

perkasa

sarawak timber industry development corporation

october-december 2016

quarterly magazine

STIDC

to embark on Bamboo R&D
and Pilot Project

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editorial

Sarawak is blessed with abundant natural resources including Bamboo which has great potential to be developed into value-added products. The national export revenue from Bamboo products in 2015 was RM276,090 compared with RM22,545 in 2014.

The Bamboo sector, therefore, could be developed further to ensure continuous supply of resources for Bamboo-based industry. In line with this, The Malaysia's Bamboo Industry Development Action Plan 2011-2020 was initiated to boost the industry. The Action Plan has five strategic thrust including The Establishment of Bamboo Plantation and Sustainable Management of Existing Natural Resources; Human Resource and Capital Development; Development of Value-Added Products; Research and Development as well as Marketing, Trade and Promotion.

Activities under the strategic thrust will be jointly undertaken by the related government agencies, institutions of higher education and industry players. This is to ensure that the development of this industry is well co-ordinated and progress as planned.

A collaborative effort between MTIB, FRIM, UiTM, FITEC and STIDC in organising The ASEAN Bamboo Symposium 2016 augured well with the Bamboo Roadmap under the Strategic Thrust of Human Resource and Capital Development.

It is hoped that more of these collaborative efforts would be initiated in future to support and enhance our bamboo industry.

Sustainability and Advancement in Bamboo Utilisation

ABS2016 marked the inaugural bamboo symposium in Malaysia

The ASEAN Bamboo Symposium (ABS) 2016 marked the inaugural bamboo symposium in Malaysia in conjunction with the World Bamboo Day 2016.

ABS2016 was jointly organised by Universiti Teknologi MARA, Forest Research Institute Malaysia, Furniture Industry Technology Centre, Malaysian Timber Industry Board, STIDC and the related agencies from ASEAN countries.

With the theme “Sustainability and Advancement in Bamboo Utilisation”, ABS2016 aimed to promote bamboo as sustainable resources, commercialisation of bamboo products, community involvement in bamboo-based industries as well as to enhance multilateral collaboration among ASEAN countries for research and educational purposes.

Datu Haji Sarudu Haji Hoklai, General Manager of STIDC highlighted that





ABS2016 focused on plantation, technology and product development, commercialisation as well as bamboo and community.

According to him, ABS2016 featured four keynote speeches by renowned bamboo experts from the Netherlands, China and Malaysia besides plenary speeches by bamboo experts from India and Malaysia.

“There were 21 oral presentations by participants from Indonesia, The Philippines, Thailand, China, India, USA, Canada, Ethiopia, Brazil and Malaysia. In addition, eight posters on technology, products development, design as well as bamboo and community were also presented by participants from Spain, Japan and Malaysia” he said.

What set ABS2016 apart was the exhibition of bamboo products and services by co-organisers and 17 bamboo-based industry players from Indonesia and Malaysia. The exhibition

featured bamboo fabric, lamination, furniture, housing, flooring, socks, hats, charcoal, shoots as well as bamboo design and construction.

“Bamboo is renewable and grown worldwide particularly in Asia. Locally, bamboo products are closely associated with the rural folks due to its business potential. Presently, we are exploring the possibility of making bamboo an alternate source of raw materials for small and medium enterprises in order to spur the economy. We hope that everyone will take this opportunity to establish business network and share information on bamboo and its products with their ASEAN counterparts. It is also hoped that the ABS2016 would leverage the ASEAN member countries in developing the bamboo-based industries and at the same time conserving the environment”, Datu Haji Sarudu said.

ABS2016 was timely in providing a platform for policy makers, scientists,

managers and stakeholders to share information and expertise on bamboo and the best practices related to it.

Summary

- ABS2016 aimed to promote bamboo as sustainable resources, commercialisation of bamboo products, community involvement in bamboo-based industries and to enhance multilateral collaboration among ASEAN countries
- Presently, we are exploring the possibility of making bamboo an alternate source of raw materials for small and medium enterprises in order to spur the economy
- It is hoped that the ABS2016 would leverage the ASEAN member countries in developing the bamboo-based industries and at the same time conserving the environment

Huge Potential in Bamboo Industry

The global bamboo industry generated USD11 billion annually and is expected to reach between USD15-18 billion by 2018

Bamboo is renewable and complements other natural raw materials due to its short gestation period. International Network for Bamboo and Rattan (INBAR), disclosed that the global bamboo industry generated USD11 billion annually and is expected to reach between USD15-18 billion by 2018. Bamboo market presently is being dominated by China.

In the context of ASEAN, the use of bamboo is more prominent in Indonesia, Thailand, Vietnam and The Philippines. It is estimated that the ASEAN region has a combined bamboo planted area of 1.5 million hectares compared with 44.5 million hectares of the total bamboo planted area in the world. The successful and innovative use of bamboo in furniture manufacturing, flooring, paneling and in the construction industry in these

countries is something that Malaysia could ponder.

Deputy Minister of Plantation Industries and Commodities, Datuk Datu Nasrun Datu Mansur, disclosed that there are

61 companies in Malaysia venturing into various activities within the bamboo industry with eight companies focusing on products related to builders' joinery and carpentry (BJC) and architectural purposes.

In order to have a sustainable and thriving bamboo industry, he said, continuous supply of bamboo raw material is of utmost importance. Systematic cultivation, management and harvesting of bamboo plantation are therefore vital. Based on the data obtained from the Forestry Department of Peninsular Malaysia (JPSM), it was estimated that 31% of the bamboo plantings are found in the Peninsular Malaysia, 45% in Sarawak and 24% in Sabah.

"I was informed that the Forest Research Institute of Malaysia (FRIM) had conducted numerous researches on bamboo. The institute had also innovated and patented the bamboo products and is currently in





• *Bamboo flooring*

the process of commercialisation through collaboration with the industry. FRIM also set up Bamboo and Palm Gallery in 2014. This gallery was recognised by the Malaysia Book of Records as the first bamboo and palm gallery that showcases more than 100 exhibits comprising traditional items as well as modern products made from bamboo” he said.

“Other agencies such as UiTM, FITEC and STIDC also played important roles in developing the bamboo industry. UiTM for instance, carried out many researches on bamboo focusing on both fundamental and applied research. Meanwhile, FITEC plays an important role in the development of the Bumiputera furniture industry to promote bamboo furniture and related bamboo products. STIDC is promoting the use of bamboo for downstream processing in Sarawak and the state government has allocated 100 hectares at Sabal Forest Reserve for the bamboo pilot project. I hope this initiative will lead towards further development of the bamboo industry in Sarawak” he added.

The synergy between these agencies was initiated to bring high impact to the bamboo industry and to make bamboo an alternative source of raw material for manufacturing, construction and tourism sectors.

Summary

- Bamboo is renewable and complements other natural raw materials due to its short gestation period
- The successful and innovative use of bamboo in furniture manufacturing, flooring, paneling and in the construction industries is something that Malaysia could ponder
- In order to have a sustainable and thriving bamboo industry, continuous supply of bamboo raw material is of utmost importance

• *Bamboo furniture*



Plant Bamboo To Generate Income

Bamboo plays important roles in rural transformation as it spurs other sectors such as tourism, home-stay and handicraft



• Bamboo chalet

Summary

- The climate and topography of Sarawak are suitable for bamboo cultivation and therefore it ensures optimum utilisation of land
- The federal government is providing loan and therefore it is timely to propose the bamboo project to the government in order to secure fund



• Bamboo chalet

Rural communities of Sarawak are blessed with abundant of land and natural resources including bamboo. Bamboo complements timber due to its fast gestation period. The climate and topography of Sarawak are suitable for bamboo cultivation and therefore it ensures optimum utilisation of land because it can grow even on rigorous terrains.

President of Association of Research and Development Movement of Singai, Sarawak (REDEEMS), Datuk Peter Nansian Ngusie said, bamboo plays important roles in rural transformation as it spurs other sectors such as tourism, home-stay and handicraft. This will help to develop rural areas and improve livelihood of rural folk by creating employment and business opportunities. He urged them to plant bamboo in order to make their land productive as well as to generate income and to eradicate poverty.

According to him, this could be realised by capitalising on technological advancement in planting and supplying bamboo resources to the industry based on economy of scale.

"I would like to urge the government to look seriously into bamboo potential and enhance our land tenure system in order to encourage this industry to thrive and at the same time avoid land dispute and engage the rural communities towards transformation. This industry is viable due to availability of land. Through this initiative, the local bamboo small and medium scale entrepreneurs stand the good chance to secure funds from the government as well as from other sources like UNDP and CIMB Foundation. This will add value to our bamboo resources" Datuk Peter said.

He added that the federal government is providing loan and therefore it is timely to propose the bamboo project to the government in order to secure fund to bring this industry to greater height.

Prerequisites For Sustainable Bamboo Industry

To ensure sustainable bamboo industry, there must be sizeable plantations of at least 1,000 hectares of giant bamboo with FSC certification

Bamboo complements and becomes an alternative source of raw materials to tropical hardwood said Dr. Pablo Van Der Lugt of Delft University of Technology, The Netherlands. According to him, bamboo is ideal for building and high-end materials including paneling, flooring and decking.

To ensure sustainable bamboo industry, he said, there must be sizeable plantations of at least 1,000 hectares of giant bamboo certified by Forest Stewardship Council

(FSC). Efforts must also be made to ensure optimum utilisation of bamboo by using the whole stem.

“While the lower part of the stem could be used for building materials, the top part is ideal to produce charcoal, textile, paper and many more. This will add value to the bamboo” he said.

He added that strategic product marketing for both local and export markets is equally important in order to compete with the advanced players like China with emphasis on certification to ensure quality and durability.

“Government’s support is vital by having good policies and providing subsidy. Local players on the other hand must learn from their successful counterparts like China because they have steady resources, good policies besides maximising utilisation of resources” he said.

The other prerequisites underlined by Dr. Pablo in ensuring a robust bamboo industry are creativity and innovation among local players. “These qualities will help them to use local resources to create local brands which are unique and trendy” he said.



