

Chapter 1: Malaysian Economy

1.1 OVERVIEW OF THE MALAYSIAN ECONOMY IN 2011

Malaysia recorded 5.1% growth in 2011, lower than the 7.2% achieved in 2010. Strong domestic demand driven by household, business and public spending continued to be the main contributor to economic growth. As with other economies, Malaysia was also affected by weaknesses in advanced economies and the impact of the Japanese disaster on the global manufacturing supply chain.

Domestic demand grew even stronger at 8.2% (2010: 6.3%). Private consumption grew from 6.5% in 2010 to 6.9%, supported by income growth, as labour market conditions continued to improve with lower unemployment and higher job vacancies. Income in the rural areas also increased as a result of higher commodity prices for rubber and palm oil. Concurrently, private investments grew strongly by 14.4% (2010:17.7%) in the manufacturing, mining and services sectors. Imports of capital goods grew 9.7% (2010:12.2%) and loans to businesses by 12.5% (2010:9.8%). In manufacturing, capital expenditure was higher for capacity expansion by domestic- and export-oriented firms. However, investment moderated in the second half of the year, particularly for those that were export oriented because of uncertainties in the global market.

Higher public consumption was attributed to higher emoluments for civil servants, including a one month bonus payment; and continuous efforts to improve public delivery services. Public investments contracted slightly to 2.4% (2010:2.8%) due to slower implementation of new projects. Non-financial public enterprises however increased investments in mining, transportation, utilities and communications, which included exploration and development of oil and gas fields; expanding power generation capacity and extending the High Speed Broadband services coverage.

In terms of sector performance, the services sector continued to be the key contributor to growth with a share to GDP of 58.6% (2010:57.7%) Within the sector, growth was led by the communication and wholesale and retail trade sub-sectors, both growing at 7.6%, albeit lower than 2010's performance of 8.5% and 8% respectively. In terms of share to GDP, the lead sectors were wholesale and retail trade at 13.9% (2010:13.6%), followed by finance and insurance at 11.8% (2010:11.7%)

The rate of growth in the manufacturing sector was very much lower at 4.5% (2010:11.4%), mainly contributed by the domestic-oriented industries, which grew at 8.9% (2010:15.6%) led by the construction-related cluster (2011:17.6%; 2010:18.9%) comprising construction-related products and fabricated metal products. The export oriented electronics & electrical products cluster contracted by 3.6%, as compared to strong positive growth of 17.4% in 2010. The primary – related cluster was the other sector that recorded positive growth of 7.4%, higher

than 2010's 5.7%; with significant turnaround in performance in the petroleum products from -2.4% in 2010 to 6.2% in 2011 and off-estate processing from -2.3% to 8.7% in the same period.

The agriculture sector covering agriculture, forestry and fishing grew 5.6% in 2011, primarily due to the significant turnaround in crude palm oil production from -3.3% in 2010 to 11.3%. Rubber and crude palm oil prices rose to an average of RM13.67 per kg (2010:RM10.70 per kg) and RM3,279 per tonne (2010:RM2,752 per tonne) respectively.

The mining sector contracted by 5.7% (2010: growth 0.2%) due to lower production of crude oil and condensates, shutdown of several production facilities for maintenance, lower output from maturing fields, and lower than expected output from new fields.

The construction sector grew at 3.5% (2010:5.1%) slowed down with the completion of major highway projects, maintenance and upgrading works, concerns over oversupply of office space, particularly in the Klang Valley. The residential sub-sector turned around, particularly in the high end segment.

Foreign direct investments accounted for 11.9% of the Gross National Income at RM98.9 billion, of which 59.2% were in manufacturing and 9.6% in oil and gas. Investments in manufacturing were mainly in the E&E sector, petroleum refining and petroleum-related products and increasingly substantial investments in solar energy. Investments in the oil and gas sector were mainly for extraction and production. Major contributors of FDIs were advanced economies, in particular US, Japan and Germany. FDIs from regional countries also increased, with a share of 32.3% of total FDI (2003:10.1%).

The Malaysian labour market improved with unemployment declining to 3.1% (2010:3.3%). New jobs numbered 291,500, mainly in the services (174,300 jobs) and manufacturing (117,500 jobs) sectors. Real value-added per worker grew at 2.6% (2010:4.5%) while average salaries in the private sector grew 4% (2010:4.5%).

Headline inflation averaged 3.2% (2010:1.7%), mainly contributed by higher food prices and transportation due to upward adjustments to prices of petroleum products and sugar, higher global commodity and energy prices. Producer prices also rose to 9% (2010:5.6%), particularly in commodity-related components.

