6
4415	Packing Cases	6-6
4416	Casks, Barrels, Vats and Tubs	0
4417	Tool Bodies and Handle	0
4418	Builders Joinery and Carpentry	0-6
4419	Tableware and Kitchenware	6-6
4420	Wood Marquetry	6-6
4421	Other Articles of Wood	0-6
9401,9403	Wooden Furniture	0 – 6

Source: WTO

Prospects

Construction has gained importance in Peru's economy since the early -2000s because several large mining, power generation plants, natural gas production and transportation projects began their construction phase. Also of key importance was the boom of housing and office buildings, closely followed by infrastructure development. The industry underwent a substantial modernisation in recent years. According to the Peruvian Chamber of Construction (CAPECO), sector activity is divided between infrastructure and general construction comprising 45% and 65% respectively. The construction sector accounts for 5% of Peru's overall GDP.

Peru's rapid economic growth made evident the existence of a large infrastructure gap. According to a study by Universidad del Pacifico released in late 2015, to cover its infrastructure needs to 2025, Peru would need to invest close to USD160 billion, involving annual investment of 8.3% of GDP for nine consecutive years. In almost every area of the country there is pent-up demand for both public and private infrastructure in a broad range of areas, such as roads, telecommunications, ports, airports, water and sewage, health and education, and energy. The growth underway is mainly due to massive projects.

Another significant change in the construction sector is the emergence of the Peruvian government as a partner to the private sector. In May of 2008, the government passed the Public-Private Partnerships (PPPs) legislative decree, which aims at facilitating the private investment promotion process through the creation, development, improvement, operation, and maintenance of public infrastructure or the provision of public services. In addition, the infrastructure construction market is set to become easier to manage for Peruvian and foreign firms alike, ensuring the country remains a competitive destination for foreign direct investment. Meanwhile, although economic uncertainty weakened investment in the Real Estate sector for most of 2015, real estate development continues to offer significant opportunities. Housing demand remains high, and growth rates have encouraged the development of office, commercial and industrial real estate projects.

Furniture produced by Peruvian.

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- *MINAGRI (2014) Perú forestal en números 2013. Dirección General Forestal y de Fauna Silvestre.*
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- *MTIB*
- *DOSM*

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ALBIZIA – FAST GROWING TREES WITH MULTIPURPOSE USES

Albizia tree.

Albizia or in its scientific name (Albizia Falcataria)*; is a fairly large tree, up to 40 m tall; its bole is branchless for up to 20 m; grows to 100 cm or sometimes more in diameter, with a spreading flat crown. It occurs in primary but more characteristically in secondary lowland rainforest and in light montane forest, grassy plains and along roadsides near the sea. It is adapted to peri-humid and monsoonal climates with a dry season of up to two (four max.) months. It is sensitive to fire and easily damaged by strong wind.*

Albizia grows so fast that it is sometimes called the 'miracle tree'. It is even mentioned in the Guinness Book of Records as the world's fastest growing tree.

On good sites it can attain a height of 7 m in just over a year. Trees reach a mean height of 25.5 m and a bole diameter of 17 cm after six years, 32.5 m high and 40.5 cm diameter after nine years, 38 m high and 54 cm diameter after 12 years, and 39 m high and 63.5 cm diameter after 15 years.

The plant is extensively planted in Southeast Asia as a shade and nurse crop for coffee, cocoa, tea, other crops and young timber plantations. Its fast growth and good shading properties outweigh the disadvantages of its sensitivity to strong winds and its relatively short life

Albizia	
Common Name	*Albizia Falcataria*
Botanical Name	*Parasereinthes Falcataria*
Family	Leguminosae
Colour	Sapwood wide, white, not always distinct, heartwood pale, reddish-brown
Texture	Coarse but even
Grain	Straight to deeply interlocked
Figure	Lacking
Density	Average 350 kg/m^3 at 12% moisture content
Strength Group	SG7 and below
Natural Durabilities	Not durable
Preservative Treatment	Sapwood easy, heartwood variable
Seasoning Properties	Air dries rapidly without defects and kiln drying properties are good
Working Properties	Saws well with a slight dulling effect
Uses	Furniture, cabinet work, pulpwood, veneer, boxes, crates, blockboard, matches and particleboard