Summary

- To ensure sustainable bamboo industry, there must be sizeable plantations of at least 1,000 hectares of giant bamboo certified by FSC
- Strategic product marketing for both local and export markets is equally important in order to compete with the advanced players
- Creativity and innovation among local players are vital in ensuring a robust bamboo industry

STIDC To Embark On Bamboo R&D & Pilot Project

In tandem with this aspiration, a familiarisation visit was organised to Indonesia to acquire an insight into the bamboo industry

STIDC is promoting the use of bamboo for downstream processing in Sarawak and aspires to embark on research and development (R&D) on bamboo planting as well as bamboo pilot project at Sabal Forest Reserve.

In tandem with this aspiration, a familiarisation visit was organised to Indonesia on 8-13 November 2016 to acquire an insight into the bamboo industry in the republic. The visit was led by the Deputy General Manager of STIDC, Tuan Haji Hashim Haji Bojet.



• Bamboo nursery in Tangerang



Bamboo nursery •

"Indonesia was our preferred destination due to its advancement in the bamboo industry. Indonesia and Malaysia also have similarities particularly in terms of climate and bamboo species." Tuan Haji Hashim said.

Buluh Lemang, Buluh Duri, Buluh Betong and Buluh Minyak are among the bamboo species found in both countries.

Through this visit, STIDC hoped to tap the expertise from its Indonesian counterparts particularly on bamboo planting technique and bamboo plantation management besides identifying the right species for R&D and pilot project.

STIDC plans to undergo on-the-job training on bamboo plantation and nursery management in Indonesia and to engage the Indonesian bamboo experts to assist in the pilot project.

Among the places visited were the Bamboo Plantation and Cultivation Centre in Yogyakarta, Citra Baru Busana Bamboo Fibre Mills and Saung Angklung Udjo in Bandung and Nusantara Bamboo Academy and Bamboo Nursery in Tangerang.

Summary

- Indonesia and Malaysia have similarities particularly in terms of climate and bamboo species
- STIDC hoped to tap the expertise from its Indonesian counterparts particularly on bamboo planting technique and bamboo plantation management



• Tuan Haji Hashim Haji Bojet (2nd right) and others taking a close look at the bamboo seedlings

What They Said



My study assesses the carbon sequestration potential through the increased use of industrial bamboo materials in the Western building industry, to better understand how engineered bamboo compared with commonly used building materials such as tropical hardwood. The first objective of this study is to measure the environmental impact of industrial bamboo products and its production process in terms of their CO₂ equivalent (carbon footprint). The second objective of this study is to clarify how carbon sequestration on a global scale, including in bamboo forest and plantations can be defined and calculated for industrial bamboo products and how they can be incorporated in the standard carbon footprint calculations. The study concludes that industrial bamboo products, it based on best practice technology (carbon chain of

MOSO International BV), even when used in Europe, can be CO₂ negative over their full life cycle.



Pablo Van Der Lugt
Delft University of Technology,
Faculty of Industrial Design
Engineering, Design for
Sustainability, The Netherlands

The biggest problem of bamboo processing usually is the low utilisation rate of the raw material. If the bamboo poles are used to process mono-products, the utilisation rate may not exceed 40%, the rate for processing bamboo sticks is only around 10%. My article introduced a revolutionary supply-chain mode developed in Anji Country, Zhejiang Province of China, which has successfully transformed the traditional

production mode – the raw materials are not supplied to the final product manufacturers, but to pre-processing factories who separated the bamboo poles according to the respective requirements of the final products, select the parts with favourable characteristics to process into semi-products. The residues from the pre-processing factories – sawdust, base parts of the stems, wasted strips and top parts of the stems are also used for various products. The utilisation rate of the bamboo stems was increased from 25% to 85-90%, which greatly improved the added-values and the protection of local environment. This article introduced the utilisation and processing of the other parts of bamboo, besides the stems such as leaves, branches, rhizomes, etc. This transformation of the supply chain had resulted in a comprehensive industry with



more than 3,000 types of products in nine major series in Anji.

Zhu Zhaohua

International Network for Bamboo and Rattan, Beijing 100102, China

Bamboo is the world's fastest growing renewable woody material and is wide-spread and easily cultivated throughout most of the tropical and subtropical zone. A variety of species have been investigated and shown to be a tough, durable and effective replacement for tropical hardwood and were developed into marketable commodities. However, the adoption of locally available and less energy-intensive building materials based on renewable resources such as bamboo is strongly hampered by misconceptions about the 'modernity' and reliability of bio-based building materials and in the case of bamboo, a dearth of fully developed products with sufficient engineering data and building codes. Unlike wood, economic automated conversion of hollow bamboo poles to engineered composites is still in its infancy. The main objective is to develop modern structural building materials from different species of bamboo aimed at placing growth in rapidly developing countries (most of which cultivate bamboo) onto a more sustainable path. Furthermore, synergies in existing industrial processing technologies developed for wood (such oriented and parallel strand lumber) get identified and extended to bamboo. Bamboo, processed to strands and fibre mats, could add significant value and grade to existing wood-based structural members by enabling longer spans with reduced cross-sections. The motivation is to develop optimised bamboo-wood hybrid composite materials, focusing on comparing different bamboo-wood ratios and resin types with the aim of optimising resin content and improved material characteristics



for different species of bamboo grown in Asia, Africa and Latin America.

Felix Bock

The University of British Columbia, Department of Wood Science,

Forestry, 2424 Main Mall, V6T1Z4, Vancouver, B.C., Canada

Conventional engineered bamboo from slats is manufactured in micro/small-scale manufacturing plants in The Philippines. However, less than 20% of the bamboo culm are utilised since they are taken only from its lower portion. My study aims to develop engineered products from bamboo harvesting and processing wastes from *Bambusa blumeana*, to maximise its utilisation and determine their properties. Slats, flattened bamboo and strands were produced from the bottom, middle and top portions of the bamboo culm respectively. Laminated boards were manufactured from the above using polyvinyl acetate (PVAc) and urea formaldehyde (UF) glues at 180-220 g/m² glue spreads. Particleboards from chips, shavings and leaves were also manufactured using UF glue at 8-12% resin contents. Laminated boards from slats and flattened bamboo had similar strength properties while lower strength properties were exhibited by boards manufactured from woven mats. MOE, MOR and shear strength of laminated boards bonded with UF glue were higher than boards bonded with PVAc glue. Boards with high glue spreads also had higher strength properties while hardness of boards was not affected by the type of glue and levels of glue spread. Meanwhile, MOE and MOR of particleboards manufactured from strands and chips were comparable while boards from leaves have inferior flexural strength properties. Boards from chips exhibited the highest internal bond while boards from strands exhibited the highest screw withdrawal resistance. Boards manufactured from chips exhibited the lowest thickness swelling while boards from strands exhibited the lowest water absorption property. This study showed that it is technically feasible to manufacture other engineered products from bamboo culm aside from only using the slats. Utilisation of the culm was increased from less than 20% to about 90%. Price

of traditional engineered bamboo from slats was reduced by 39% as a result of maximising the utilisation of the culm.



Rico Jariel Cabangon

Forest Product Research and Development Institute, Development of Science and Technology College, Los Banos, Laguna, Philippines

Bamboo being an environmentally friendly material is widely used in Indonesia as structural and architectural elements. The use of bamboo in Indonesia has recently faced a limitation due to its weakness in durability. This situation causes the society in Indonesia to improve bamboo preservation method that can be divided into traditional, modern and trial-error. Results from the preservation methods improve the bamboo lifespan, however, it causes an increase in the price of bamboo. The economic analysis of bamboo preservation methods in Indonesia will be discussed in ABS2016 in order to find out the economic value of preserved bamboo by using the Life Cycle Assessment (LCA) methodology.

Siswanti Zuraida

Faculty of Engineering and Design, Institute Teknologi dan Sains Bandung, Indonesia



OSH Campaign in Bintulu

The campaign aimed to promote OSH at workplaces with emphasis on safety aspects in the forestry sector

Occupational Safety and Health (OSH) is an important factor that warrants serious attention by the government, employers and employees. Occupational accidents and disasters particularly those that caused fatality pose adverse impacts to the affected parties. For employers, fatal accidents result in loss of talents and skills which affect productivity and tarnish reputation. For employees, fatal accidents cause loss of loved ones and sources of income.

Recognising the importance of OSH, STIDC in collaboration with the Department of Occupational Safety and Health (DOSH) and Sarawak Timber Association (STA) organised the OSH Campaign for wood-based companies in Bintulu Division on 22–24 November 2016.

The campaign aimed to promote OSH at workplaces with emphasis on safety aspects in the forestry sector including risks associated with driving along logging roads and engineering activities as well as biological and psychological hazards.

The campaign discussed topics on Occupational Safety and Health Act 1994 (OSHA); Hazard Identification, Risk Assessment and Risk Control

(HIRARC); Occupational Safety and Health Committee at Workplaces; Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease Regulation 2004 (NADOPOD) and Use and Standard of Exposure of Chemicals Hazardous to Health (USECHH Regulation). These were followed by the OSH audit at Sarawak Planted Forest Sendirian Berhad (LPF 0043).

“Forest certification is crucial in the forestry sector. Under this initiative, safety and health of employees is a prerequisite to get

forest concessions certified. It is therefore, vital to view certification and OSH seriously in order to comply with the global market requirements” STIDC General Manager, Datu Sarudu Haji Hoklai said.

To prevent occupational accidents, he emphasised that organisations must be aware of the hazards at workplaces and manage employees’ safety and health effectively. Apart from employers, employees are equally responsible for OSH by making it a culture.

“Tripartite cooperation among the government, employers and employees on OSH should be intensified. All policies, strategies and programmes related to OSH warrant undivided support from the three parties in order to achieve the desired results” Datu Haji Sarudu added.

Summary

- OSH is an important factor that warrants serious attention by the government, employers and employees
- To prevent occupational accidents, organisations must be aware of the hazards at workplaces and manage employees’ safety and health effectively
- Tripartite cooperation on OSH should be intensified



• DOSH Enforcement Section Head, Mr. Sadiyuk Henry Rigit (seated 4th right) together with STIDC staff and participants

OSHMP2020 To Reduce Occupational Accident & Occupational Fatality Rates By 10%

OSHMP 2020 aims to reduce occupational accident and occupational fatality rates to 2.53 accidents for every 1,000 workers and 4.36 fatalities for every 100,000 workers



• Field visit to Sarawak Planted Forest Sendirian Berhad to conduct the OSH audit

The Occupational Safety and Health Master Plan 2016-2020 (OSHMP 2020) was launched by the Ministry of Human Resource through the Department of Safety and Health to promote OSH among employers and employees.

