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BIO ECONOMY MALAYSIA

ENRICHING THE NATION, SECURING THE FUTURE

LEVERAGING THE AGRO & PETROCHEMICAL INDUSTRIES TO ADVANCE THE BIOECONOMY

THE WORLD CONGRESS ON INDUSTRIAL BIOTECHNOLOGY

13 MAY 2014

BIOTECHCORP

NURTURE AND ACCELERATE GROWTH OF MALAYSIAN BIOTECHNOLOGY INDUSTRY

As a **Bio-industry Developer**, we:

- Accelerate and enhance the growth of the Bio-Based Industry
- Planned and realize maximum value through strategic ventures
- Selectively forge ventures with 'best-in-class' global bio-based partners
- Create iconic hub of bio-based industry in Malaysia
- Offer truly exciting investment climate for visionaries and investors

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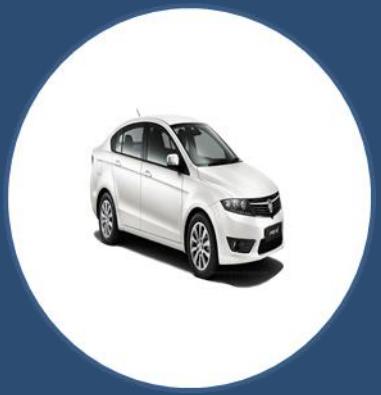
MALAYSIA SETS A TARGET TO BECOME A HIGH-INCOME DEVELOPED NATION BY 2020

ENGINEERING & CONSTRUCTION

PALM OIL



AUTOMOTIVE

OIL & GAS, PETROCHEMICAL

ELECTRICS & ELECTRONICS

TIMBER & FURNITURE

STRATEGIC INDUSTRIES

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NEW ECONOMIC MODEL WAS INTRODUCED TO ENABLE SUSTAINABLE ECONOMIC GROWTH & BECOMING A HIGH – INCOME NATION

USD15,000 GNI PERCAPITA BY 2020

ENABLES ALL COMMUNITIES TO BENEFIT FROM THE WEALTH OF THE COUNTRY

MEETS PRESENT NEEDS, WITHOUT COMPROMISING FUTURE GENERATIONS

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TO ACHIEVE THE HIGH – INCOME STATUS, MALAYSIA NEEDS TO BE:

FOCUS

&

COMPETITIVE

BIO ECONOMY MALAYSIA

Introduction of the Bioeconomy Transformation Program as the new economic icon for Malaysia by:

SYNERGIZING THE OLEOCHEMICAL AND PETROCHEMICAL INDUSTRIES

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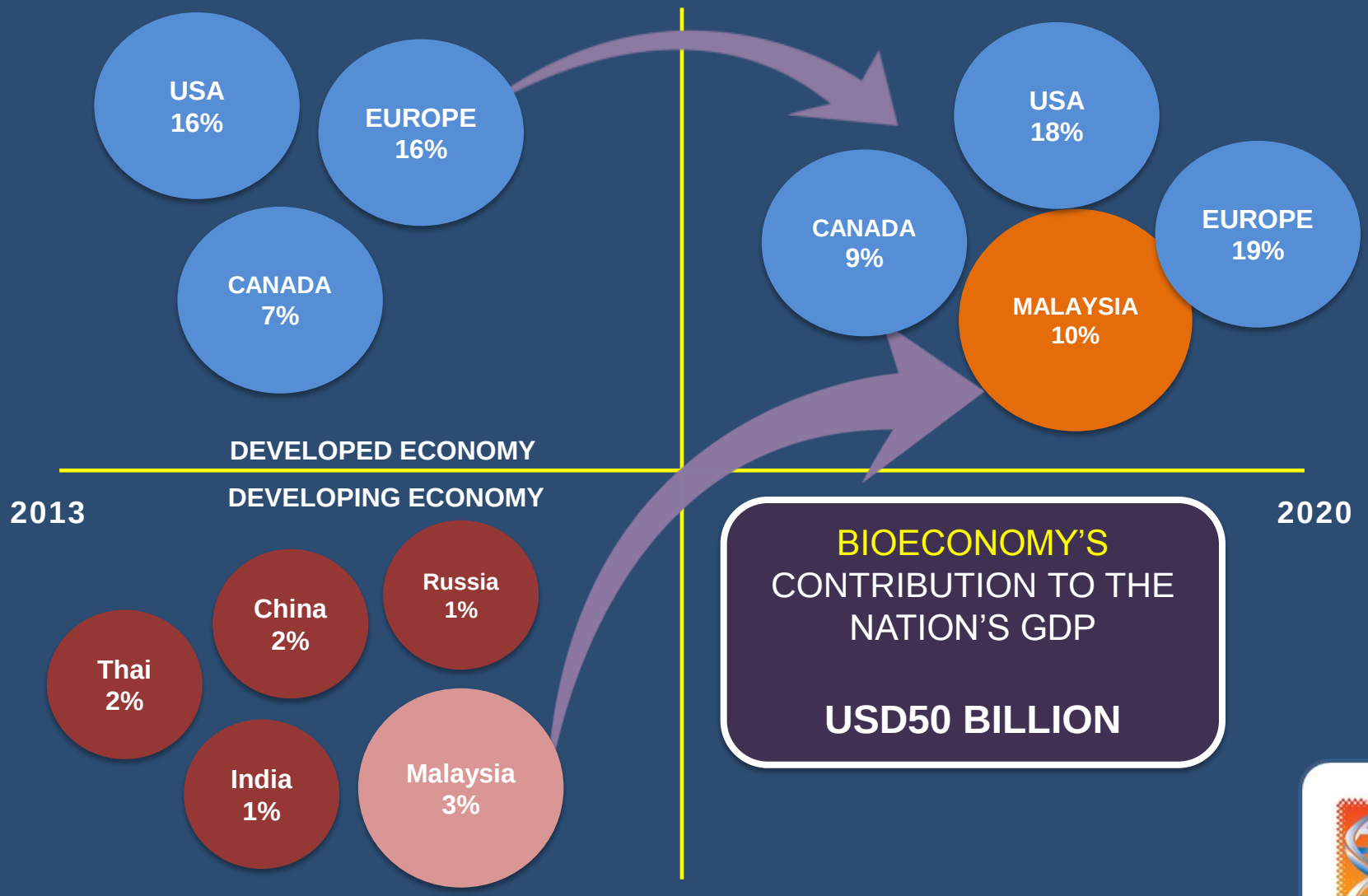
COMPARING MALAYSIA'S BIOECONOMY TO SELECTED ECONOMIES BASED ON CONTRIBUTION TO THE GDP



BIOECONOMY'S CONTRIBUTION TO THE NATION'S GDP

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HOW DO WE LEVERAGE ON THE AGRO & PETROCHEMICAL INDUSTRIES TO ADVANCE THE BIOECONOMY

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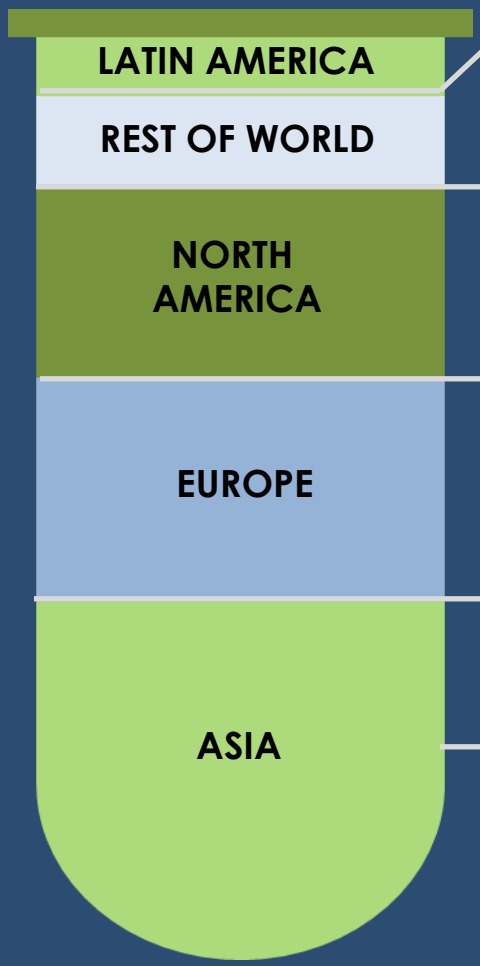
BY 2010 ASIA WAS ALREADY GENERATING A HIGH SHARE OF GLOBAL CHEMICAL MARKET VALUE



