



## Improving Malaysian HE Knowledge Towards A Wood And Furniture Industry 4.0 - MAKING 4.0

# Timber & Furniture Industry In Malaysia

By Malaysian Timber Industry Board (MTIB)



MTIB

*Malaysian Wood*  
Standing on Excellence

2<sup>nd</sup> July 2019  
Warsaw, Poland

# Presentation Outline

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- Introduction
- Timber & Furniture Industry in Malaysia
- Issues and challenges
- Way forward
- Conclusion







# Malaysia



Capital: Kuala Lumpur



## GDP (US\$)

309.86 billion (2017)\*  
World ranking: 38/191



## GDP Per Capita (US\$)

9,660 (2017)\*  
World ranking: 72/190



## Economic Structure

(in terms of GDP composition, 2016)

Agriculture (8.66%)  
Industry (38.34%)  
Services (53.01%)



## External Trade (% of GDP)

128.6% (2016)



## Currency

(Period Average)

Malaysian Ringgit  
4.15 per US\$ (2016)



## Political System

Federal constitutional monarchy



## Religion

Muslims (63.7%)  
Buddhists (17.7%)  
Hindus (6%)



## Population

32.08 million (2017)\*  
World ranking: 42/191



## Median Age

27.7 (2015)  
World ranking: 104/201



## Language<sup>^</sup>

Bahasa Malaysia (Official)  
English  
Chinese



## Land Area

328,550 sq km





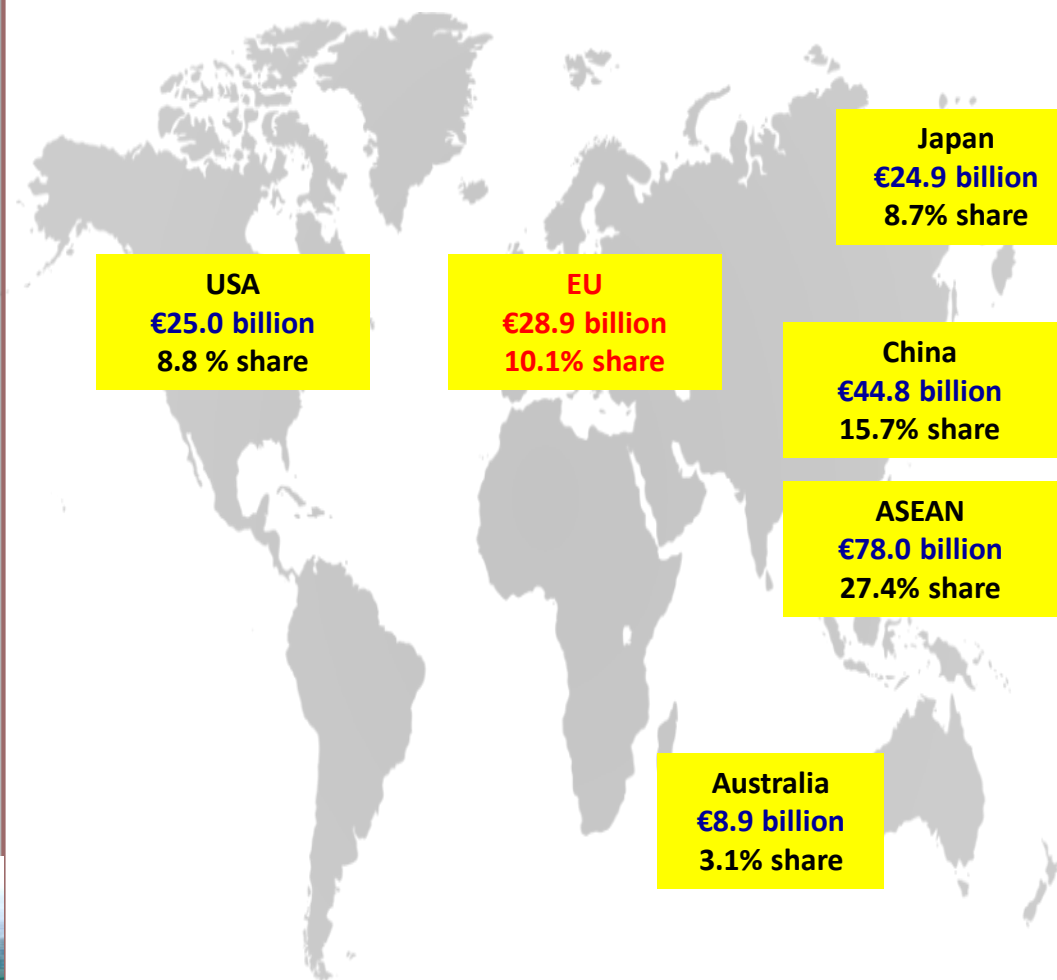
## Malaysia's Economic Development Journey

SECTOR	GDP CONTRIBUTION (%)	
	1970	2015
Agriculture	33.6	8.9
Mining	7.2	9.0
Construction	3.8	4.4
<b>Manufacturing</b>	<b>12.8</b>	<b>23.0</b>
Services	42.6	53.5

- **Services** the largest contributor to the Economy (53.5%)
- **Manufacturing** sector contributes **81%** of total exports



## MALAYSIA'S MAJOR TRADING PARTNERS (2016)



Source : MATRADE  
Exchange Rate: EUR1: RM4.58(2016)

# TIMBER / WOOD-BASED INDUSTRY IN MALAYSIA



- Resource based industry in Malaysia
- The industry has contributed to the nation's economic growth
- Export oriented and foreign exchange earnings





# CONTRIBUTION OF MALAYSIAN TIMBER INDUSTRY (2017)



## EXPORT CONTRIBUTION

**2.5% from USD 225 billion**  
(USD 1 = MYR 4.15)

\* Source : DOSM, MTIB



## MARKET

**Export : USD 5.6 billion**  
**Import : USD 1.13 billion**  
**Trade Surplus : USD 4.46 billion**  
**Domestic : USD 4.8 billion**  
(USD 1 = MYR 4.15)

\* Source : DOSM, MTIB



## INVESTMENT

**Domestic : USD 121 million**  
**FDI : USD 34.8 million**  
(USD 1 = MYR 4.15)

\* Source : MIDA

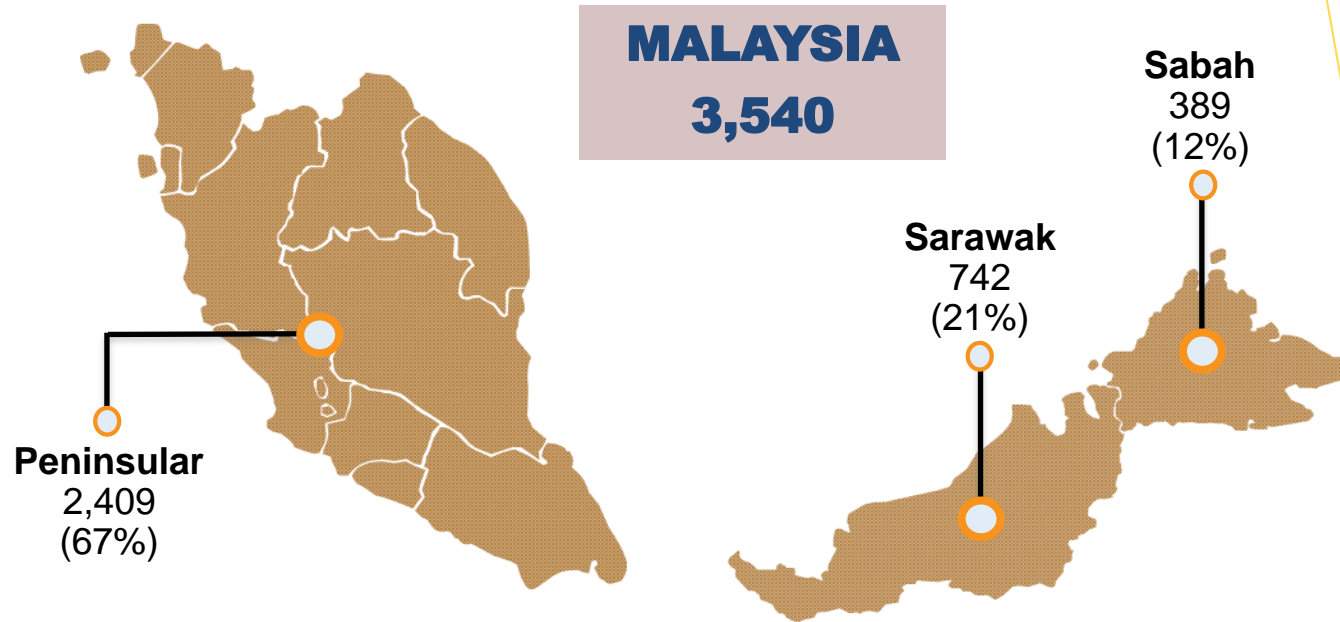


## WORKFORCE

**240,000 workers**  
**58% Foreign workers**  
**42% local people**

\* Source : MTIB (Based on study in 2013)