Department of Safety and Health (DOSH) Director, IR Haji Mohd Hatta Bin Zakaria said, OSHMP 2020 aims to reduce occupational accident and occupational fatality rates by 10% to 2.53 occupational accidents for every 1,000 workers and 4.36 occupational fatalities for every 100,000 workers by 2020. It also strives to increase reporting of occupational diseases and poisoning by 30% in 2020.

Sarawak recorded six fatal, one permanent disability and 35 non-permanent disability cases in the forestry sector for the period of January-October 2016.

Occupational accidents and diseases particularly those that caused fatality pose adverse impacts to the affected parties. For employers, fatal accidents result in loss of talents and skills which jeopardise productivity and tarnish reputation. For employees, fatal accidents cause loss of loved ones and sources of income.

Tripartite co-operation between the government, employers and employees is crucial to ensure that OSH is implemented effectively.

"We would like to urge the wood-based industry players to practise excellent OSH by developing the OSH management system and getting it certified either under OHSAS 18001 or MS 1722" Mohd Hatta said.

One of the essentials of OSH management system is Hazard Identification, Risk

Assessment and Risk Control (HIRARC). HIRARC is a mechanism to manage occupational hazards. It enables employers to identify all factors leading to dangers in order to plan, implement and monitor preventive measures so that risks could be controlled continuously.

Quality Management and OSH management system add value to organisations by reducing occupational accidents and diseases thereby boosting reputation.

Summary

- OSHMP 2020 was launched to promote OSH among employers and employees
- One of the essentials of OSH management system is HIRARC
- Quality Management and OSH management system add value to organisations

Understanding USECHH

Use and Standard of Exposure of Chemicals Hazardous to Health Regulations, 2000 (USECHH) provides legal framework for employers to control hazardous chemicals used at workplaces besides setting workplace exposure standard and promoting excellent management of chemicals hazardous to health.

USECHH aims to prevent the occurrence of occupational diseases, poisoning or adverse health effects.

Chemicals Hazardous To Health

- Possess any of the properties categorised under Part B of Schedule 1 of OSH-CPL Regulations 1997:
 - Very toxic
 - Harmful
 - Toxic
 - Irritant
 - Corrosive

Application

- All places of work within the purview of OSH Act 1994 where chemicals hazardous to health are used including construction, quarrying/mining, agriculture/fishing, manufacturing, utilities, transport, storage and communication, wholesale and retail trade, hotels and restaurants, finance, insurance, real estate and business services, public services and statutory authorities.

Definition of Use

- Storage
- Disposal
- Treatment

Identification of Chemicals Hazardous To Health (Part II, Regulation 5)

Employers are responsible to:

- identify and record all chemicals hazardous to health in the register
- maintain the register
- make the register accessible to employees

Exemption

Chemicals which are:

- Radioactive material
- Foodstuff
- Pharmaceutical products
- Hazardous to health solely by virtue of their explosiveness, flammable properties and at high or low temperature or pressure

Information Required In The Register – Regulation 5 (2)

- List of all chemicals hazardous to health use
- Current chemical safety data sheet
- Average quantity use
- Process and work area where the chemicals are used
- Name and address of the supplier of each chemical

Maximum Exposure Limit

- 15-minute TWA airborne concentration which is 3 times the 8 hour TWA airborne concentration of chemical specified in schedule 1

Permissible Exposure Limit (Part III, Regulation 6 & 7)

To ensure that the exposure of any chemical hazardous to health listed in schedule 1:

- Not at any time exceed the ceiling limit
- Not exceed 8 hour TWA airborne concentration
- Not exceed the maximum exposure limit for that chemical during the working shift

Ceiling Limit

- Airborne concentration that should not be exceeded during any part of the working day

Time-Weighted Average

- Average airborne concentration over specified period of time

Assessment of Risk To Health (Part IV, Regulation 9)

Employers to conduct written assessment:

- Before commencing any work using chemical hazardous to health
- Within one year from the effective date of this Regulations for the existing work/process

Duties of Assessors (Regulation 12)

- Produce assessment report within one month after completion of the assessment
- Immediately inform the employer if assessment indicates immediate danger to life or property

Elements of Assessment Report (Regulation 9 [2])

- Methods and procedures adopted in the use of chemical
- Measures, procedures and equipment necessary to control any accidental emission
- Employees' exposure monitoring programme
- Training and re-training requirement
- Potential risk

- DOSH Enforcement Section Head, Mr. Sadiyuk Henry Rigit commenting on HIRARC group exercise



- Nature of hazard
- Degree of exposure
- Risk of health
- Measures and procedures required to control exposure
- Health surveillance programme

Director General of the Department of Occupational Safety and Health (DOSH)

- Assessor should be knowledgeable in toxicology, industrial hygiene, chemical safety and chemicals health risk assessment

- change in chemical used
- significant change in the quantity of hazardous chemical used
- change in method or rate of work
- deterioration in efficiency of control equipment
- plant or system failure

Who Is The Assessor? (Regulation 11)

- Employee/any other person appointed by employer and registered with the

Review Assessment (Regulation 10)

- Every 5 years
- If situation changed, such as due to:

- Directed by Director General, Deputy Director General or Director of DOSH



- Datuk Amar Haji Awang Tengah signing the visitors' book while the other VIPs look on

STIDC Invested RM12 Million To Purchase New Office Premises

This new office premises is a testimony of our commitment to ensure continuous improvement in terms of services to the industry

The wood-based sector of Sarawak is moving rapidly in tandem with the market momentum. In enhancing its services to the industry, STIDC invested RM12 million to purchase a new office premises at Marina Square, Miri.

The new office was declared opened on 12 October 2016 by Datuk Amar Haji Awang Tengah Ali Hasan, Second Minister of Resource Planning and Environment, Minister of Industrial and

Entrepreneur Development, Trade and Investment cum Chairman of STIDC.

STIDC Miri was established in 1981. To move in pace with the industry, it was elevated to regional status in 2003 to oversee the overall development of the wood-based sector in Miri, Bintulu and Limbang Divisions.

STIDC General Manager, Datu Haji Sarudu Haji Hoklai said, the acquisition of the new office premises marked

a new chapter in the history of STIDC. "This new office premises is a testimony of our commitment to ensure continuous improvement in terms of services to the industry" he said.

The six-storey building houses administrative offices of STIDC and its subsidiaries, furniture gallery, pent house, conference room and training room. To add value to the building, the pent house is opened for renting to government agencies and private sector to hold their activities.

Initiatives To Transform Wood-Based Sector

Important to transform the industry in tandem with the current market situation

The wood-based sector of Sarawak contributes the average export revenue of RM7 billion annually besides providing more than 100,000 direct and indirect employments from 1,478 companies registered with STIDC. Being the mainstay of the state's economy, it is therefore important to transform the industry in tandem with the

current market situation. This includes reviewing the policies and forestry rules and regulations.

Datuk Amar Haji Awang Tengah Ali Hasan, Second Minister of Resource Planning and Environment, Minister of Industrial and Entrepreneur Development, Trade and Investment said, towards that end,



the Sarawak Forest Ordinance and STIDC Ordinance were amended to ensure good governance in the forestry sector.

To spur the growth of downstream industry, he said, log quota was increased from 60% to 70% for local processing. He expressed hope that this initiative would boost our furniture sector in order to compete in the global market.

According to him, this initiative augured well with the government's aspiration to establish one million hectares of planted forests with fast growing tree species including Acacia by 2020.



• STIDC General Manager, Datu Haji Sarudu Haji Hoklai (3rd right) showing the timber products to Datuk Amar Haji Awang Tengah

Datuk Amar Haji Awang Tengah (3rd right) signing the plaque to mark the official opening of STIDC Miri new office premises •



He commended STIDC and Universiti Malaysia Sarawak (UNIMAS) for setting up a wood-based furniture research and development fund known as Kursi PUSAKA. The aim was to develop a pool of young designers to produce creative and innovative furniture designs to meet global demand.

“STIDC in collaboration with FRIM had also initiated the establishment of bamboo industry in Sarawak and signed the MoU on 28 June 2016. Under the MoU, FRIM agreed to provide its expertise in identifying suitable bamboo species to be planted in Sarawak. A trial plot was

dedicated in Sabal Forest for this project” the minister said.

Summary

- The wood-based sector of Sarawak contributes the average export revenue of RM7 billion annually besides providing more than 100,000 direct and indirect employments
- Sarawak Forest Ordinance and STIDC Ordinance were amended to ensure good governance in the forestry sector
- STIDC and UNIMAS set up Kursi PUSAKA to develop a pool of young designers to produce creative and innovative furniture designs to meet global demand

ePermit Licence Agreement Signed

STIDC was granted by DNeX, a non-exclusive and non-transferable licence to use the ePermit application solely for internal use, to enable customised and dynamic ePermit application

An ePermit Licence Agreement was signed by Dagang NeXchange Berhad ("DNeX"), through its subsidiary, Dagang Net Technologies Sendirian Berhad and STIDC in conjunction with the official opening ceremony of STIDC Miri Office Premises on 12 October 2016.

Under the agreement, STIDC was granted by DNeX, a non-exclusive and non-transferable licence to use the ePermit application solely for internal use, to enable customised and dynamic ePermit application.

STIDC being a permit-issuing agency authorised by the Royal Malaysian Customs could also enhance efficiency and transparency of application and approval process for permits relating to timber industry in Sarawak.

*Datuk Amar Haji Awang Tengah (3rd right) •
witnessing the agreement signing*



ePermit, one of the six services rendered under the National Single Window (NSW) for Trade Facilitation, enables permit applications from relevant permit-issuing agencies and obtain approval online.

DNeX was represented by its Executive Deputy Chairman, Datuk Samsul Husin and Dagang Net Chief Executive Officer, Mr. Wan Ahmad Syatibi Wan Abdul Manan. STIDC, on the other hand, was represented by its General Manager, Datu Haji Sarudu Haji Hoklai and his Deputy, Tuan Haji Hashim Haji Bojet.

The signing ceremony was witnessed by The Second Minister of Resource Planning and Environment, Minister of Industrial and Entrepreneur Development, Trade and Investment cum Chairman of STIDC, Datuk Amar Haji Awang Tengah Ali Hasan.