1.2 TRADE PERFORMANCE IN 2011

Total trade in goods in 2011 was RM1,268.7 billion, which was the highest total trade on record (2010:RM1,1678.6 million). Malaysia also recorded its 14th consecutive year of trade surplus, which grew by 9.4% to RM120.31 billion (2010:RM110 billion). Exports increased from RM638.8 billion (2010) to RM694.5 billion; while imports rose from RM528.8 billion to RM574.2 billion in the same period.

Malaysia's largest trading partner in 2011 was the People's Republic of China for the third consecutive year; accounting for 13.2% of total trade or RM166.86 billion. Other major trading partners were Singapore (RM161.68 billion), Japan (RM145.29 billion), USA (RM112.98 billion) and Thailand (RM70.23 billion).

Top Ten Export Destinations

Country	2011		Jan – Feb 2012	
	Export value (RM billion)	Share of total exports (%)	Export value (RM billion)	Share of total exports (%)
PRC	91.25	13.1	13.06	11.7
Singapore	88.16	12.7	14.51	13.0
Japan	79.97	11.5	14.72	13.2
USA	57.58	8.3	9.28	8.3
Thailand	35.72	5.1	6.37	5.7
Hong Kong SAR	31.24	4.5	4.25	3.8
India	28.18	4.1	4.04	3.6
Republic of Korea	25.82	3.7	4.59	4.1
Australia	25.11	3.6	4.93	4.4
Taiwan	22.71	3.3		
Indonesia			4.05	3.6

{Source: MATRADE}

Electrical & electronic (E&E) products continued to lead in exports at RM236.5 billion or 34.1% of total exports in 2011 (2010: RM250 billion), followed by palm oil & palm-oil based products at RM83.4 billion or 12% of total exports, LNG at RM50 billion or 7.2% of total exports, petroleum products at RM33 billion or 4.8% of total exports, crude petroleum RM32 billion or 4% of total exports and timber & timber-based products at RM19.8 billion or 2.9% of total exports.

Top Ten Major Export Products 2012

Products	Dec 2011 (RM million)	Jan 2012 (RM million)	Feb 2012 (RM million)
Total Exports	60,740.8	55,070.1	56,864.4
E & E Products	20,680.7	17,125.0	18,603.5
LNG	5,146.1	5,587.4	4,574.9
Palm Oil	5,394.8	4,823.0	4,501.9
Chemicals & Chemical Products	3,964.8	3,531.5	4,079.0
Crude Petroleum	2,501.0	2,789.6	3,532.8
Refined Petroleum Products	3,246.2	4,252.4	3,403.8
Machinery, Appliances & Parts	2,229.2	1,800.2	2,064.2
Rubber Products	1,677.1	1,407.0	1,606.8
Manufacturers of Metal	1,906.3	1,414.8	1,502.4
Optical & Scientific Equipment	1,471.3	1,521.8	1,450.4

{Source: MATRADE}

Major import products were:

- Machinery and transport equipment at RM256.1 billion or 44.6% of total imports;
- Manufactured goods and articles at RM111 billion or 19.3% of total imports;
- Mineral fuels, lubricants etc at RM67.5 billion or 11.8% of total imports;
- Chemicals at RM53.9 billion or 9.4% of total imports; and
- Food at RM34.5 billion or 6% of total imports.

In terms of categorization by end-use, the composition was:

- Intermediate goods at RM385.2 billion or 67.1% of imports, mainly in parts and accessories of capital goods (excluding transport equipment);
- Capital goods at RM81 billion or 14.1% of total imports
- Consumption goods at RM41 billion or 7.1% of total imports.

Major Import Sources

Country	2011		Jan – Feb 2012	
	Import value (RM billion)	Share of total imports (%)	Import value (RM billion)	Share of total imports (%)
PRC	91.25	13.1	12.68	13.7
Singapore	88.16	12.7	12.57	13.6
Japan	79.97	11.5	9.88	10.7
USA	57.58	8.3	7.50	8.1
Thailand	35.72	5.1		
Indonesia			5.90	6.4

{Source: MATRADE}

Summary of Malaysia's External Trade 2011- 2012 (Jan-Feb)

Year/ Period	Total Exports (RM Million)	Total Imports (RM Million)	Trade Balance (RM Million)	Total Trade (RM Million)
2011 p	694,548.5	574,232.0	120,316.5	1,268,780.4
2012 p (Jan)	55,070.1	46,320.8	8,749.3	101,390.9
2012 p (Feb)	56,865.4	46,286.0	10,579.4	103,151.4
2012 p (Jan-Feb)	111, 935.5	92,606.8	19,328.7	204,542.3

{Source: MATRADE}

1.3 INVESTMENTS

In a statement released by the Minister of International Trade and Industry, FDI inflows and total approved investments in manufacturing, services and primary sectors increased from RM105.6 billion in 4,368 projects in 2010 to RM148.6 billion and 4,964 projects in 2011. Domestic investments at RM82.3 billion or 55.4% of total investments continued to be greater than foreign investments at RM66.3 billion or 44.6%. About 149,496 jobs were expected to be created.