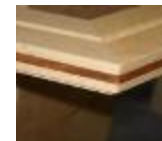
# MALAYSIA: TIMBER / WOOD-BASED MILLS (2017)



**Furniture**  
**1,710 (48%)**



**Plywood / Veneer /  
polyply / blockboard /  
laminated board**  
**201 (6%)**



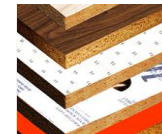
**Builder's Joinery &  
Carpentry (BJC)**  
**12 (0.3%)**



**Sawmills**  
**970 (27%)**



**Kiln Drying/  
Preservation plants**  
**302 (9%)**



**Medium Density Fiberboard (MDF)**  
**5 (0.1%)**



**Moulding**  
**271 (8%)**

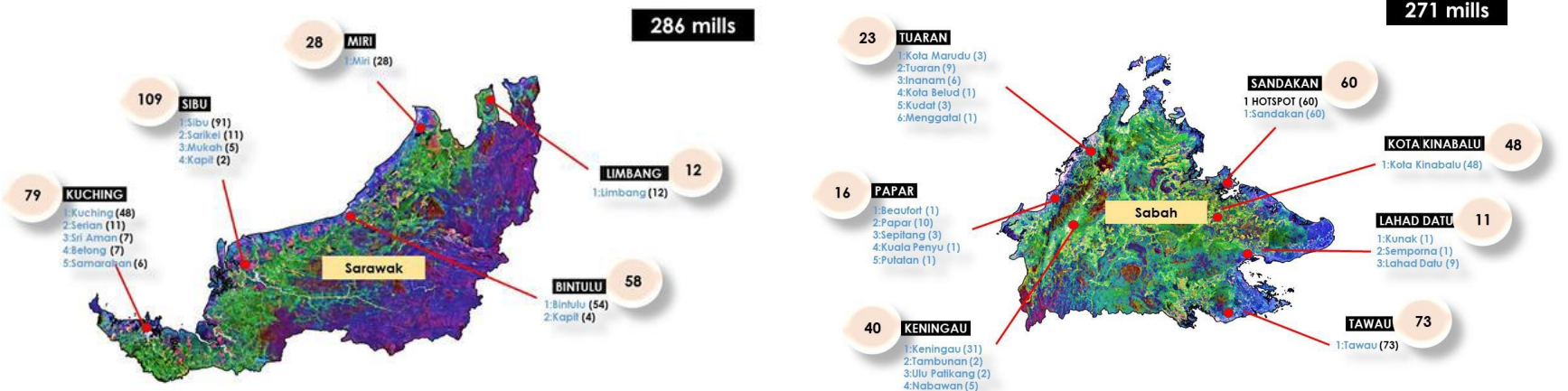
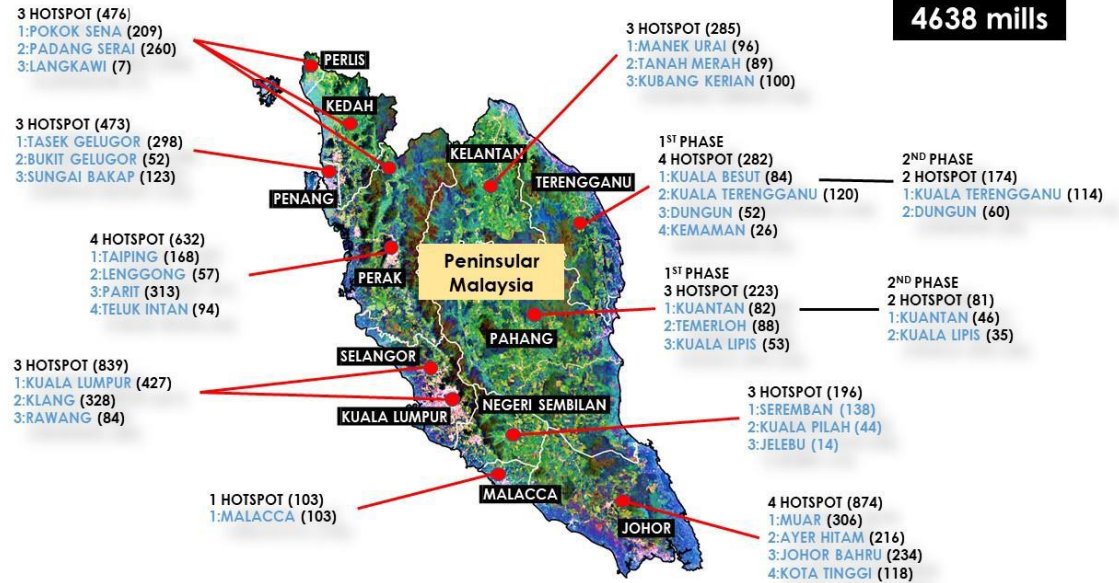
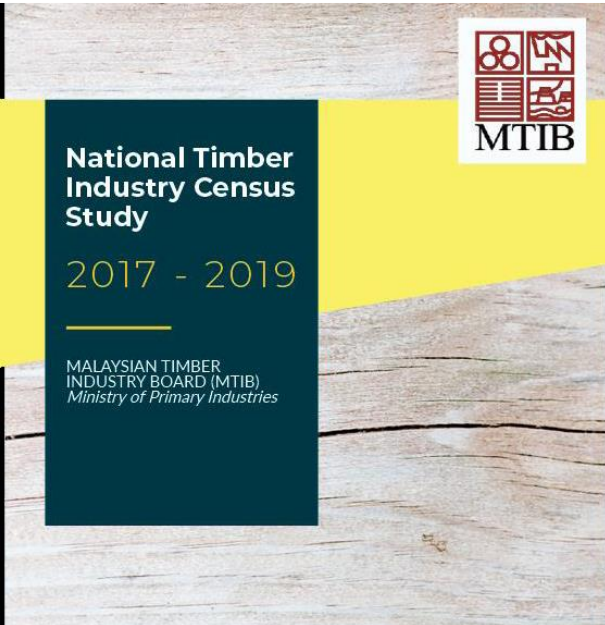