"We are honoured to be working with STIDC and committed to contributing to the Corporation's efforts in improving its services to the timber industry. DNeX has been the operator of the NSW for Trade Facilitation since its launch in 2009 and backed by more than 27 years



• Exchange of documents between Datu Haji Sarudu (5th right) and Mr. Wan Ahmad

of experience in terms of knowledge, expertise and operational know-how in rendering e-services, we have the edge to deliver and fulfill our customers' requirements" Datuk Samsul said.

Summary

- ePermit enables STIDC to enhance efficiency and transparency on application and approval process for permits relating to timber industry in Sarawak
- ePermit, one of the six services rendered under the National Single Window (NSW) for Trade Facilitation, enables permit applications from relevant permit-issuing agencies and obtain approval online

DF Circular No.3/2016
Ref : DF.681.76(VII) – 32
Date : 26 August 2016

Removal of Logs Without Removal Pass (Transit)

YAB Chief Minister/Minister of Resource Planning and Environment has directed that any log/consignment removed without Removal Pass (Transit) although has been royalty assessed to be confiscated and treated as seized logs/items and the Licensee/accused to be compounded accordingly.

Seized logs in such cases shall not be returned to the licensee. This directive is effective 1 August 2016.

2016 market

performance
for January to September

Export Value of Logs & Timber Products

The cumulative export value of timber and timber products of Sarawak for the third quarter of 2016 (Q3 2016) decreased by 7.7% to RM4.4 billion from RM4.9 billion in the third quarter of 2015 (Q3 2015).

This was attributed by the decrease in export value of various commodities such as particle board (4%), veneer (7%), plywood (12%), logs (19%), dowel (22%) and moulding (52%). Export value of other commodities, however, increased with block board (100%), woodchips (32%), fibreboard (15%), sawn timber (5%) and laminated board/flooring (2%).

Plywood, sawn timber and logs remained the top three export items and accounted for 49% (1.2 million m³), 25% (1.9 million m³) and 13% (380,961 m³) respectively. **(Table 1)**

Logs

Q3 2016 saw a decrease in export volume of logs by 8% to 1.9million m³ from 2.1 million m³ and 19% in value to RM1.1billion from RM1.4 billion in Q3 2015.

India remained the top consumer of logs at 968,576 m³ but reduced its consumption by 18%. This was followed by Indonesia at 621,947 m³ (increased by 48%) and Taiwan at 134,033 m³ (increased by 19%).

These countries constituted 92% of the overall export volume and 90% of the overall export value of logs during the period.

The average FOB unit value of logs decreased by 12% to RM586 for Q3 2016 from RM664 in Q3 2015. **(Table 2)**



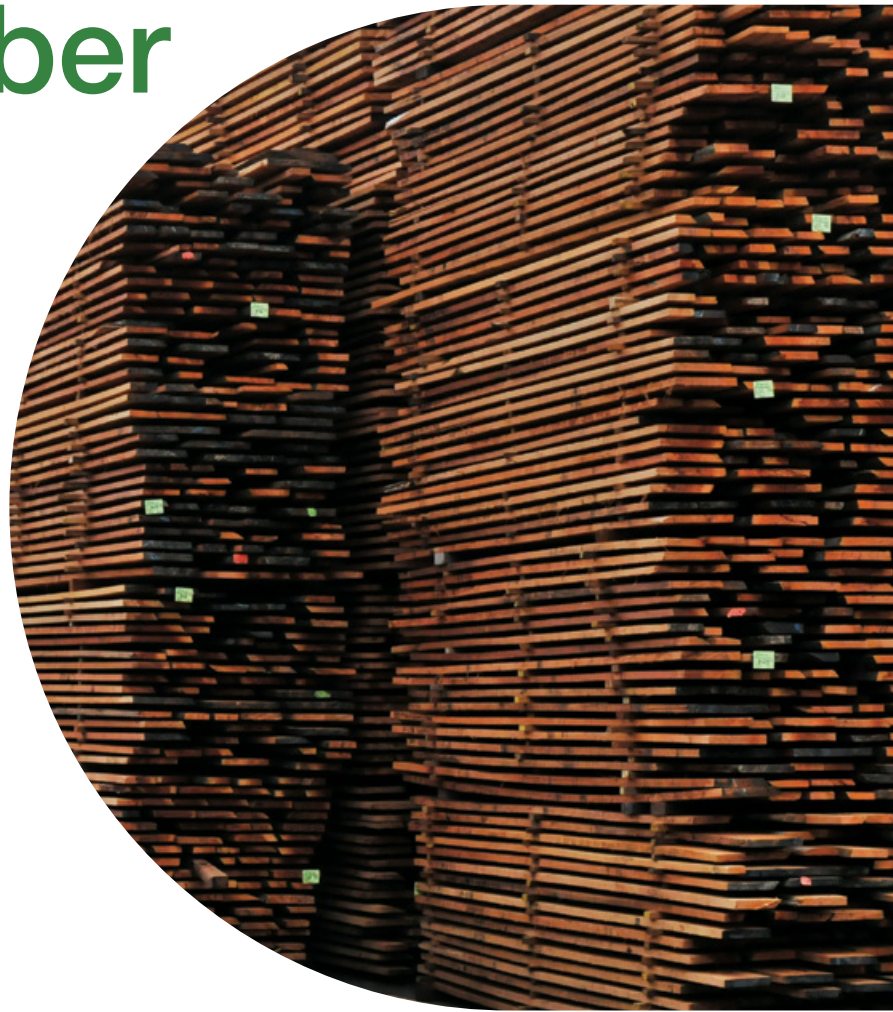
Sawn-timber

Q3 2016 saw the export volume of sawn timber from Sarawak dropped by 11% to 380,961 m³ from 429,992 m³. The export value, however, increased by 5% to RM553 million from RM526 million in Q3 2015.

The Philippines maintained its position as the number one buyer of sawn timber with 128,281 m³ but reduced its consumption by 1.7%. Other major importers of sawn timber were the Middle East with 87,646 m³ (increased by 27%) and Thailand at 58,132 m³ which marked a reduction of 36%.

These countries constituted 72% to the total export volume and value of sawn timber for Q3 2016.

The average FOB unit value of sawn timber increased by 18% from RM1,223 in Q3 2015 to RM1,453 in Q3 2016. **(Table 3)**



Plywood

Export volume of plywood for Q3 2016 was 6.7% lower at 1.2 million m³ compared to 1.3 million m³ in Q3 2015. Plywood export revenue of RM2.1 billion accounted for 49% of the overall revenue earned from the export of logs and timber products.

Japan remained the number one importer of plywood from Sarawak with 715,995 m³ or 56% of the export volume at RM1.3 billion although it decreased its consumption by 12%. This was followed by Korea and the Middle East which increased consumption by 44% and 12% respectively.

Export of plywood to Japan, Korea and the Middle East contributed 82% to the total export volume and value for Q3 2016.

The average FOB unit value of plywood decreased by 5% from RM1,823 in Q3 2015 to RM1,726 in Q3 2016. **(Table 4)**





Other Timber products

Other timber products such as veneer, dowels, mouldings, particle board, fibreboard, block board, laminated board/flooring, woodchip and others (as mentioned in Table 1) accounted for RM611 million or 14% of the overall export value of logs and timber products in Q3 2016.

Export volume of various commodities plunged, for instance, fibreboard (3%), particle board (5%), veneer (9%), laminated board/flooring (17%), dowel (37%) and moulding (48%).

Export volume of block board and woodchips, however, grew by 100% and 9% respectively in Q3 2016 compared with Q3 2015. **(Table 5, 6, 7, 8, 9 & 10)**

Outlook

The 2016 export revenue of Sarawak's timber sector is projected at RM5.9 billion or a reduction of 11% compared to RM6.6 billion in 2015 due to market volatility.

Sarawak remains committed to ensuring the success of its Sustainable Forest Management in order to make the wood-based sector the mainstay of the state's economy despite weaker market performance in Q3 2016. In tandem with this, the Land Use Policy was formulated by the state government to ensure sustainable development particularly for the forestry and agriculture sectors.



trade statistics **SARAWAK**

TABLE 1
EXPORT SUMMARY OF TIMBER AND TIMBER PRODUCTS FROM SARAWAK

PRODUCTS	2016 ^p January - September			2015 ^p January - September			% Change 2016 / 2015	
	Volume (M ³)	FOB Value (RM'000)	Value %	Volume (M ³)	FOB Value (RM'000)	Value %	Volume	Value
LOG	1,884,038	1,104,625	25.00	2,051,929	1,363,410	27.90	(8.18)	(18.98)
SAWNTIMBER	380,961	553,369	12.53	429,992	526,013	10.76	(11.40)	5.20
PLYWOOD	1,245,102	2,149,059	48.65	1,334,766	2,433,239	49.79	(6.72)	(11.68)
VENEER	103,998	150,908	3.42	113,804	162,090	3.32	(8.62)	(6.90)
LAMINATED BOARD / FLOORING	7,381	26,632	0.60	8,940	26,025	0.53	(17.44)	2.33
MOULDING	3,525	8,531	0.19	6,731	17,840	0.37	(47.63)	(52.18)
DOWEL	303	1,374	0.03	477	1,757	0.04	(36.61)	(21.80)
FIBREBOARD	122,583	215,761	4.88	126,430	187,182	3.83	(3.04)	15.27
BLOCKBOARD	2,166.43	2,526.00	0.06	-	-	-	100.00	100.00
PARTICLE BOARD	59,162	34,598	0.78	62,473	36,202	0.74	(5.30)	(4.43)
OTHER PRODUCTS*	59,542	74,896	1.70	55,054	62,836	1.29	8.15	19.19
OTHER PRODUCTS**[Units]	20,562	31,777	0.72	15,635	22,319	0.46	31.51	42.38
WOODCHIP [Tonne]	159,755	63,763	1.44	146,700	48,210	0.99	8.90	32.26
TOTAL (m³) (RM)	3,868,761	4,417,819	100	4,190,596	4,887,123	100	(7.68)	(9.60)