(5%)
USD 0.1 TRILLION

(7%)
USD 0.2 TRILLION

(21%)
USD 0.6 TRILLION

(24%)
USD 0.7 TRILLION

(43%)
USD 1.2 TRILLION

GLOBAL CHEMICAL MARKET VALUE (2010)

USD 2.8 TRILLION

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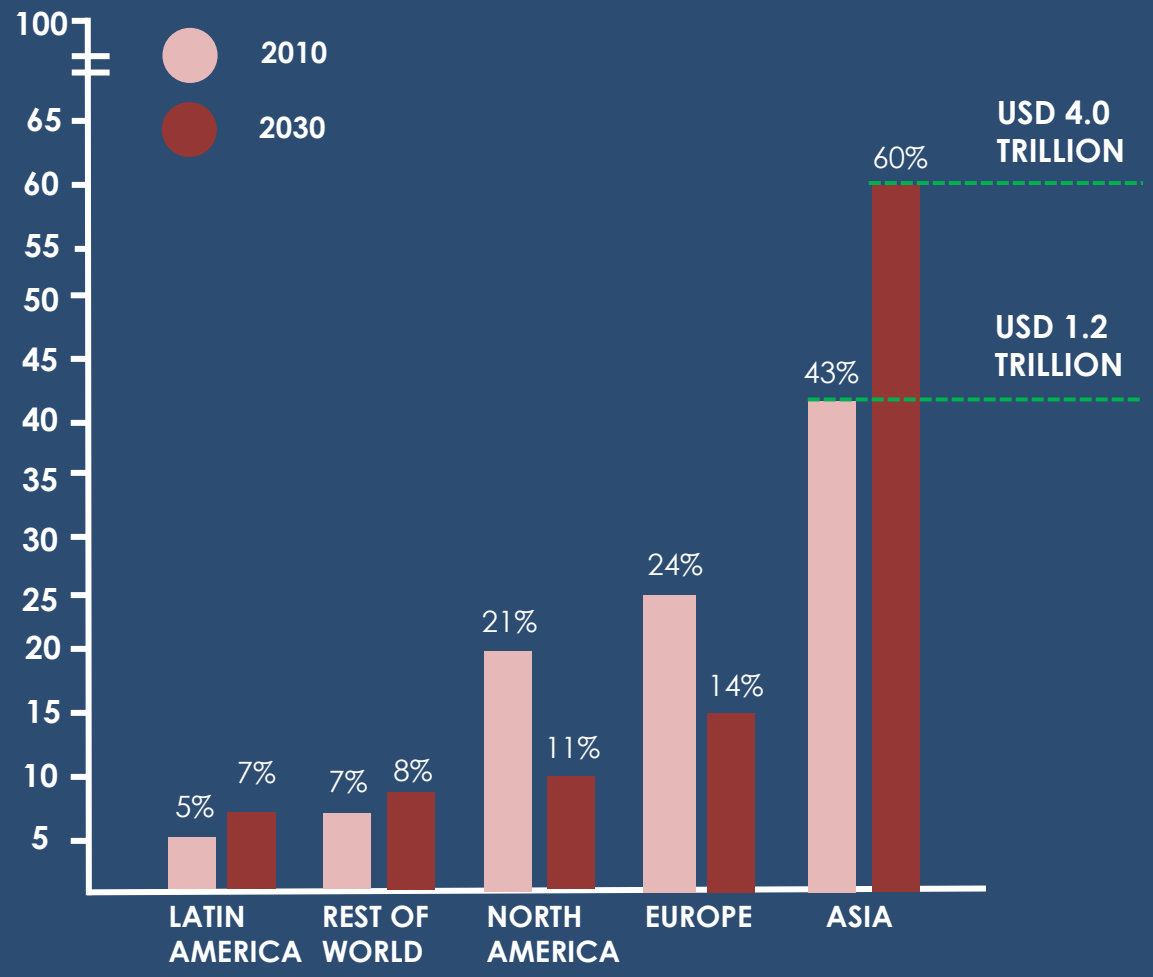
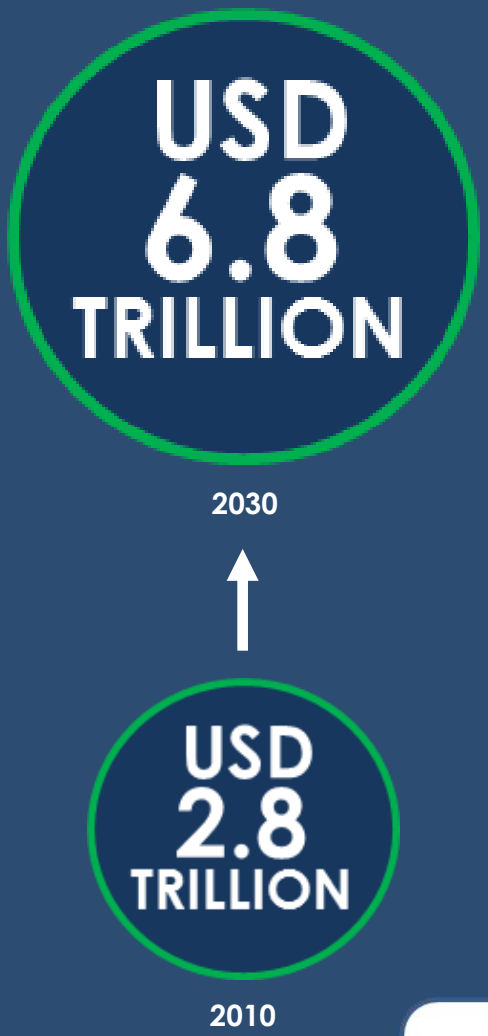
THE CHEMICAL INDUSTRY WILL SHIFT EAST BY 2030