FDIs in the manufacturing sector grew by 12.3% to RM32.9 billion (2010: RM29.3 billion), which accounted for 50.1% of total FDIs. The services sector received 27.3% of total FDI inflows, mining and quarrying 22.2% and agriculture, forestry and fishing 0.4%.

Investments in manufacturing at RM56.1 billion in 846 projects (2010: RM47.2 billion) exceeded the Third Industrial Master Plan, 2006-2020 average annual investment target of RM27.5 billion. Capital investment per employee increased from RM484,767 in 2010 to RM557,894. 61% or RM34.2 billion of total investments approved involved foreign investments; and the balance RM214.9 billion or 39% by domestic investors.

The E&E sector continued to lead in terms of number of projects as well as investment volume; followed by basic metal products, transport equipment, chemicals & chemical products, and food manufacturing. Collectively, these five sectors brought in RM44.7 billion or 79.7% of total investments approved.

Major sources of investments in the manufacturing sector were Japan, Republic of Korea, USA, Singapore and Saudi Arabia, with a total investment of RM22.5 billion or 65.8% of total foreign investments approved in 2011.

Overview: Projects Approved in year 2012 and 2011 (in RM)
(2012: US \$ 1 = RM 3.05) as April 16, 2012) (2011: US \$ 1 = RM 3.17)

	January 2012			2011		
	New	Exp/Div	Total	New	Exp/Div	Total
Number	29	31	60	511	335	846
Potential Employment	1,757	6,948	8,705	56,636	43,897	100,533
Total Capital Investment (RM million)	871.0	1,612.5	2,483.5	33,089.5	22,997.3	56,086.8
- Domestic	592.9	491.7	1,084.7	12,923.8	9,014.1	21,937.9
- Foreign	278.1	1,120.8	1,398.8	20,165.7	13,983.2	34,148.9

{Source: MIDA}

Projects Approved (By Industry) in year 2012 (in RM)
(2012: US \$ 1 = RM 3.05) as April 16, 2012)
(2011: US \$ 1 = RM 3.17)

Industry	January 2012			2011		
	Investment (RM million / USD million)			Investment (RM million / USD million)		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Chemical & Chemical Products	250.5 82.1	369.7 121.2	620.2 203.3	1,729.5 545.6	3,220.6 1,016	4,950.1 1,561.5
Electronics & Electrical Products	17.4 5.7	479.7 157.3	497.1 163	1,357.7 428.3	18,703.7 5,900.2	20,061.4 6,328.5
Transport Equipment	206.0 67.5	135.7 44.5	341.7 112.0	4,911.8 1,549.5	1,066.3 336.4	5,978.1 1,885.8
Food Manufacturing	66.2 21.7	201.0 65.9	267.2 87.6	1,125.9 355.2	2,567.9 810.0	3,693.8 1,165.2
Fabricated Metal Products	135.9 44.5	14.9 4.9	150.8 49.4	619.8 195.5	804.7 253.8	1,424.5 449.4
Non-Metallic Mineral Products	109.0 35.7	22.7 7.4	131.8 43.2	1,099.5 346.9	1,464.0 461.8	2,563.5 808.7
Basic Metal Products	131.2 43.0	0	131.2 43.0	6,329.3 1,996.6	3,587.4 1,131.7	9,916.7 3,128.3

{Source: MIDA}

Major Sources of Foreign Investment in year 2012 (in RM)
(2012: US \$ 1 = RM 3.05) as April 16, 2012)
(2011: US \$ 1 = RM 3.17)

Country	January 2012	2011
	Foreign Investment (RM)	Foreign Investment (RM)
Singapore	535,813,314	2,477,713,827
United Kingdom	275,000,000	240,673,279
Thailand	169,738,200	241,533,800
Japan	139,379,230	10,101,843,184
British Virgin Islands	117,078,500	15,323,374
India	56,529,240	247,558,022
China	15,456,000	1,194,224,823

{Source: MIDA}

1.4 ECONOMIC OUTLOOK FOR 2012

For 2012, the Malaysian economy is expected to grow at 4 – 5% with domestic demand remaining as the anchor for growth. Domestic drivers of growth included measures announced in the 2012 National Budget such as one-off financial assistance to the low and middle income groups, higher public sector wages, private financing initiatives, higher capital expenditure by government and non-financial public enterprises; together with domestic investment in on-going Economic Transformation Programme projects.