***OTHER TIMBER PRODUCTS:**

- Briquette
- Core Plugs
- Densified wood
- Door & door frames
- Finger jointed
- Furniture and furniture parts
- Laminated beam
- Laminated post
- Laminated Veneer Lumber (LVL)
- Railways sleepers
- Wooden fences
- Wooden gates
- Wooden pellet
- Wooden pegs & stakes

****OTHER TIMBER PRODUCTS:**

- Furniture
- Wooden pallet

Notes:

- > Fibreboard include MDF and HDF
- > Total of volume (m³) does not includes woodchips (tonne) and other product (units)
- > a = actual data & total does not include application/permit to transport goods within the Federation [Customs Declaration Form No.3 (CDF3)]
- > p = preliminary data & total does not include application/permit to transport goods within the Federation [Customs Declaration Form No.3 (CDF3)]

EXPORT VALUE (%) OF MAJOR TIMBER & TIMBER PRODUCTS
FROM SARAWAK (RM'000) : 2016 / 2015

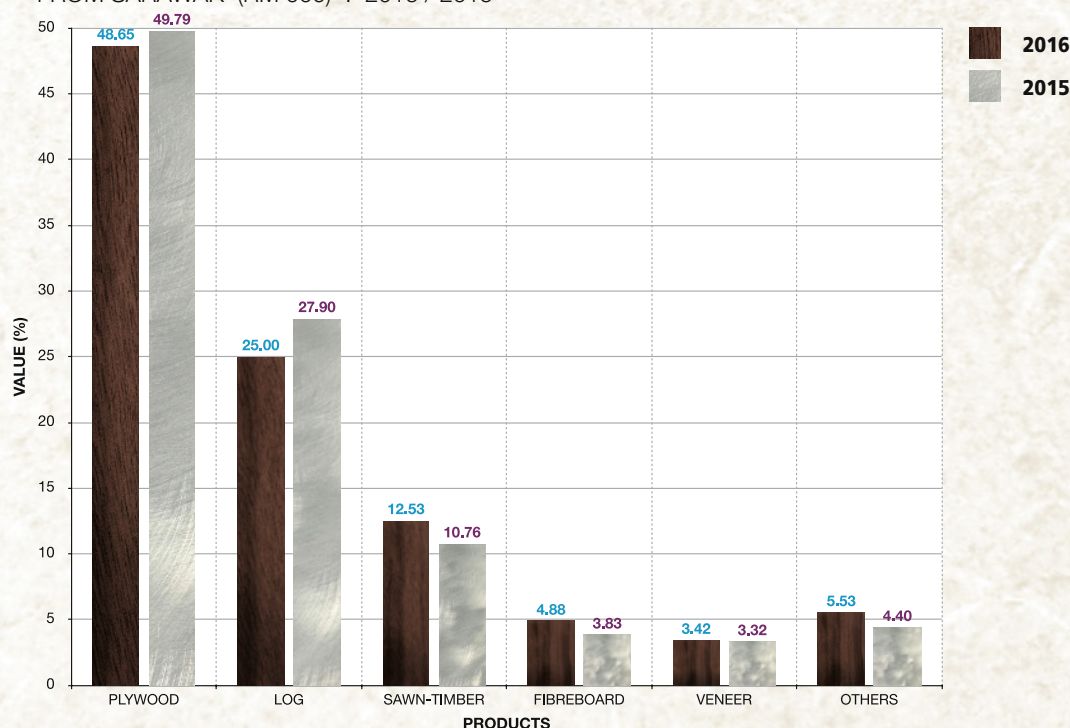


TABLE 2
EXPORT OF LOGS BY COUNTRY OF DESTINATIONS

DESTINATIONS	2016 ^P January - September			2015 ^P January - September			% Change 2016 / 2015	
	Volume (M³)	FOB Value (RM'000)	Value %	Volume (M³)	FOB Value (RM'000)	Value %	Volume	Value
INDIA	968,576	762,164	69.00	1,181,436	953,538	69.94	(18.02)	(20.07)
INDONESIA	621,947	120,445	10.90	419,970	79,108	5.80	48.09	52.25
TAIWAN	134,033	110,333	9.99	166,461	136,076	9.98	(19.48)	(18.92)
VIETNAM	90,850	56,566	5.12	108,460	61,773	4.53	(16.24)	(8.43)
JAPAN	39,973	34,610	3.13	68,040	55,211	4.05	(41.25)	(37.31)
CHINA	18,228	12,715	1.15	77,831	55,455	4.07	(76.58)	(77.07)
KOREA	10,431	7,792	0.71	29,730	22,249	1.63	(64.91)	(64.98)
TOTAL	1,884,038	1,104,625	100	2,051,929	1,363,410	100	(8.18)	(18.98)

EXPORT VALUE (%) OF LOGS TO MAJOR DESTINATIONS
(RM'000) : 2016 / 2015

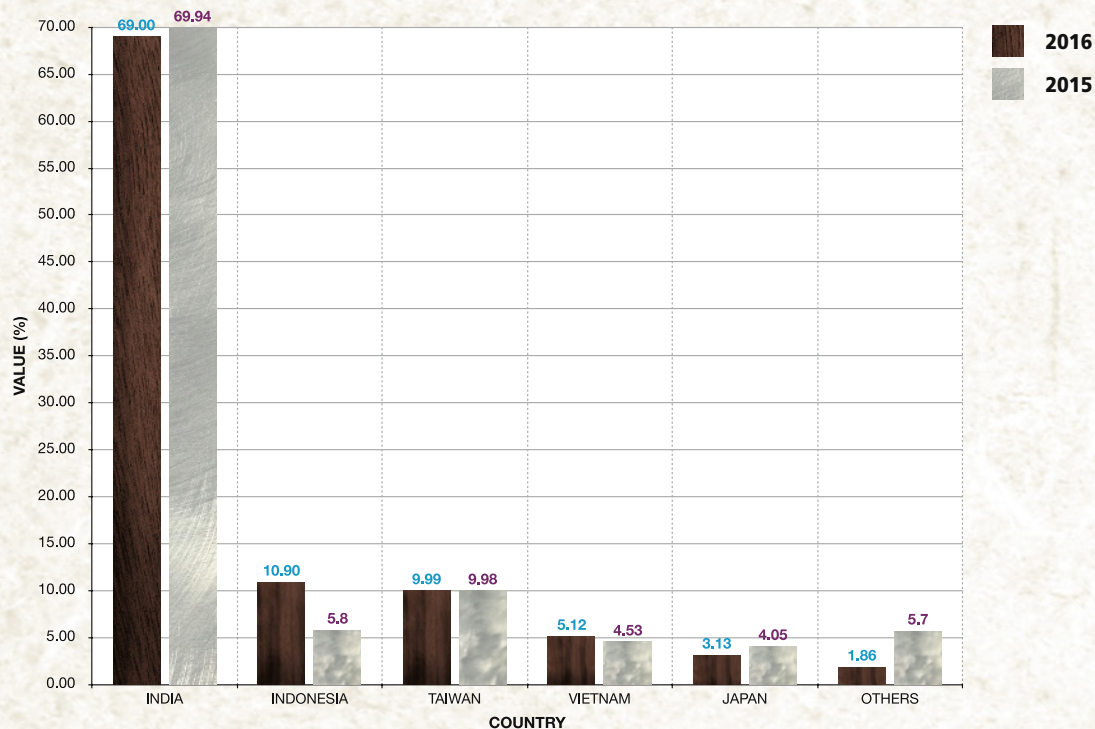


TABLE 3
EXPORT OF SAWN-TIMBER BY COUNTRY OF DESTINATIONS

DESTINATIONS	2016 ^p January - September			2015 ^p January - September			% Change 2016 / 2015	
	Volume (M ³)	FOB Value (RM'000)	Value %	Volume (M ³)	FOB Value (RM'000)	Value %	Volume	Value
PHILIPPINES	128,281	166,101	30.02	130,429	133,465	25.37	(1.65)	24.45
MIDDLE EAST	87,646	159,796	28.88	68,832	106,920	20.33	27.33	49.45
THAILAND	58,132	70,105	12.67	90,793	103,918	19.76	(35.97)	(32.54)
TAIWAN	38,712	40,103	7.25	51,276	50,715	9.64	(24.50)	(20.92)
KOREA	20,292	32,510	5.87	20,984	34,472	6.55	(3.30)	(5.69)
JAPAN	14,309	30,400	5.49	14,923	29,499	5.61	(4.11)	3.05
SRI LANKA	8,706	15,734	2.84	12,393	20,265	3.85	(29.75)	(22.36)
CHINA	6,997	8,020	1.45	14,674	14,125	2.69	(52.32)	(43.22)
SINGAPORE	5,877	7,107	1.28	9,987	11,535	2.19	(41.15)	(38.39)
SOUTH AFRICA	3,692	7,551	1.36	4,120	6,977	1.33	(10.38)	8.23
OTHER*	8,316	15,942	2.88	11,582	14,122	2.68	(28.20)	12.89
TOTAL	380,961	553,369	100	429,992	526,013	100	(11.40)	5.20

***OTHER DESTINATIONS:**

- AUSTRALIA
- BRUNEI DARUSSALAM
- HONG KONG
- INDIA
- MALAYSIA (Peninsular or Sabah-free zon)
- MALDIVES
- MAURITIUS
- PAKISTAN
- REUNION
- SEYCHELLES
- SUDAN
- UNITED STATES
- VIETNAM