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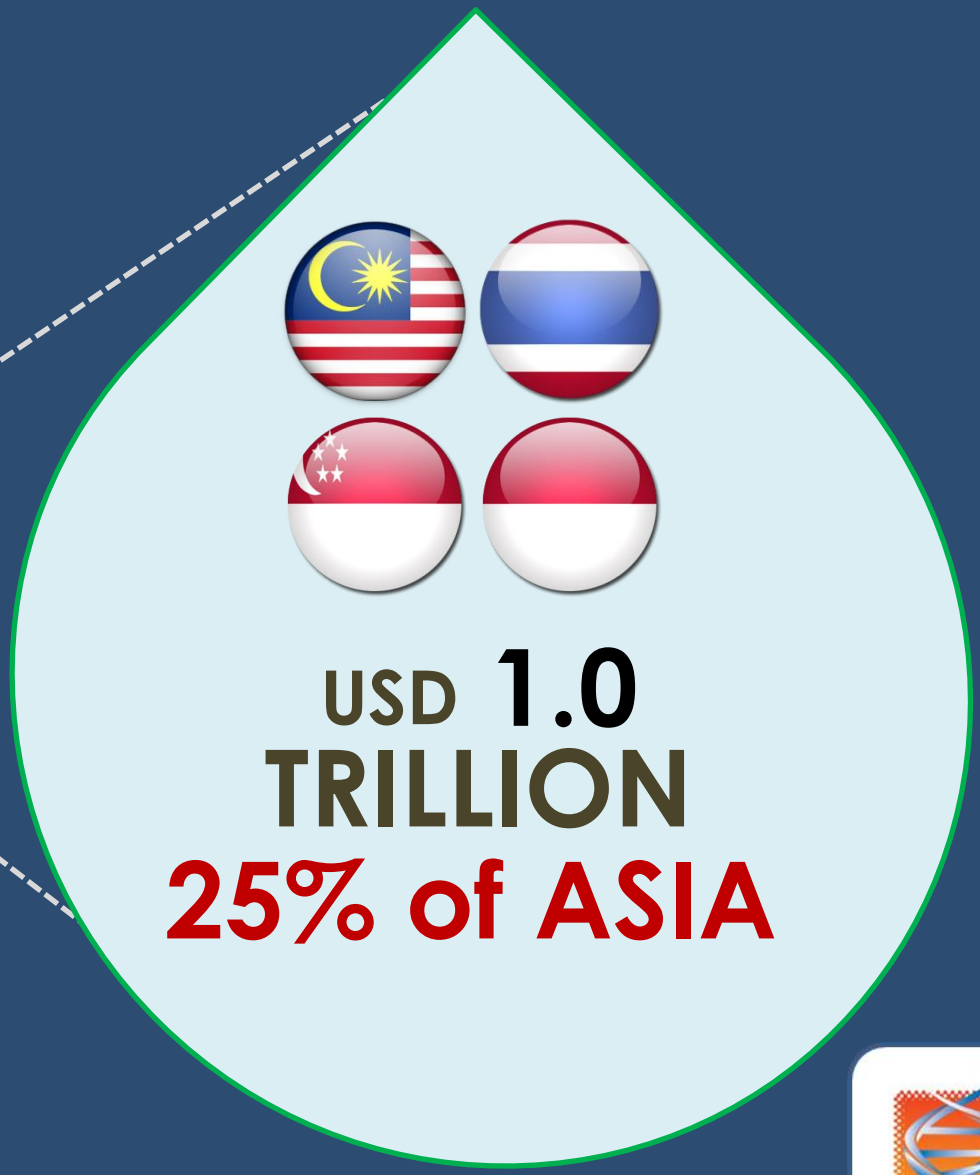
SOUTH EAST ASIA CHEMICAL MARKET SHARE