Headline inflation is expected to moderate at 2.5 to 3%, reflecting the moderation in global commodity prices, weaker global growth outlook and modest growth in domestic demand. Unemployment is expected to increase to 3.2% of the workforce.

The manufacturing sector would grow at a slower pace, especially in the export-oriented industries in particular the E&E sector because of sluggishness in advanced economies. Nevertheless, support is expected to come from new

growth areas in renewable energy, light-emitting diode industries, as well as in the communications, resource-based products (refined petroleum, chemicals and chemical products and rubber products), and consumer-related products .

1.5 MALAYSIA - KEY ECONOMIC INDICATORS

	2011p	2012 f
Population (million)	28.55	28.85
GDP at constant prices	RM588.3 billion	RM614.5 billion
GDP Growth	5.1%	4.0-5.0%
Per Capita Income	RM28,725	RM 30,856
Inflation Rate (CPI)	3.2%	2.5 – 3.0%
Labour Force	12.6 million	12.9 million
Unemployment	3.1%	3.2%
Total Exports	RM637.6 billion	RM646.4 billion
Total Imports	RM592.6 billion	RM602.0 billion
Major Exports	<ul style="list-style-type: none"> • Electrical & Electronic Products • Palm oil & Palm oil-based Products • Liquefied Natural Gas (LNG) • Crude Petroleum • Timber & Timber-based Products • Petroleum Products 	<ul style="list-style-type: none"> • Electrical & Electronic Products • Palm oil & Palm oil-based Products • Chemical & Chemical Products • Liquefied Natural Gas (LNG) • Crude Petroleum • Refined Petroleum Products
Major Imports	<ul style="list-style-type: none"> • Intermediate Goods • Capital Goods • Consumption Goods 	<ul style="list-style-type: none"> • Intermediate Goods • Capital Goods • Consumption Goods

Source: Economic Report 2011/2012 & Bank Negara Report 2011

p - preliminary

f - forecast

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Chapter 2: Petrochemical Industry in Malaysia

2.1 OVERVIEW

The industry is an important sector in Malaysia and the rapid growth of the industry is mainly attributed to the availability of oil and gas as feedstock, a well-developed infrastructure, a strong base of supporting services, the country's cost competitiveness, as well as Malaysia's strategic location within ASEAN and its close proximity to major markets in the Asia Pacific Region.

The Malaysian petrochemicals industry is growing and is aided by the nation's well-developed oil and gas sector. Malaysia has the world's 25th largest proven crude oil reserves, estimated at 4.5bn barrels, and 12th largest proven natural gas reserves of 89 trn ft³. With a production capacity of 23 mn tpa, it is also the world's third largest producer of LNG.

A wide range of petrochemicals are produced in Malaysia, including olefins, polyolefins, aromatics, ethylene oxide (EO), glycols, oxo-alcohols, ethoxylates, acrylic acids, phthalic anhydride, acetic acid, styrene monomer (SM), polystyrene (PS), ethylbenzene, vinyl chloride monomer (VCM) and polyvinyl chloride (PVC). World-scale producers of low-density polyethylene (LDPE), linear low-density polyethylene (LLDPE), high-density polyethylene (HDPE), PP, expanded polystyrene (EPS), PVC, ABS and polyethylene terephthalate (PET) resins have established plants in Malaysia, providing a steady supply of feedstock material for the plastic industry. Natural gas and naphtha are the two locally available basic raw materials for the petrochemical industry.

Around 39 companies are in operation in the nation's petrochemicals industry, with total investments of about MYR 28bn (US\$7.36bn). Approximately 47% of the investment is attributed to domestic sources and 53% to foreign investment. The US is the leading investor, accounting for 40% of the total foreign investments in the industry. Other nations investing in Malaysia's petrochemicals sector include Japan, the UK, Germany and Taiwan.