EXPORT VALUE (%) OF SAWN-TIMBER TO MAJOR DESTINATIONS

(RM'000) : 2016 / 2015

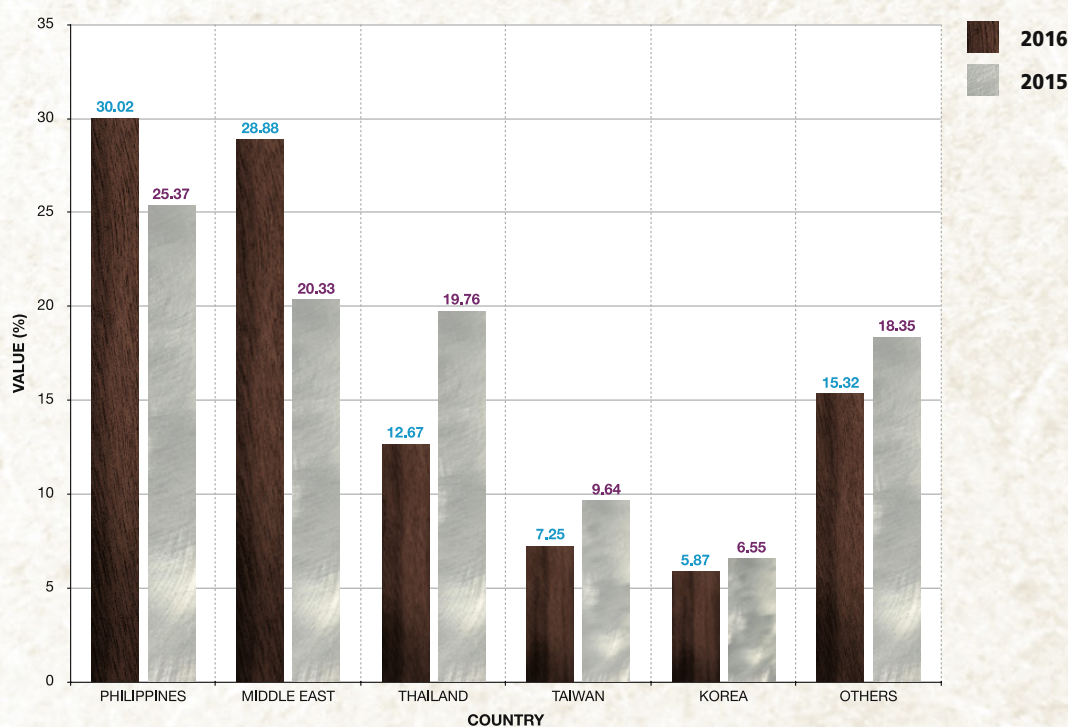


TABLE 4
EXPORT OF PLYWOOD BY COUNTRY OF DESTINATIONS

DESTINATIONS	2016 ^P January - September			2015 ^P January - September			% Change 2016 / 2015	
	Volume (M ³)	FOB Value (RM'000)	Value %	Volume (M ³)	FOB Value (RM'000)	Value %	Volume	Value
JAPAN	715,995	1,308,174	60.87	815,433	1,561,349	64.17	(12.19)	(16.22)
KOREA	156,792	239,418	11.14	140,263	226,209	9.30	11.78	5.84
MIDDLE EAST	152,323	215,327	10.02	106,117	165,914	6.82	43.54	29.78
TAIWAN	101,564	154,923	7.21	129,913	210,696	8.66	(21.82)	(26.47)
HONG KONG	22,845	41,110	1.91	24,461	44,938	1.85	(6.61)	(8.52)
CHINA	18,667	34,570	1.61	25,226	47,495	1.95	(26.00)	(27.21)
PHILIPPINES	14,171	27,918	1.30	25,376	50,037	2.06	(44.16)	(44.21)
AUSTRALIA	13,836	33,142	1.54	11,672	24,350	1.00	18.54	36.11
BRUNEI DARUSSALAM	9,258	15,112	0.70	8,038	11,327	0.47	15.17	33.42
THAILAND	7,371	13,871	0.65	10,526	19,314	0.79	(29.98)	(28.18)
OTHER*	32,279	65,494	3.05	37,740	71,610	2.94	(14.47)	(8.54)
TOTAL	1,245,102	2,149,059	100	1,334,766	2,433,239	100	(6.72)	(11.68)

***OTHER DESTINATIONS:**

- CANADA
- CHILE
- COMOROS
- DJIBOUTI
- EGYPT
- INDIA
- MALAYSIA (Peninsular or Sabah-free zon)
- MALDIVES
- MEXICO
- MYANMAR
- NEW ZEALAND
- NOTHERN MARIANA ISLANDS
- PAKISTAN
- PAPUA NEW GUINEA
- SINGAPORE
- SOLOMON ISLANDS
- SOUTH AFRICA
- SRI LANKA
- TURKEY
- UNITED KINGDOM
- UNITED STATES
- VIETNAM

EXPORT VALUE (%) OF PLYWOOD TO MAJOR DESTINATIONS

(RM'000) : 2016 / 2015

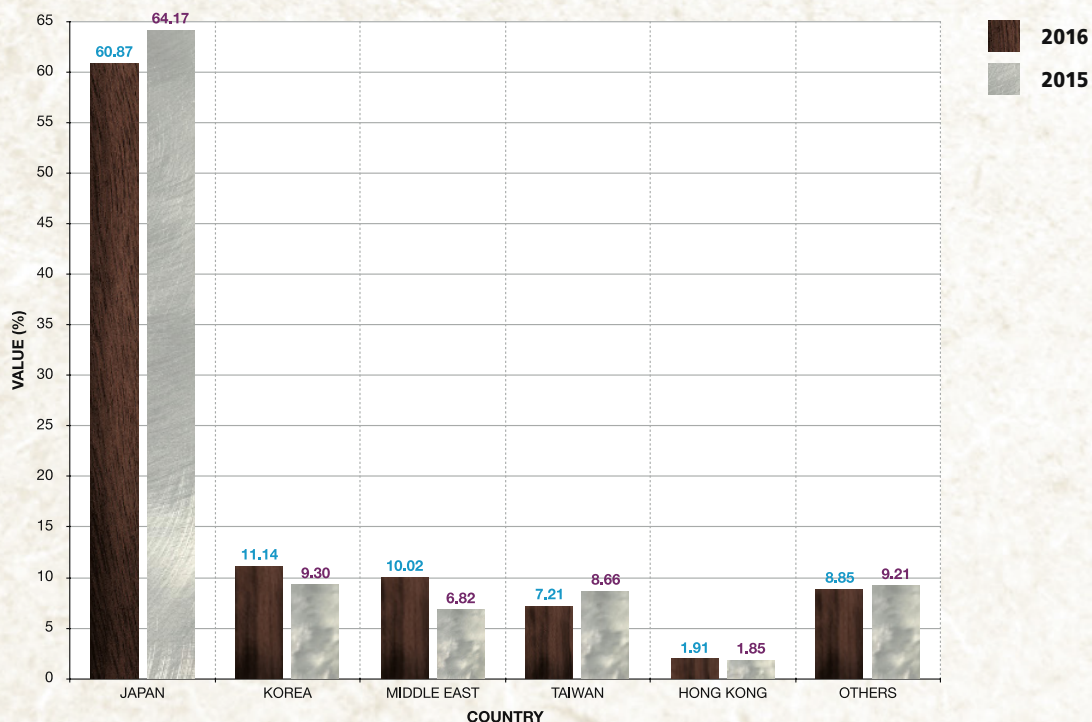


TABLE 5
EXPORT OF VENEER BY COUNTRY OF DESTINATIONS

DESTINATIONS	2016 ^P January - September			2015 ^P January - September			% Change 2016 / 2015	
	Volume (M ³)	FOB Value (RM'000)	Value %	Volume (M ³)	FOB Value (RM'000)	Value %	Volume	Value
TAIWAN	49,555	62,599	41.48	54,959	69,668	42.98	(9.83)	(10.15)
KOREA	45,626	70,593	46.78	50,031	75,764	46.74	(8.80)	(6.83)
JAPAN	3,937	8,777	5.82	3,116	6,548	4.04	26.34	34.04
CHINA	3,108	3,846	2.55	4,590	5,862	3.62	(32.28)	(34.39)
AUSTRALIA	1,446	4,427	2.93	996	4,083	2.52	45.18	8.43
PHILIPPINES	314	639	0.42	-	-	-	100.00	100.00
BRUNEI DARUSSALAM	11	27	0.02	-	-	-	100.00	100.00
MIDDLE EAST	-	-	-	77	105	0.06	(100.00)	(100.00)
UNITED STATES	-	-	-	36	60	0.04	(100.00)	(100.00)
TOTAL	103,998	150,908	100	113,804	162,090	100	(8.62)	(6.90)