**Woodchip/ Particleboard/  
Chipboard**  
**46 (1%)**



**\*Others**  
(Comprising pulp & paper, matches,  
pencil, wooden pallet)  
**23 (0.6%)**

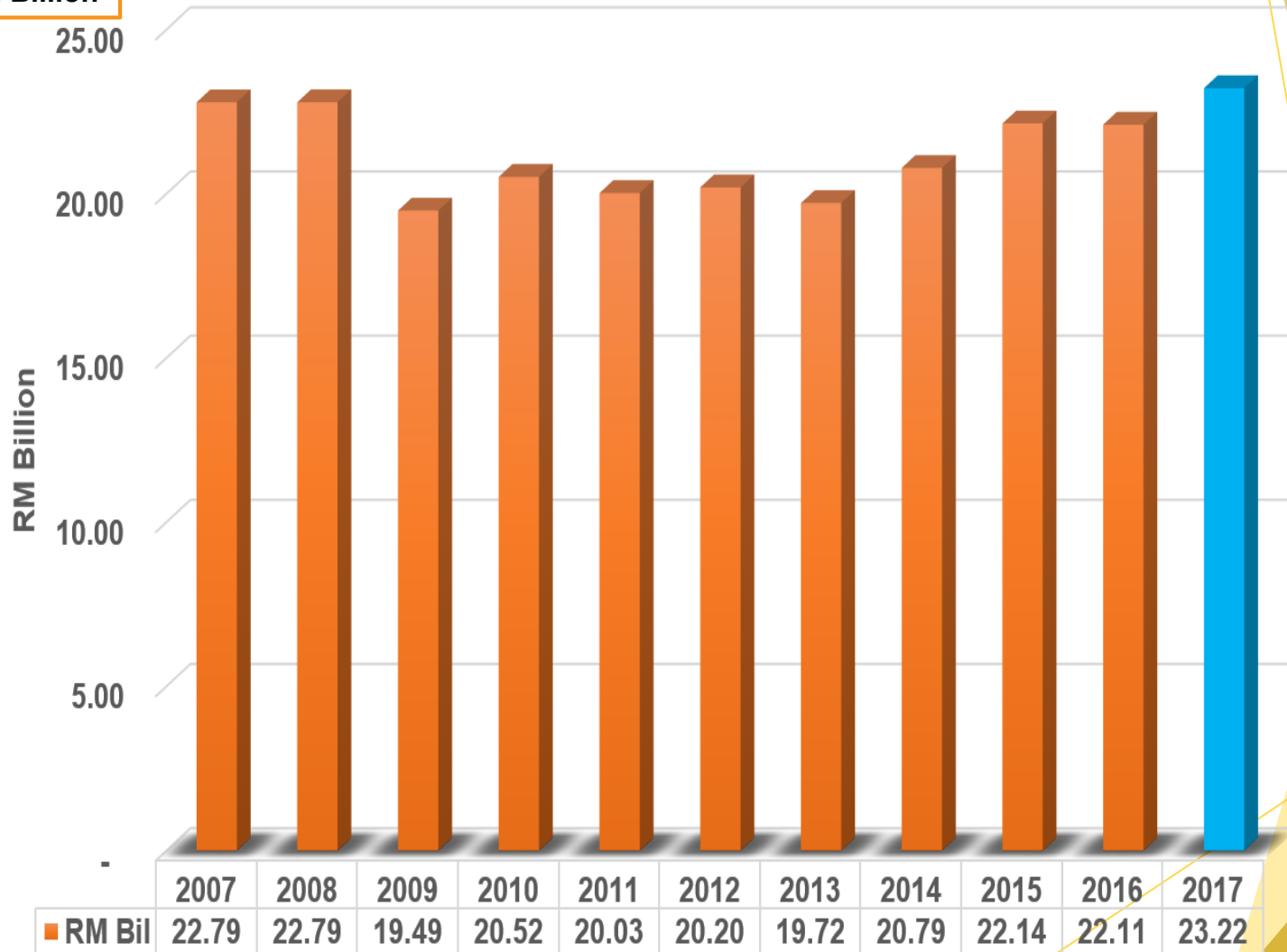
# MALAYSIA: TIMBER / WOOD-BASED MILLS (2019)





# MALAYSIA: EXPORT OF TIMBER & TIMBER PRODUCTS (2007 – 2017)

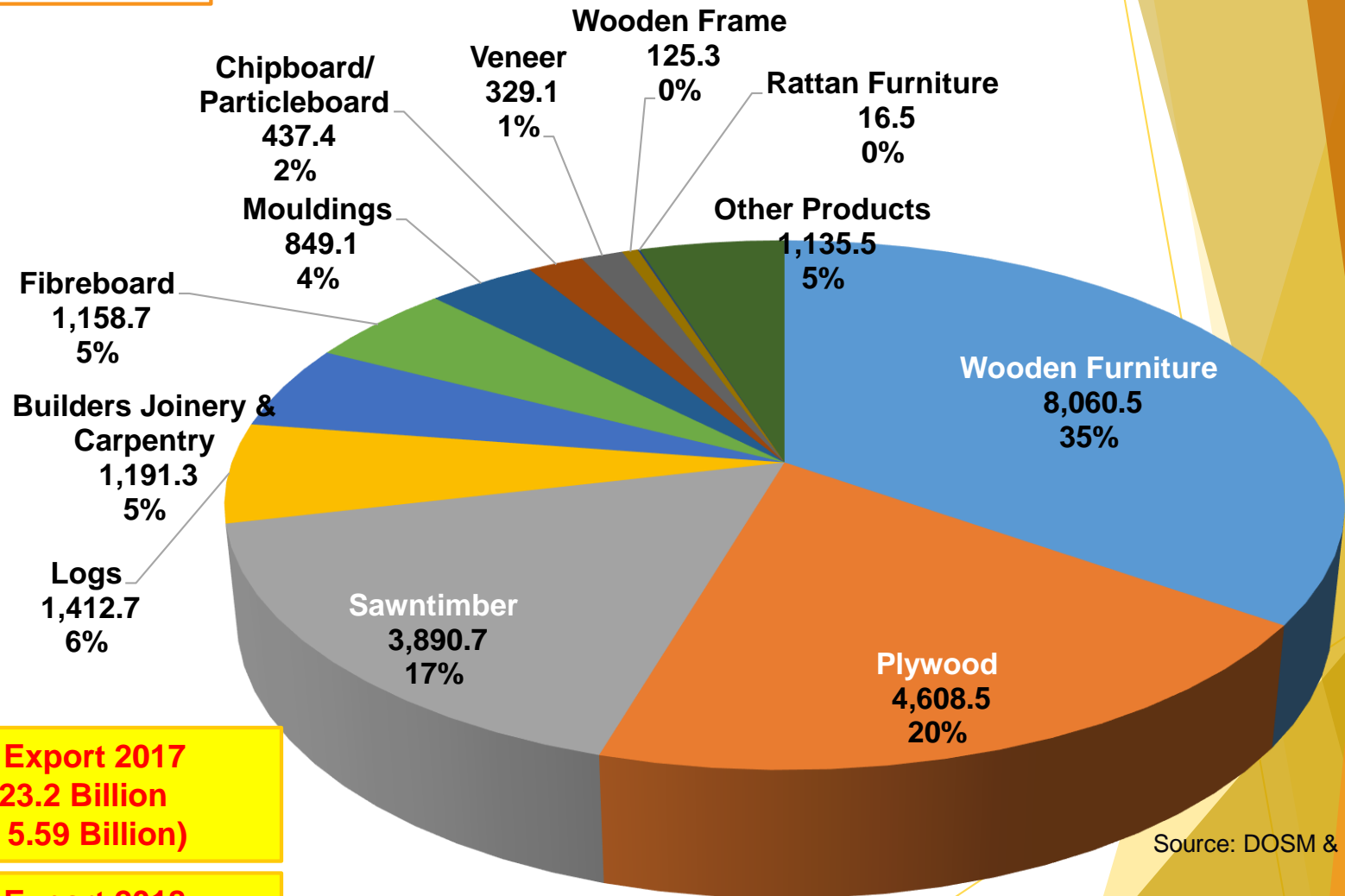
RM Billion



(USD 1 = MYR 4.15)