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GRADE	DIAMETER CLASS	CHARACTERISTICS	USES
(I)	22 – 39 cm 40 – 59 cm 60 cm and above	-Slight sweep acceptable 4 metres – SED*/8 - Free from cut branch and mechanical defects	Veneer product
(II)	22 – 39 cm 40 – 59 cm 60 cm and above	-Slight sweep acceptable 4 metres – SED*/8 - T-trimmed branch (less than 8 cm) -Live knots acceptable	Veneer product (any portion of the log that cannot be processed into veneer will be turned into blockboard)
Blockboard	10 – 14 cm 15 – 21 cm 22 – 39 cm 40 – 59 cm 60 cm and above	-Slight sweep acceptable 4 metres – SED*/4 - T-trimmed branch acceptable	Blockboard production

Distribution

Native to the eastern islands of the Indonesian archipelago (Moluccas) and New Guinea, this species has spread to Southeast Asia from Myanmar to Malaysia and the Philippines, and has been introduced locally in tropical Africa and America.

Uses

It is used for matches, match boxes, packing cases, lightweight pallets, shelves and other general uses for certain grades of paper. It can substitute for pinewood as a pulping source.

Pulp: The fibre averages at 1.15 mm long with thin walls, giving it flexibility and it's a good for fibre bonding in paper. The soft, low-density wood is easy to chip and yields much pulp with relatively low chemical input. Because of its light colour, only minimum bleaching is required to achieve a good white paper. The woods are nonsiliceous, usually light coloured with some open pores, and they produce a sawdust that may cause sneezing. The wide ranging roots are said to taint the water supply with their peculiar nauseous odour.

It is widely used for fuelwood and charcoal production in spite of its low density and energy value.

Fibre: Albizia trees coppice fairly well, an advantage for pulpwood production. The wood is suitable for pulping and papermaking. It can be used to produce good-quality pulp by mechanical, semi-chemical or chemical processes. Because of its light colour, only a little bleaching is required to achieve good white paper. The neutral, semi-chemical process produces pulp with excellent strength properties. It has also been used for the manufacture of viscose rayon.

Timber: The comparatively soft timber is suitable for general utility purposes, such as light construction, furniture, cabinet work, lightweight packing materials and pallets, and chopsticks. Because the wood is fairly easy to cut, Albizia is also suitable for wooden shoes, musical instruments, toys and novelties, forms and general turnery. Albizia is an important source of veneer and plywood and is very suitable for the manufacture of particleboard, woodwool board and hardboard and has recently been used for blockboard.

Strength Properties

Only *P. falcataria*, representing the lighter species has been tested at the Forest Research Institute Malaysia (FRIM). The timber falls into Strength Group D (Burgess, 1958) or SG7 (MS 544:Part 2:2001)

Machining Properties

It is easy to resaw and cross-cut. Planing is easy and the surface produced is smooth.

Nailing Property

Nailing property is rated as good, although it has been reported that this timber does not hold nails satisfactorily.

Air Drying

The timber seasons fairly rapidly with slight end-checking, splitting and insect attack as the main sources of degrade. The timber is also very prone to sapstain fungal attack. 13 mm thick boards take approximately 1.5 months to air dry, while 38 mm thick boards take three months.

Shrinkage

Shrinkage is high. Radial shrinkage averages 2%, while tangential shrinkage averages 3.7%.

Course on Forest Plantation Mapping organised by MTIB on 7 December 2016 in Gua Musang, Kelantan.

Course on CNC Machinery organised by MTIB from 13 to 16 December 2016 at WISDEC Selangor in Banting.

Participants posing with the course instructor during an advance course on Auto Edge Bander. It was held on 19 - 21 December 2016 at Rabvolks Homes Sdn. Bhd., Butterworth, Penang.

Participants posing with garden furniture produced by them during a course on Garden Furniture Making. It was held from 19 to 22 December 2016 at WISDEC Selangor in Banting.

A course on Understanding and Implementing ISO/IEC 17605 Industry Specific Standard Based Management System, organised by MTIB on 21-22 December 2016 at MTIB, Kuala Lumpur. The speaker was Encik Cheng Seng Hock from SIRIM Training Sdn. Bhd.

A Retreat for Management Services personnel held on 22 - 24 December 2016 in Bentong, Pahang.