EXPORT VALUE (%) OF VENEER TO MAJOR DESTINATIONS
(RM'000) : 2016 / 2015

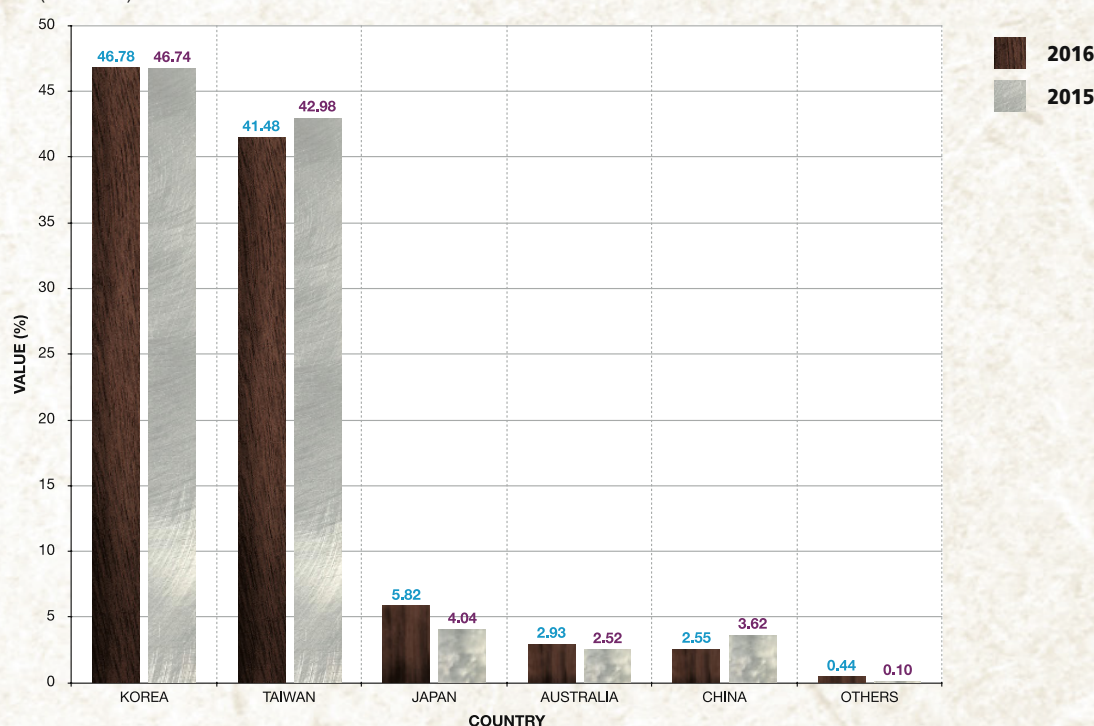


TABLE 6
EXPORT OF LAMINATED BOARD/FLOORING BY COUNTRY OF DESTINATIONS

DESTINATIONS	2016 ^P January - September			2015 ^P January - September			% Change 2016 / 2015	
	Volume (M ³)	FOB Value (RM'000)	Value %	Volume (M ³)	FOB Value (RM'000)	Value %	Volume	Value
UNITED STATES	3,554	15,867	59.58	2,876	11,056	42.48	23.55	43.51
VIETNAM	1,557	5,509	20.69	1,559	5,345	20.54	(0.15)	3.07
TAIWAN	984	2,291	8.60	2,247	3,542	13.61	(56.19)	(35.32)
KOREA	664	1,266	4.75	714	1,662	6.39	(7.03)	(23.83)
INDONESIA	346	799	3.00	712	1,826	7.02	(51.38)	(56.24)
BRUNEI DARUSSALAM	117	463	1.74	506	1,514	5.82	(76.89)	(69.42)
MIDDLE EAST	91	226	0.85	88	172	0.66	2.50	31.40
JAPAN	39	159	0.60	60	227	0.87	(34.34)	(29.96)
SINGAPORE	20	37	0.14	-	-	-	100.00	100.00
AUSTRALIA	9	15	0.06	-	-	-	100.00	100.00
OTHER*	-	-	-	178	681	2.62	(100.00)	(100.00)
TOTAL	7,381	26,632	100	8,940	26,025	100	(17.44)	2.33

***OTHER DESTINATIONS:**

- CANADA
- CHINA
- MALDIVES
- UNITED KINGDOM

EXPORT VALUE OF LAMINATED BOARD / FLOORING TO MAJOR DESTINATIONS

(RM'000) : 2016 / 2015

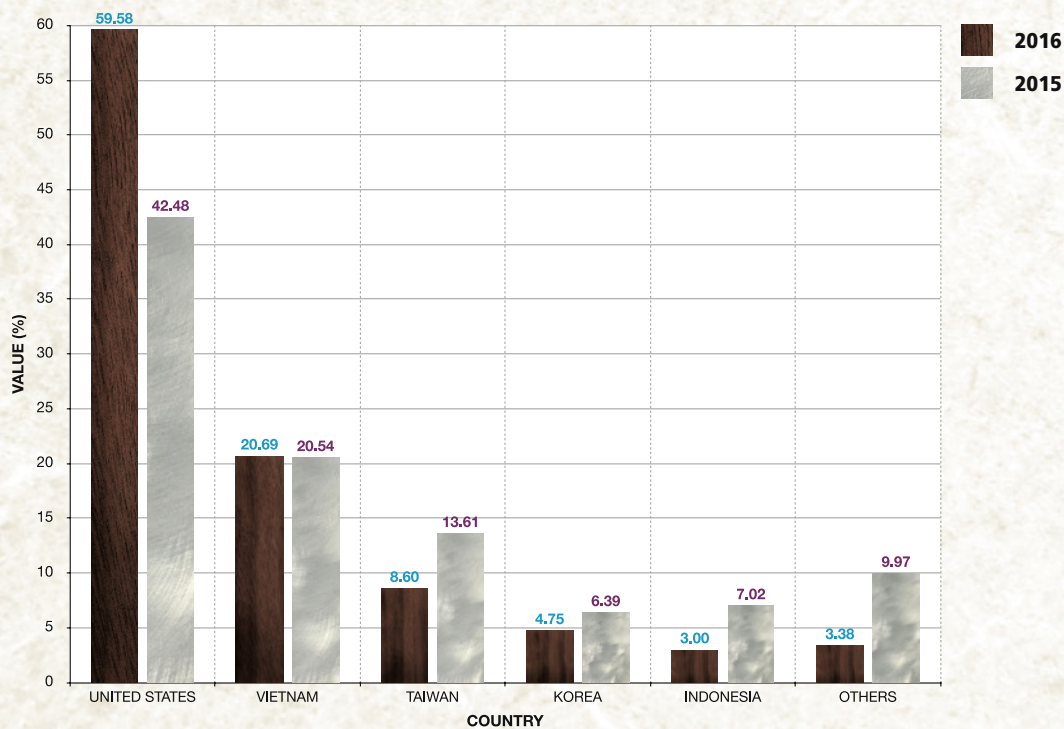


TABLE 7
EXPORT OF MOULDING BY COUNTRY OF DESTINATIONS

DESTINATIONS	2016 ^P January - September			2015 ^P January - September			% Change 2016 / 2015	
	Volume (M ³)	FOB Value (RM'000)	Value %	Volume (M ³)	FOB Value (RM'000)	Value %	Volume	Value
JAPAN	2,618	6,087	71.35	2,877	5,858	32.84	(9.00)	3.91
KOREA	509	1,231	14.43	1,889	4,152	23.27	(73.07)	(70.35)
AUSTRALIA	130	569	6.67	1,499	6,734	37.75	(91.33)	(91.55)
UNITED STATES	122	159	1.86	213	307	1.72	(42.92)	(48.21)
TAIWAN	43	209	2.45	111	416	2.33	(61.33)	(49.76)
SINGAPORE	43	77	0.90	72	145	0.81	(40.72)	(46.90)
SOUTH AFRICA	28	95	1.11	23	43	0.24	19.60	120.93
MALDIVES	20	37	0.43	5	31	0.17	345.06	19.35
SEYCHELLES	5	17	0.20	17	69	0.39	(69.33)	(75.36)
BRUNEI DARUSSALAM	5	23	0.27	3	9	0.05	45.37	155.56
OTHER*	3	27	0.32	23	76	0.43	(85.44)	(64.47)
TOTAL	3,525	8,531	100	6,731	17,840	100	(47.63)	(52.18)

*OTHER DESTINATIONS:

- UNITED KINGDOM

EXPORT VALUE OF MOULDING TO MAJOR DESTINATIONS

(RM'000) : 2016 / 2015

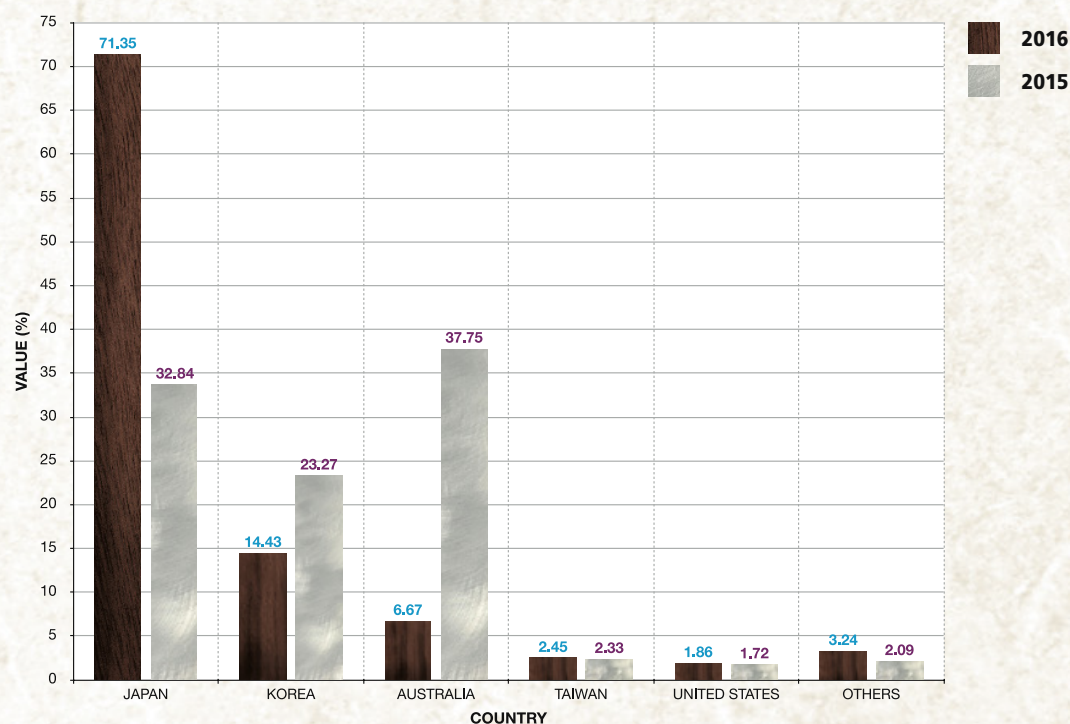


TABLE 8
EXPORT OF DOWEL BY COUNTRY OF DESTINATIONS

DESTINATIONS	2016 ^P January - September			2015 ^P January - September			% Change 2016 / 2015	
	Volume (M ³)	FOB Value (RM'000)	Value %	Volume (M ³)	FOB Value (RM'000)	Value %	Volume	Value
UNITED STATES	97	464	33.77	109	489	27.83	(10.68)	(5.11)
SOUTH AFRICA	89	265	19.29	198	649	36.94	(55.31)	(59.17)
EU	86	467	33.99	33	129	7.34	157.10	262.02
INDIA	18	100	7.28	37	167	9.50	(50.21)	(40.12)
JAPAN	13	78	5.68	38	206	11.72	(67.22)	(62.14)
AUSTRALIA	-	-	-	45	94	5.35	(100.00)	(100.00)
TAIWAN	-	-	-	16	23	1.31	(100.00)	(100.00)
TOTAL	303	1,374	100	477	1,757	100	(36.61)	(21.80)