2010



2030

NOTE:

South East Asia's forecasted chemical growth is backed by the ongoing development and expansion of Petrochemical Refineries.

Malaysia: RAPID – Johor & GIPC – Kuantan
Singapore: Jurong 2.0
Thailand: IRPC – Rayong & Map Ta Phut

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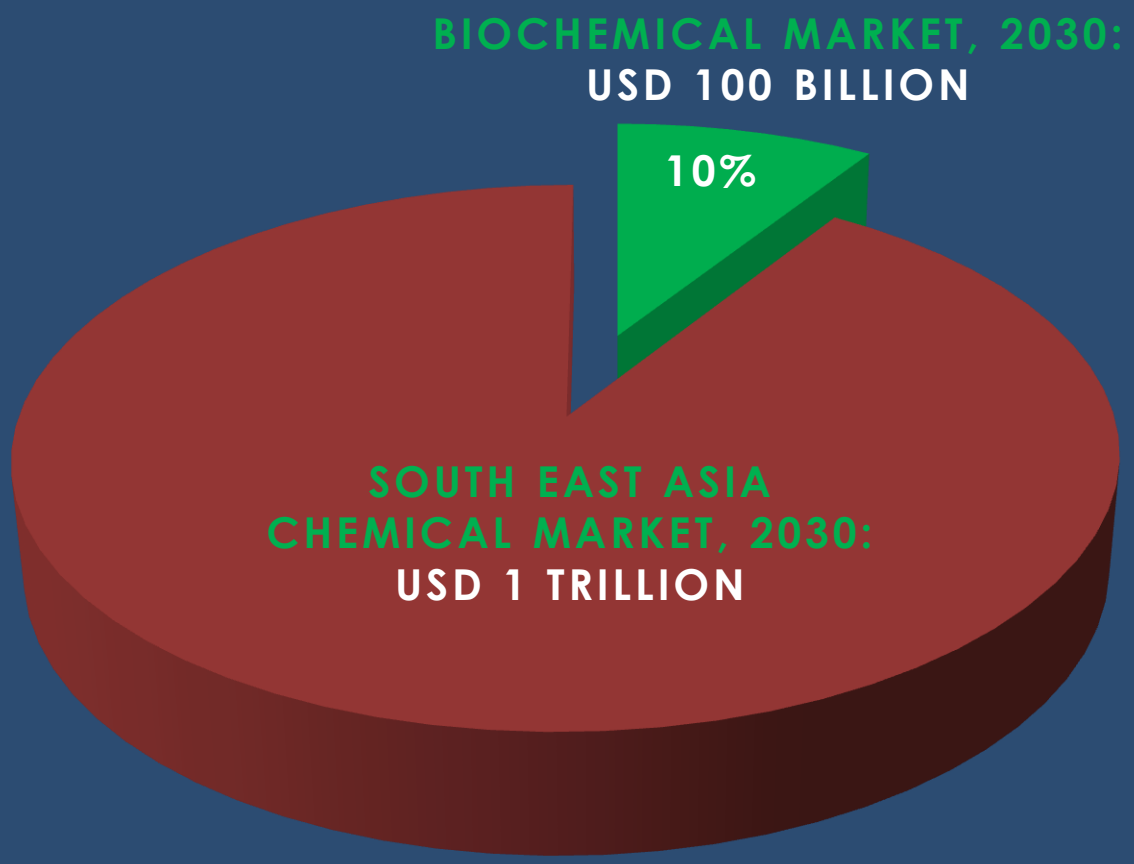
POTENTIAL BIOCHEMICAL MARKET SHARE IN SOUTH EAST ASIA (2030)