# MALAYSIA: EXPORT OF TIMBER & TIMBER PRODUCTS (2017)

RM Million



**Total Export 2017**  
**RM 23.2 Billion**  
**(USD 5.59 Billion)**

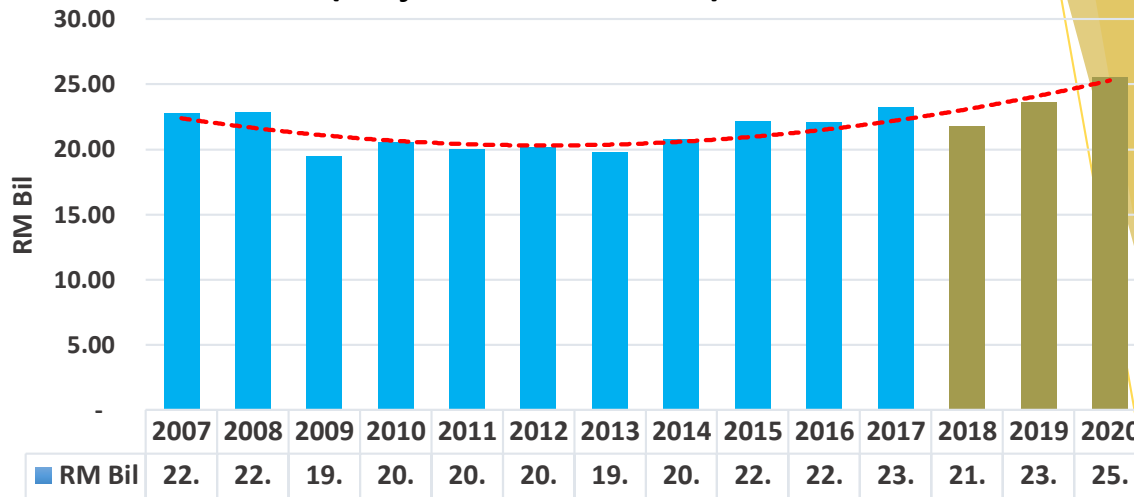
**Total Export 2018**  
**RM 22.3 Billion**  
**(USD 5.37 Billion)**

(USD 1 = MYR 4.15)

Source: DOSM & MTIB

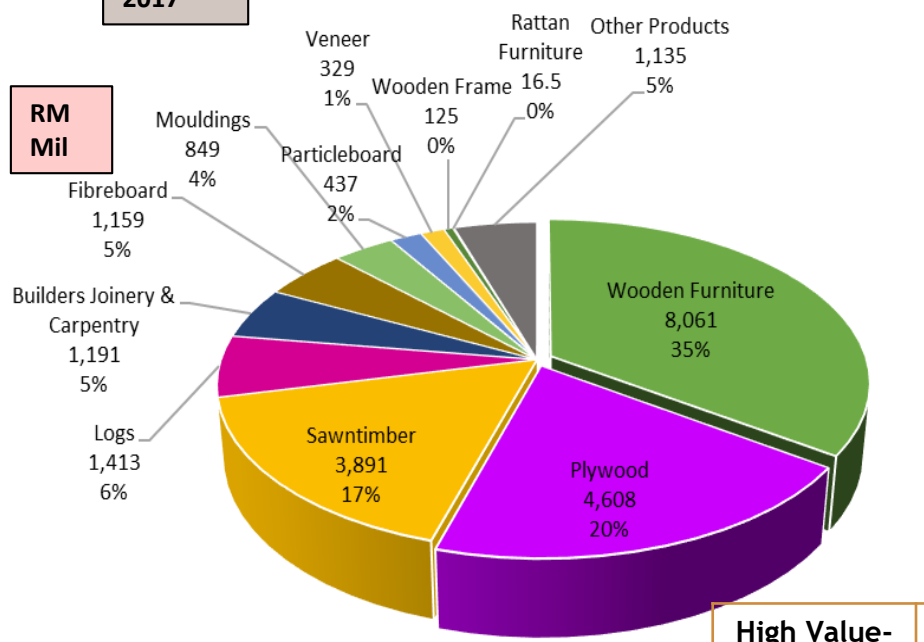
# MALAYSIA: EXPORT OF TIMBER & TIMBER PRODUCTS

## (Projection until 2020)



Jan-Dec 2017

RM Mil



High Value-Added	Primary
46%	54%

Destination	Jan - Dec 2017 (RM Million)	Market Share (%)
1. Japan	3,935	19
2. USA	3,694	16
3. EU	2,221	10
4. India	1,611	7
5. South Korea	1,255	5
6. Australia	1,159	5
7. China	1,117	5
8. Singapore	1,108	5
9. Thailand	785	3
10. Philippines	733	3

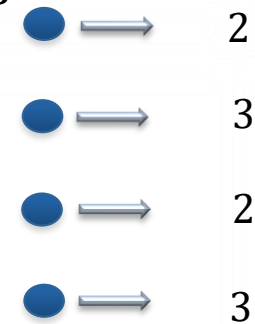
(USD 1 = MYR 4.15)













# MALAYSIA GLOBAL PLAYER TIMBER & TIMBER PRODUCTS (2017)

PRODUCTS	GLOBAL RANKING
Plywood	4
Logs	12
Sawntimber	9
Veneer	15
Wooden Frame	5
Mouldings	8
<b>Furniture</b>	<b>9</b>
Medium Density Fiberboard	13
Builder Joinery & Carpentry	16
Particleboard / Chipboard	20

Tropical species ranking



# WORLD: EXPORT VALUE OF FURNITURE BY MAJOR COUNTRIES (2013 – 2017)

Ranking	USD Million					
	Country	2013	2014	2015	2016	2017
1	 China	51,583	51,751	52,671	48,364	49,815
2	 Germany	10,980	11,472	10,326	10,600	10,662
3	 Italy	10,886	11,266	10,022	10,054	10,325
4	 Poland	8,647	9,837	8,943	9,613	10,284
5	 Viet Nam	5,052	6,035	6,781	7,256	7,795
6	 United States	4,955	5,153	4,844	4,592	4,546
7	 Canada	2,855	3,032	3,294	3,607	3,643
8	 Mexico	1,943	2,130	2,282	2,350	2,397
9	 Malaysia	2,317	2,432	2,325	2,278	2,323
10	 Romania	2,084	2,371	2,126	2,235	2,250