EXPORT VALUE OF DOWEL TO MAJOR DESTINATIONS

(RM'000) : 2016 / 2015

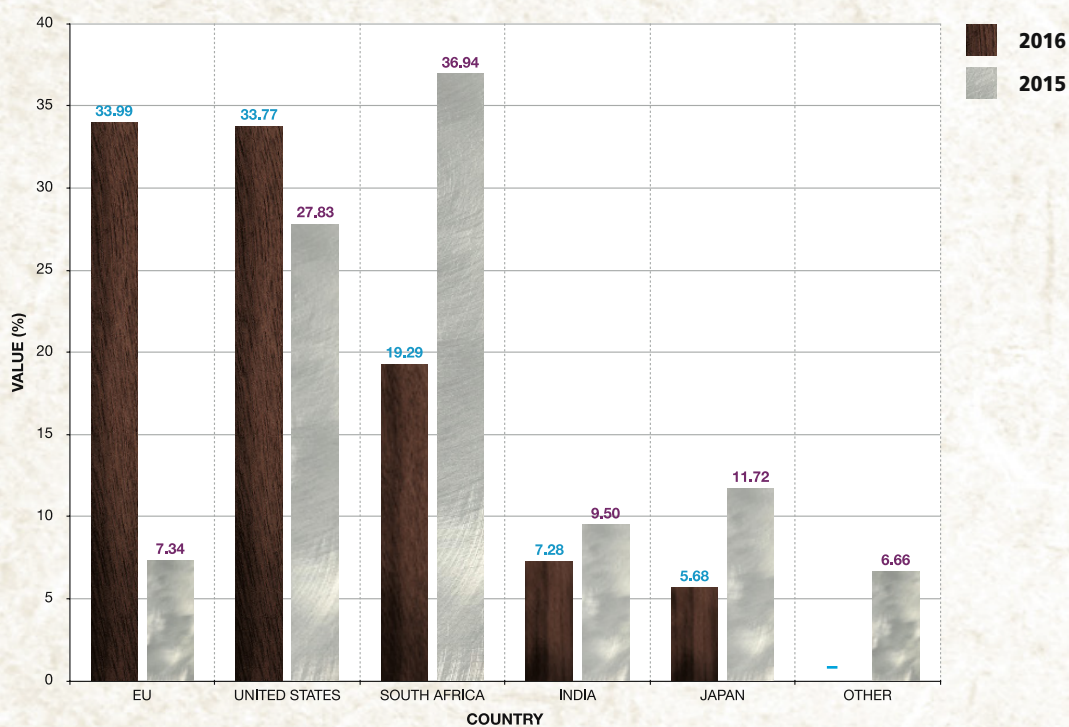


TABLE 9
EXPORT OF FIBREBOARD BY COUNTRY OF DESTINATIONS

DESTINATIONS	2016 ^P January - September			2015 ^P January - September			% Change 2016 / 2015	
	Volume (M³)	FOB Value (RM'000)	Value %	Volume (M³)	FOB Value (RM'000)	Value %	Volume	Value
JAPAN	95,864	174,023	80.66	102,962	150,030	80.15	(6.89)	15.99
PHILIPPINES	9,137	12,161	5.64	8,513	11,027	5.89	7.33	10.28
VIETNAM	4,858	9,150	4.24	4,133	6,880	3.68	17.55	32.99
INDONESIA	4,686	7,308	3.39	5,083	7,548	4.03	(7.81)	(3.18)
TAIWAN	3,239	6,282	2.91	3,769	9,285	4.96	(14.08)	(32.34)
KOREA	2,644	4,737	2.20	552	457	0.24	379.22	936.54
INDIA	1,303	724	0.34	-	-	-	100.00	100.00
BRUNEI DARUSSALAM	395	271	0.13	791	721	0.39	(50.09)	(62.41)
EU	324	904	0.42	227	572	0.31	42.79	58.04
CHINA	134	201	0.09	212	410	0.22	(36.91)	(50.98)
OTHER*	-	-	-	188	252	0.13	(100.00)	(100.00)
TOTAL	122,583	215,761	100	126,430	187,182	100	(3.04)	15.27

*OTHER DESTINATIONS:

- THAILAND

EXPORT VALUE OF FIBREBOARD TO MAJOR DESTINATIONS
(RM'000) : 2016 / 2015

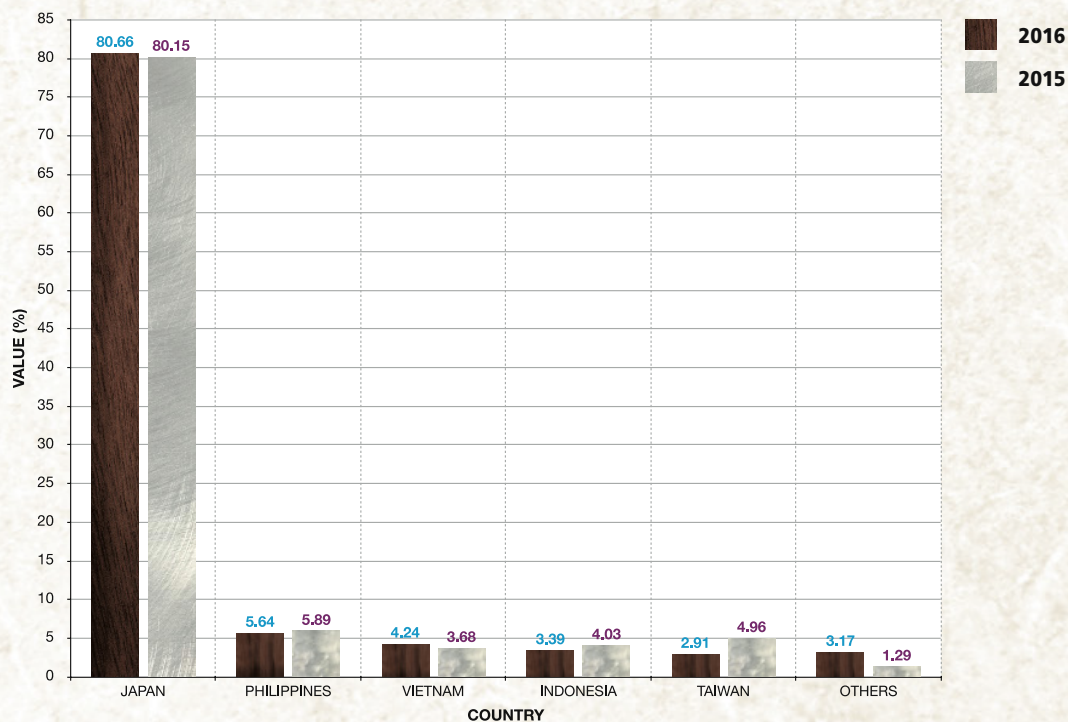


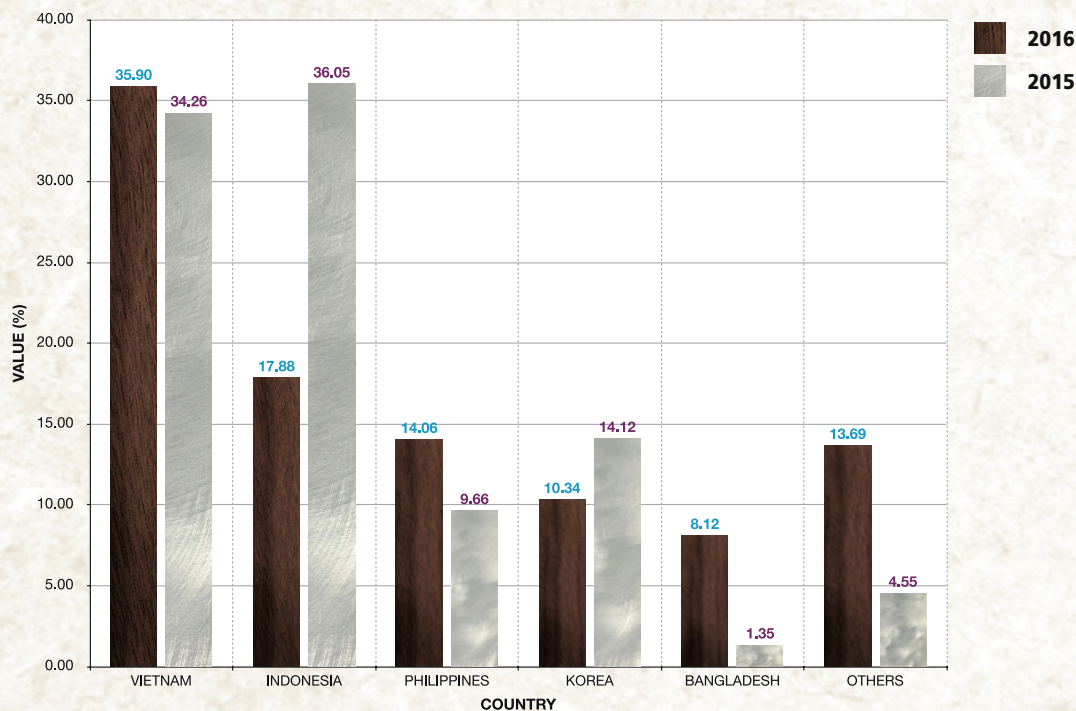
TABLE 10
EXPORT OF PARTICLE BOARD BY COUNTRY OF DESTINATIONS

DESTINATIONS	2016 ^P January - September			2015 ^P January - September			% Change 2016 / 2015	
	Volume (M ³)	FOB Value (RM'000)	Value %	Volume (M ³)	FOB Value (RM'000)	Value %	Volume	Value
VIETNAM	20,612	12,419	35.90	21,010	12,402	34.26	(1.89)	0.14
INDONESIA	10,581	6,187	17.88	22,548	13,052	36.05	(53.07)	(52.60)
PHILIPPINES	8,680	4,865	14.06	6,087	3,498	9.66	42.61	39.08
KOREA	5,735	3,578	10.34	8,825	5,113	14.12	(35.02)	(30.02)
INDIA	5,001	2,700	7.80	1,043	539	1.49	379.50	400.93
BANGLADESH	4,938	2,811	8.12	948	490	1.35	421.06	473.67
JAPAN	1,350	799	2.31	1,093	607	1.68	23.53	31.63
SRI LANKA	862	491	1.42	-	-	-	100.00	100.00
CHINA	610	329	0.95	107	73	0.20	468.84	350.68
BRUNEI DARUSSALAM	492	246	0.71	726	370	1.02	(32.19)	(33.51)
OTHER*	301	173	0.50	86	58	0.16	251.30	198.28
TOTAL	59,162	34,598	100	62,473	36,202	100	(5.30)	(4.43)

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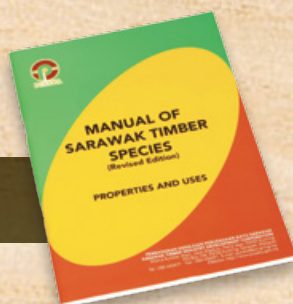


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