(The McKinsey Theory: 10% of chemical market share)



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OIL PALM TREE: 'A MULTI – PURPOSE TREE'

A UNIQUE FEEDSTOCK

Among the few feedstock of the world that is able to provide multi-platform feedstock for the industrial biotechnology industry

- **BIOMASS & CELLULOSIC SUGAR**
- 20 million dry metric tonnes of biomass per year from empty fruit bunches (EFB, and Oil Palm Trunks)
- Potential cellulosic sugar production of 12 million metric tonnes per year
- **OIL & LIPIDS**
- 20 million metric tonnes of Crude Palm Oil (CPO)
- **METHANE**
- 1 Billion cubic meter of biomethane from the Palm Oil Mill Effluents (POME)

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GLOBAL OIL & LIPIDS MARKET (2010)

GLOBAL
VEGETABLE OIL & LIPIDS
MARKET VALUE
(2010)

USD 440 BILLION

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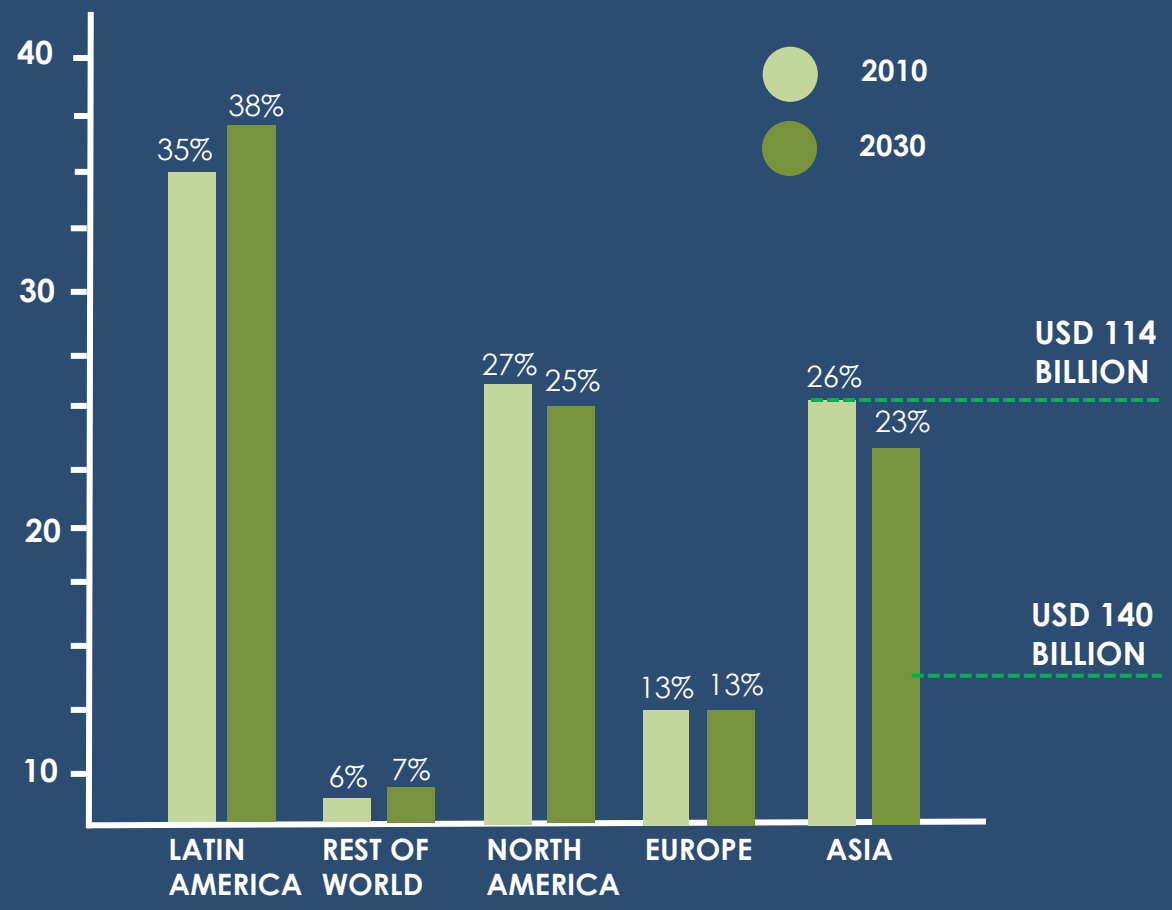
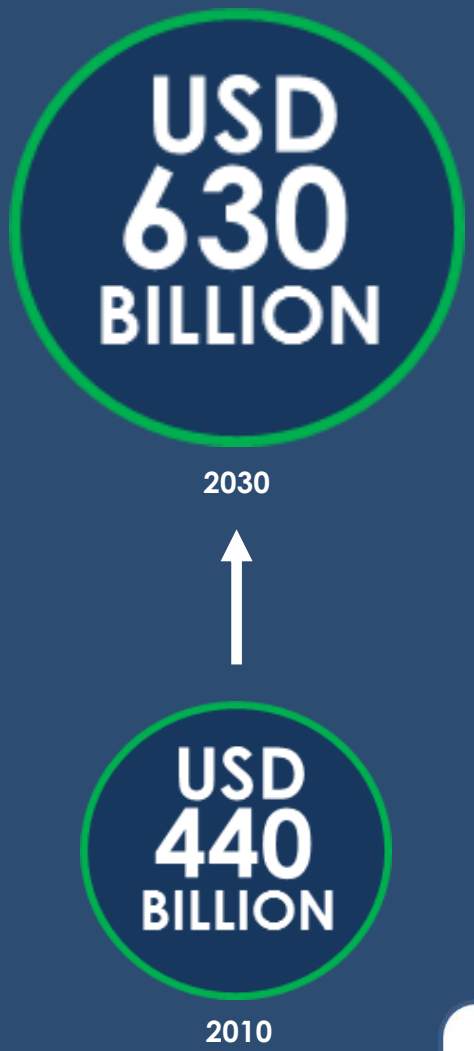
GLOBAL MARKET FOR OIL & LIPIDS FROM 2010 - 2030