Source: CSIL

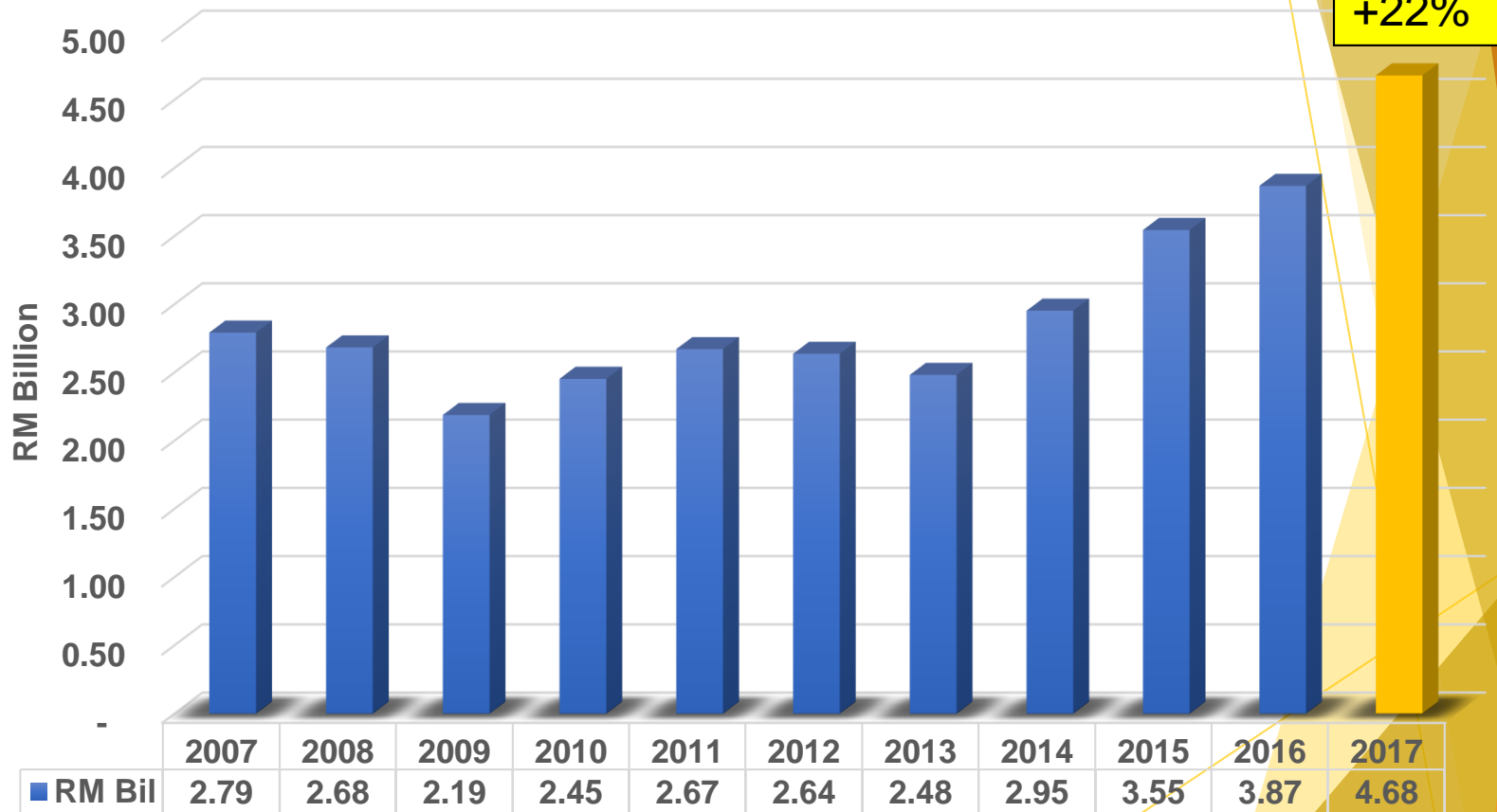


No.	EXPORT OF FURNITURE BY COUNTRIES (USD Million)									
	Country	2014	Country	2015	Country	2016	Country	2017	Country	2018
1	China	51,751	China	52,671	China	48,364	China	49,815	China	53,167
2	Germany	11,472	Germany	10,326	Germany	10,600	Germany	10,662	Germany	11,937
3	Italy	11,266	Italy	10,022	Italy	10,054	Italy	10,325	Poland	11,820
4	Poland	9,837	Poland	8,943	Poland	9,613	Poland	10,284	Italy	11,513
5	Viet Nam	6,035	Viet Nam	6,781	Viet Nam	7,657	Viet Nam	8,423	Viet Nam	9,687
6	United States	5,153	United States	4,844	United States	4,592	United States	4,546	United States	4,523
7	Canada	3,032	Canada	3,294	Canada	3,607	Canada	3,643	Canada	3,724
8	Malaysia	2,432	Malaysia	2,325	Mexico	2,350	Netherlands	2,486	Netherlands	2,814
9	Romania	2,371	Mexico	2,282	Malaysia	2,278	Mexico	2,409	Romania	2,560
10	France	2,233	Romania	2,126	Romania	2,235	Malaysia	2,329	France	2,491
11	Mexico	2,130	France	2,008	France	2,167	France	2,276	Mexico	2,464
12	Netherlands	1,621	Netherlands	1,618	Netherlands	1,630	Romania	2,250	Malaysia	2,422



# MALAYSIA: IMPORT OF TIMBER PRODUCTS (2007 – 2017)

RM Billion

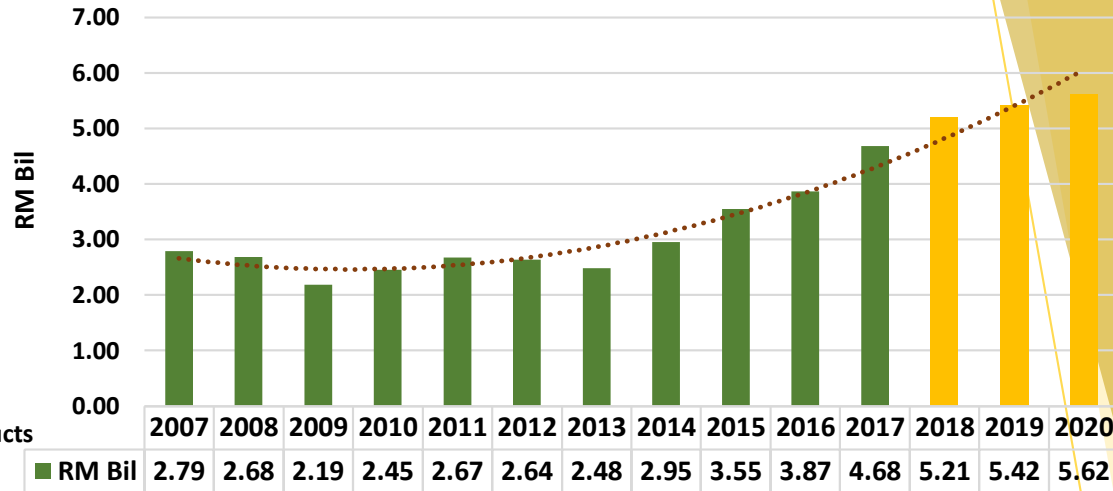


(USD 1 = MYR 4.15)

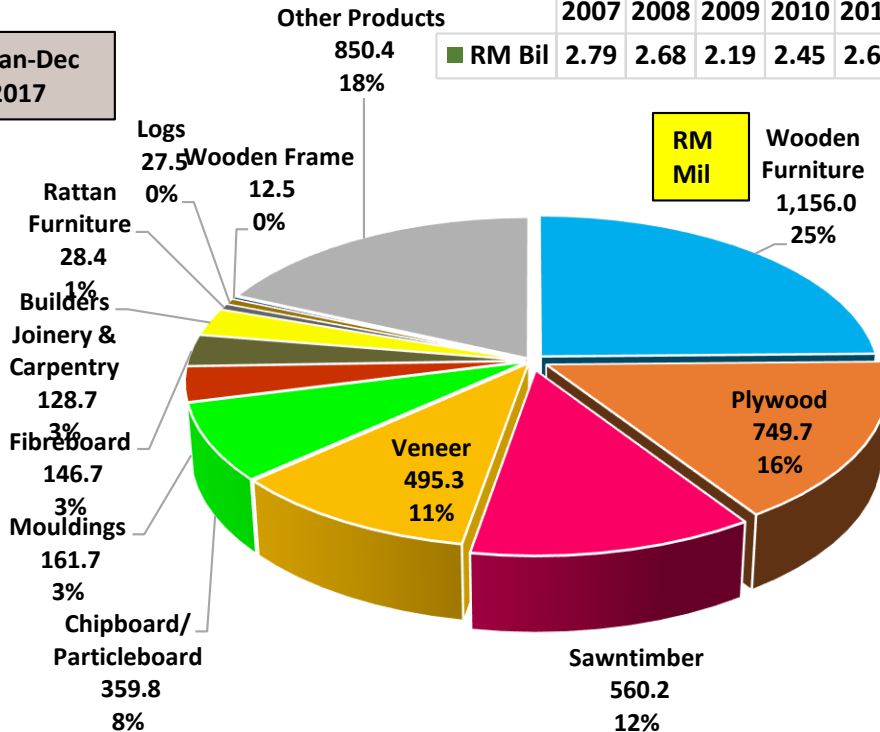
Source: DOSM & MTIB

# MALAYSIA: IMPORT OF TIMBER & TIMBER PRODUCTS

## (Projection until 2020)



Jan-Dec 2017



Origin	Jan - Dec 2017 (RM Million)	Market Share (%)
1. China	1,489	32
2. Indonesia	629	13
3. Thailand	471	10
4. EU	383	8
5. Viet Nam	355	8
6. USA	349	7
7. Australia	208	4
8. Brazil	187	4
9. New Zealand	138	3
10. Chile	57	1