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SOUTH EAST ASIA MARKET FOR OIL & LIPIDS (PALM OIL) FROM 2010 - 2030

2010

2030

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STRENGTHS	CHALLENGES
WORLD CLASS COMPANIES & CONGLOMERATES i.e. SIME DARBY, PETRONAS, FELDA, GENTING, IOI	LIMITED AREA FOR PLANTATION EXPANSION, FORCING PALM GROWERS TO VENTURE FURTHER DOWNSTREAM
READY & WELL-ESTABLISHED INFRASTRUCTURE, DEDICATED, CUSTOMIZED INDUSTRIAL PARKS	LIMITED TECHNOLOGY KNOW-HOW, WILL REQUIRE STRATEGIC PARTNERSHIP WITH TECHNOLOGY PROVIDERS
ADVANCED ENGINEERING CAPABILILTIES FROM BOTH PALM OIL & THE PETROCHEMICAL INDUSTRIES	LIMITED EXPERIENCE IN SCALING UP BIO-BASED PROJECTS
PROVIDE OPPORTUNITIES TO COMPLEMENT WITH THE STRATEGIC PROJECTS. i.e. PETRONAS RAPID, JOHOR & PETRONAS GIPC, KUANTAN	VERY COMPETITIVE REGIONAL INVESTMENT LANDSCAPE

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THE BIOCHEMICAL ECOSYSTEM IN MALAYSIA

(Synergizing Oleochemical & Petrochemical Industries)