# ISSUES AND CHALLENGES IN THE TIMBER INDUSTRY

## Raw Materials



- ✓ Shortage of raw materials
- ✓ ie. Natural forest & Rubberwood

## Labour & Workforce



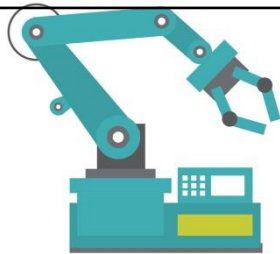
### Foreign workers

- ✓ More than 50% are foreign workers

### Local workers

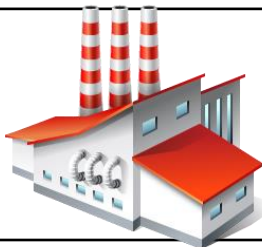
- ✓ 3D factors
- ✓ Negative perceptions

## Automation & Mechanisation Technology



- ✓ Lack of incentives and funds
- ✓ Labour intensive

## Marketing & Promotion



- ✓ Stiff competitions
- ✓ Non tariff barriers



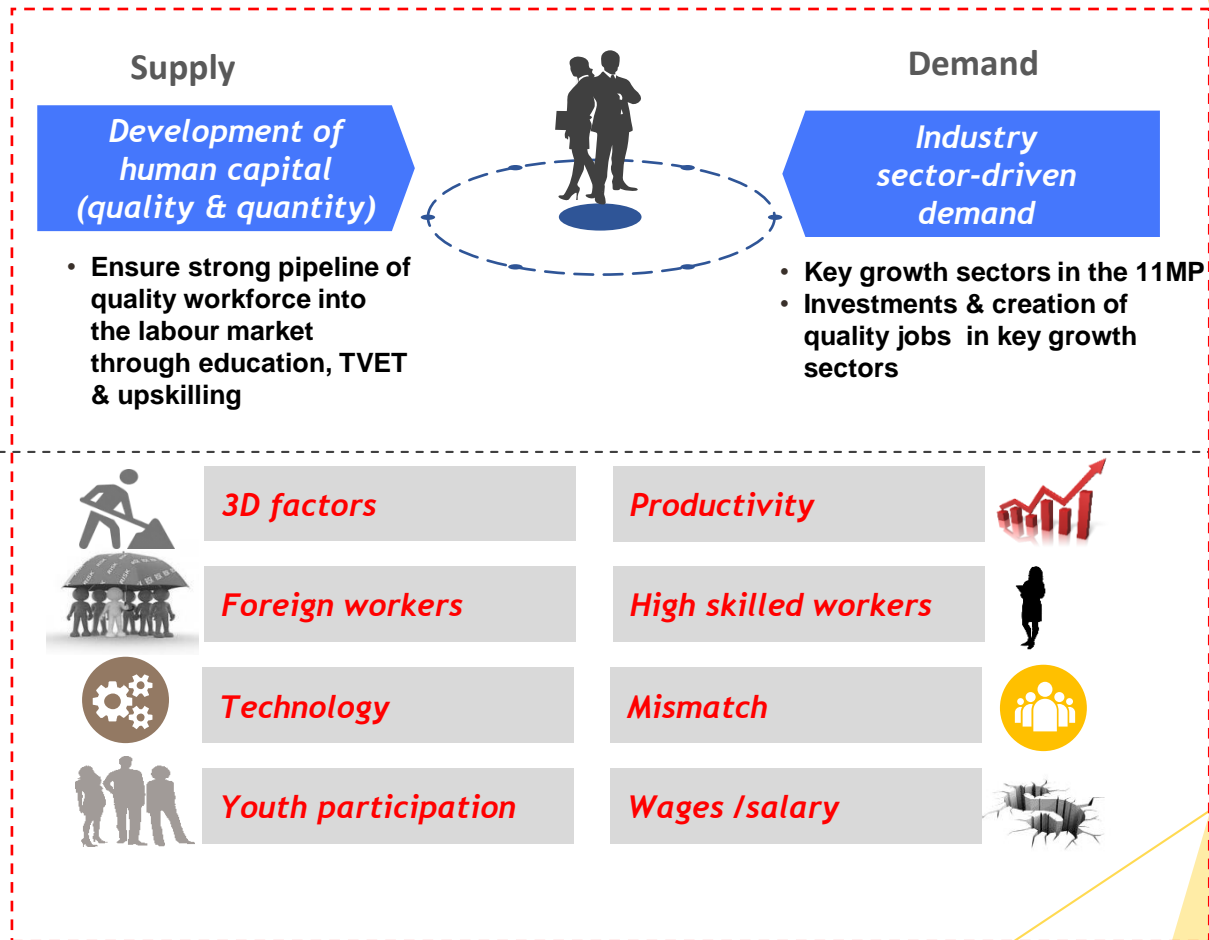
# FURNITURE INDUSTRY

## NATIONAL ISSUES & CHALLENGES



# ISSUES AND CHALLENGES

## Workforce in the timber industry



### Population

- Slower **growth**
- High **migration**
- Towards **ageing**

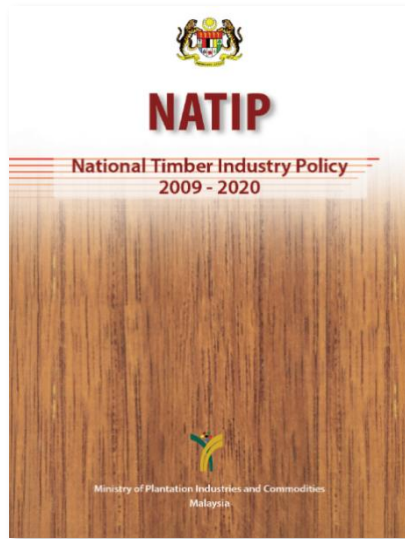
### Economic growth

- **Technology** advancement
- **Innovation**
- New **investment**
- New **source of growth**
- **Knowledge** based economy



**WAY FORWARD**

# NATIONAL TIMBER INDUSTRY POLICY (NATIP) 2009-2020



**2020**

**60%**  
High Value Added

**40%**  
Primary



Thrust 1:  
Industry  
Structure



Thrust 2:  
Supply of Raw  
Materials



Thrust 3:  
Innovation &  
Technology



Thrust 4:  
Marketing &  
Promotion



Thrust 5:  
Human Capital  
Development



Thrust 6:  
Funding &  
Incentives



Thrust 7:  
Bumiputera  
Participation



# 7 THRUSTS UNDER NATIP

**Thrust 1:  
Industry  
Structure**

**Thrust 2:  
Supply of Raw  
Materials**

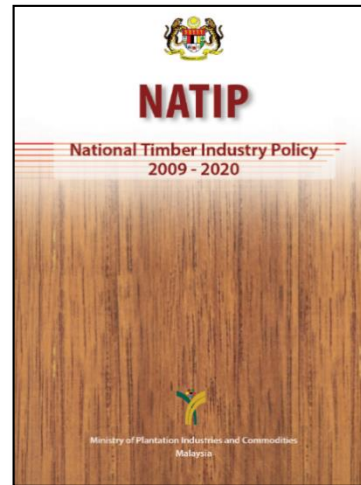
**Thrust 3:  
*Innovation &  
Technology***

**Thrust 4:  
Marketing &  
Promotion**

**Thrust 5:  
*Human Capital  
Development***

**Thrust 6:  
Funding &  
Incentives**

**Thrust 7:  
Bumiputera  
Participation**



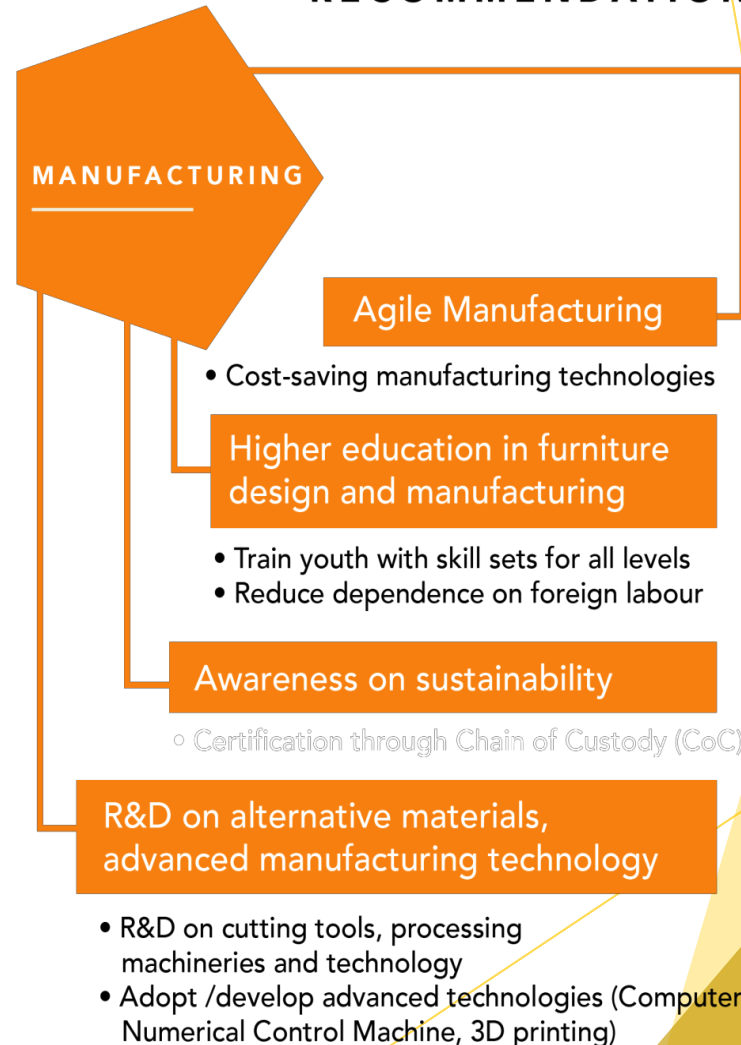


# WAY FORWARD

## ENHANCING MALAYSIA'S VALUE PROPOSITION



## STRATEGIES & RECOMMENDATION



# FOREST PLANTATION DEVELOPMENT PROGRAM

*Neolamarckia cadamba*  
(Kelampayan/Laran)



*Hevea brasiliensis*  
(Rubber LTC)



*Azadirachta excelsa* (Sentang)



*Acacia mangium*  
(Akasia)



*Paraserianthes falcataria*  
(Batai)



*Khaya ivorensis*  
(African Mahagony)



*Octomeles sumatrana*  
(Binuang)



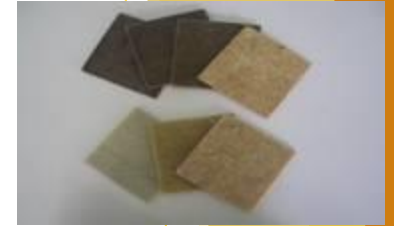
Bamboo



*Tectona grandis*  
(Jati)



# BIOCOMPOSITES DEVELOPMENT



## Veneer-based material

- ~Plywood
- ~Laminated veneer lumber (LVL)

## Fibreboard

- ~Insulating board
- ~Medium density fibreboard (MDF)
- ~Hardboard

## Particleboard

## Oriented Strand Board (OSB)

## Cement Bonded Composites

## Fibre Reinforced Plastic Composites (FRPC)

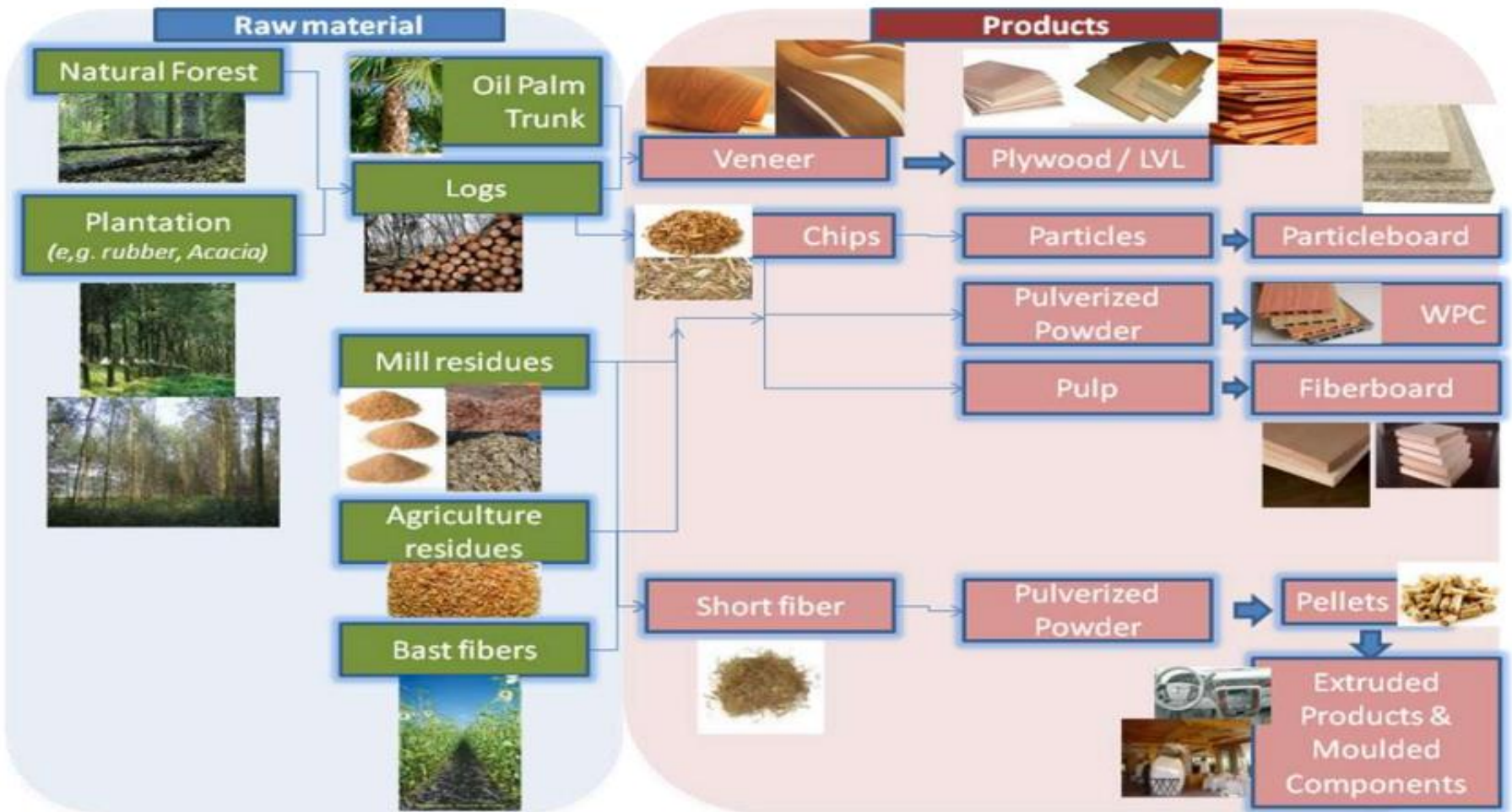
## Agricultural Fibre Composites

NATURAL FIBRES



# BIOCOMPOSITES DEVELOPMENT

Current supply chain of plywood, MDF/particleboard, and wood plastic composites



# INNOVATION ON ENGINEERED TIMBER PRODUCTS (ETP) Glued Laminated Timber (Glulam) and IBS Applications

## GALERI GLULAM JOHOR BAHRU

**THE  
MALAYSIA  
BOOK  
OF RECORDS**

**FIRST COMMERCIAL BUILDING CONSTRUCTED  
USING GLUED LAMINATED TIMBER (GLULAM)**

**Iconic Timber building using Malaysian timber species as  
Glued-laminated Timber (Glulam).**

**Building Components:**

- Glulam (load bearing) - Resak and Keruing (500 m<sup>3</sup>)
- Timber purlins - Kempas
- Timber roofing - Belian shingles (350,000 pieces)
- Wall Cladding - Kekatong timber
- Timber Fins - Balau, Belian, Resak
- Quantity of timber used for **structural members**: 640 m<sup>3</sup>
- IBS score : 80%
- Exhibition Hall & Gallery space: 2,205 m<sup>2</sup>
- Total building size : 3,716.48 m<sup>2</sup>
- Total project cost: RM24.06 million