EXISTING ACTIVITIES

5.2 MILLION (HA)

OIL PALM PLANTATION

430 MILLS

PALM OIL MILLS

67 REFINERIES & OLEOCHEMICALS

PALM OIL REFINERIES

NEW ACTIVITY

HIGH VALUE CHEMICALS

BIOCHEMICALS

EXISTING ACTIVITIES

1.4 MILLION BARRELS / DAY

CRUDE OIL PRODUCTION

6 REFINERIES

OIL REFINERIES

265 CHEMICAL MANUFACTURERS

CHEMICAL PRODUCERS

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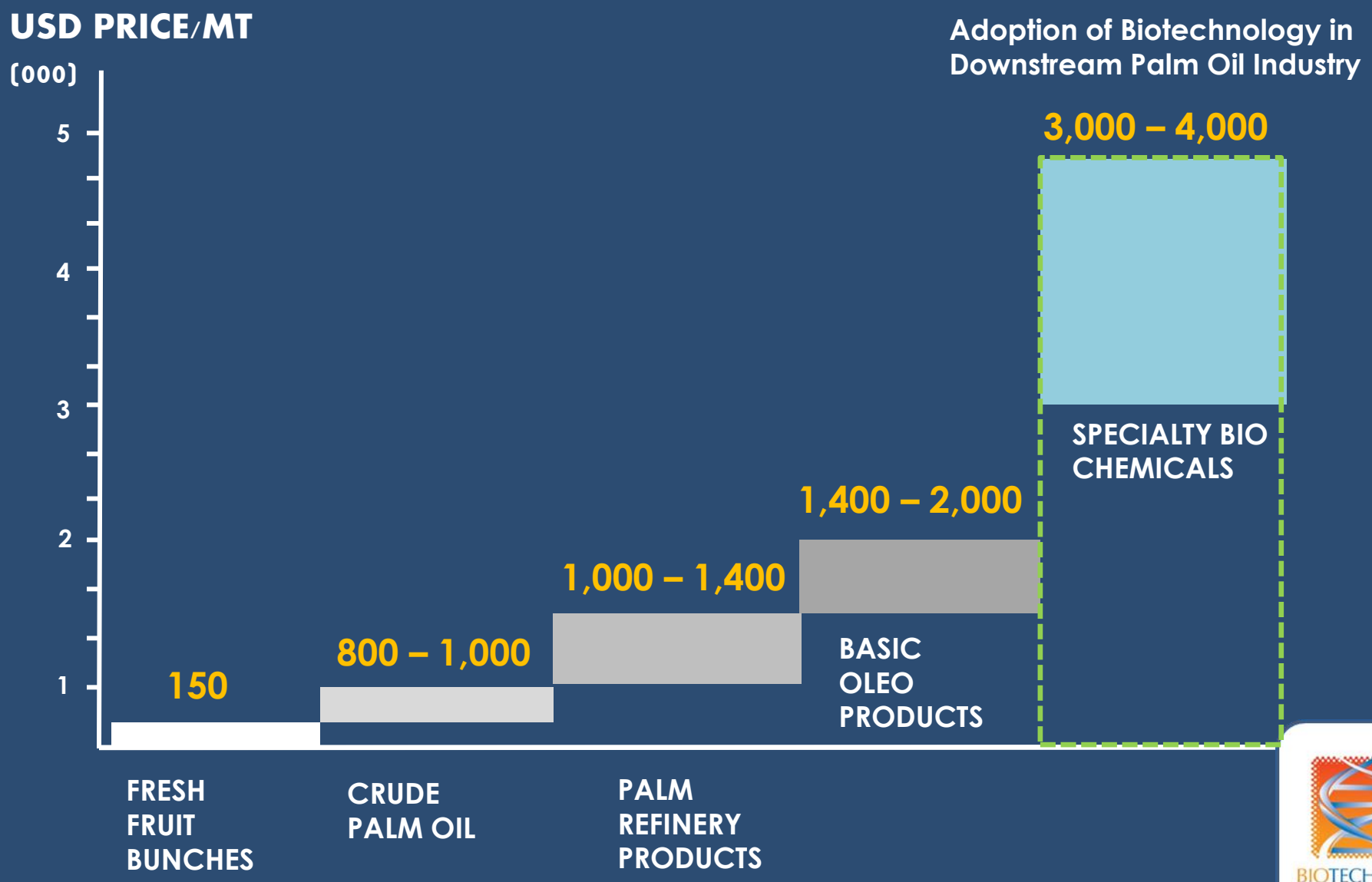
VALUE ADDITION TO PALM OIL INDUSTRY



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THANK YOU

READY TO INSPIRE

COMMERCIALIZING INNOVATION
IN BIOTECHNOLOGY