# MALAYSIA PAVILION – EXPO MILANO 2015

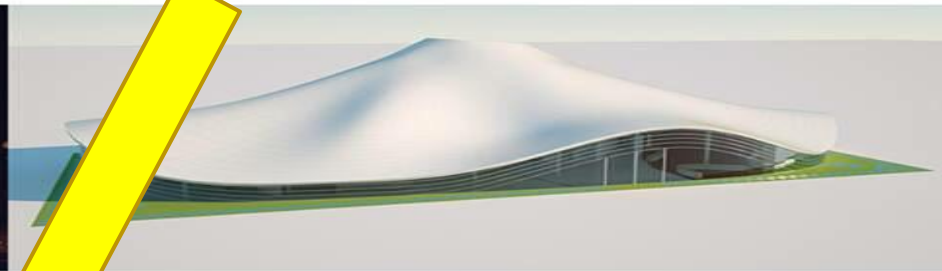


## Top Pavilion Interest

1. Poland 2. Turkey 3. **MALAYSIA** 4. Slovakia 5. Russia



3. Malaysia

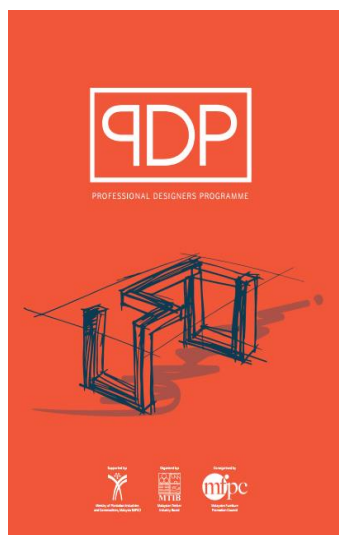


4. Slovakia





**TANGGAM DESIGN CENTRE (TDC)**





# PRODUCT DEVELOPMENT



CNC 5-axis



# MARKETING & PROMOTION



EXHIBITIONS

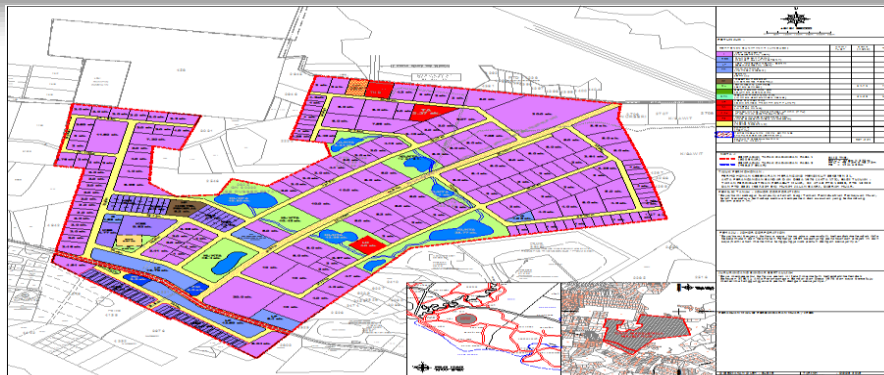
TRADE MISSIONS

BUSINESS MATCHING





# CLUSTER DEVELOPMENT - MUAR FURNITURE PARK





# HUMAN CAPITAL DEVELOPMENT

## MTIB As Industry Lead Body (ILB)



INDUSTRY LEAD BODY

Universities  
Training institutions  
Training providers  
Schools



TIMBER  
INDUSTRY



# FOCUS AREAS



## Forestry

Forest plantation

Sustainable forest management

## Marketing

Entrepreneur

E-commerce

## Materials

Bio-composites

Wood & non-woods

## Engineering

Engineered wood products

Timber engineering

## Design

Furniture & interior design

Timber structure design

## Manufacturing

Furniture manufacturing

GMP / Lean management

## Technology

Wood/timber machining

ICT / Robotic / Automation



# Skills development



Raw materials/  
Resources

Sawmilling  
Moulding  
Grading

Kiln drying  
Preservation

Timber  
utilizations

Production  
management

Design

Machining  
technology

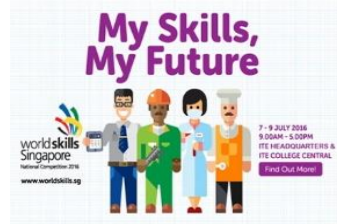
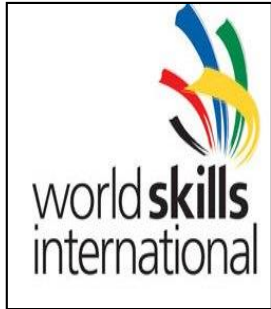
Finishing

Primary processing

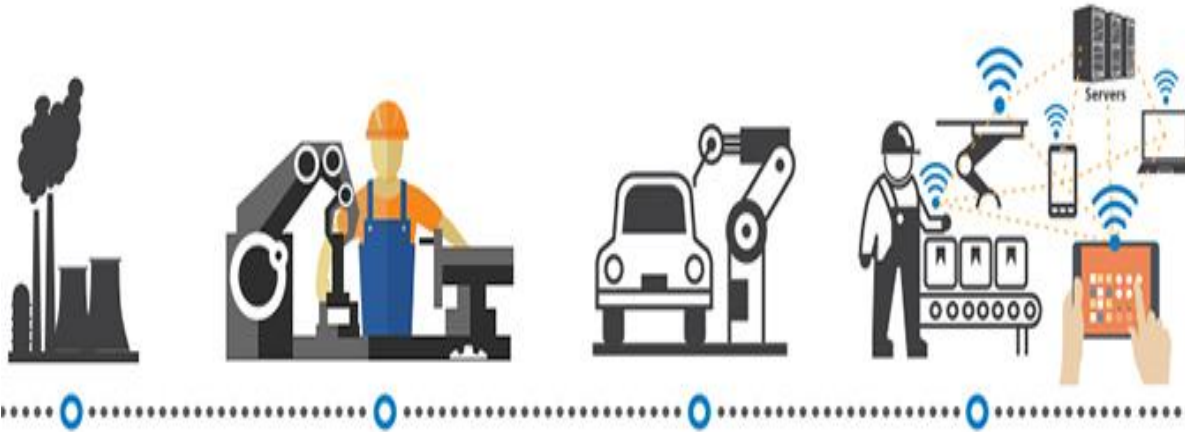
Secondary/Tertiary  
processing



# International skills level and standard



# Industrial Revolution 4.0



18th Century

## Industry 1.0

Mechanical production.  
Equipment powered by  
steam and water

19th Century

## Industry 2.0

Mass production assembly  
lines requiring labor and  
electrical energy

20th Century

## Industry 3.0

Automated production  
using electronics and IT

Today

## Industry 4.0

Intelligent production  
incorporated with IoT, cloud  
technology and big data





# CONCLUSION

1

- ① **Human capital development is vital for the future development of timber industry sector in Malaysia, in order to compete in the global market**

2

- ② **Greater capacity building efforts need to be undertaken in order to produce more skilled workforce and professionals**

3

- ③ **Therefore, the requirements for the development of human capital of the new generation must be strengthen in all formal institutions (ie. IR 4.0)**

**Project : Improving Malaysian HE Knowledge Towards  
A Wood And Furniture Industry 4.0 - MAKING 4.0**





**THANK YOU**

Dziękuję Ci