The following factors have contributed to petrochemical industry growth in Malaysia:

- Increase in realized product prices and sales volumes ;
- Long-term reliability and security of gas supply;
- Well-developed infrastructure;
- Cost competitiveness in the market;

Malaysia's strategic location within the ASEAN and its proximity to the major Far East markets augurs well for its exports in the Asia Pacific region. As such, state-

owned oil and gas company Petronas and the privately owned Titan Chemicals dominate the Malaysian petrochemicals industry. Titan currently operates two of the nation's four ethylene plants and has a production capacity of 630,000tpa, while Petronas operates the remaining two in conjunction with BP and Japan-based Idemitsu with a combined capacity of 1mn tpa. Petronas also operates a range of downstream joint venture (JV) facilities at its Kerteh and Gebeng complexes, along with global industry players. Titan is the second-largest polyolefins producer in South East Asia. The company currently operates eight plants on two integrated sites in Pasir Gudang and Tanjung Langsat, Johor.

The presence of multinational petrochemicals players, including BASF, BP, DOW Chemical, Royal Dutch Shell, ExxonMobil, Eastman Chemical, Idemitsu, Mitsui, Toray Industries, Kaneka, the US-based Polyplastic, Dairen Chemicals, Thirumalai and US-based Westlake Chemical, reflects the nation's potential as an investment location for petrochemicals industries. A point to note is that most of these firms work in collaboration with Petronas.

Core Products Manufactured in the Major Petrochemical Zones in Malaysia

Zone	Core Products
Kertih, Terengganu	Ethylene, propylene, para-xylene, benzene, and syngas.
Gebeng, Pahang	Propylene and syngas
Pasir Gudang-Tanjung Langsat, Johor	Ethylene, propylene, benzene, toluene, xylene, and butadiene

{Source: MIDA }

Chapter 3: Committee Reports

Chapter 3.1

GENERAL MATTERS & RAW MATERIALS COMMITTEE

3.1 GENERAL MATTERS & RAW MATERIALS COMMITTEE

Recent Developments in Malaysia and its Industry Outlook in the coming years

Increased productivity and expansion in industry output over recent years have resulted in improved export performance. Malaysia is expected to continue attracting foreign investment, but the industry is reassessing its competitive status within the ASEAN and the 'threat' posed by China's rapid industrial expansion. The petrochemicals industry is facing tougher market conditions with downward pressure on product prices caused by a massive increase in capacities in Asia and the Middle East. In order to sustain production volumes, Malaysian producers will need to constrain feedstock costs. In the face of intensified competitiveness in the global market, prospects for the Malaysian petrochemicals industry depend on its ability to cultivate and maintain competitive advantages over competing nations.

The Third Industrial Development Plan (IMP3, 2006-2020) expects further expansion in the industry and seeks to enhance competitiveness. Development investment of MYR34bn (US\$9.99bn) will be made during the plan period compared to the MYR27.8bn (US\$8.17bn) approved under the second master plan (1996-2005). The IMP3 targeted petrochemicals exports worth approximately MYR27.6bn (US\$8.11bn) by 2015 and MYR36.7bn (US\$10.79bn) by 2020. This IMP3 plan will focus on developing Bintulu (Sarawak), Gurun (Kedah), Tanjung Pelepas (Johor) and Labuan into new petrochemicals zones. The government plans to encourage the private sector to invest in support facilities, infrastructure and supply services, which are important for the development of petrochemicals zones. The investments are to be undertaken through a consortium of JVs. This would enable the setting and sharing of the costs in building and maintaining the facilities at competitive levels. Development of upstream and downstream linkages is also a part of the plan. Efforts would also be made to realize the full potential of the existing petrochemicals zones, Kerteh (Terengganu), Gebeng (Pahang) and Pasir Gudang-Tanjung Langsat (Johor), through a systematic and coordinated approach. The plan also calls for the construction of three new crackers by 2020. Petronas has majority stakes in two existing gas-based crackers at Kertih, Malaysia. Titan Petchem operates the country's other cracker, at Pasir Gudang. Two major cracker-based petrochemicals complexes are planned in Kuantan and Johor.

In June 2011, Bahrain's Burel Industries selected Univation's Unipol technology for two PE production lines planned as part of the Gebeng industrial park at Kuantan. It will be based on a 1.5mn tpa naphtha cracker and includes two 500,000 tpa each PE lines, which will produce LLDPE and HDPE. The complex will also produce 250,000 tpa PP based on DOW Chemicals' Unipol technology. Completion is scheduled for 2013-14.

Meanwhile, Petronas is planning to build a US\$20bn refinery and petrochemicals complex (RAPID project) in Pengerang, southern Johor, next to Singapore. The refinery will have throughput of 300,000b/d while the petrochemicals complex will be based on a naphtha cracker and will be designed to produce a combined 3mn tpa of olefins capacity (ethylene, propylene and C4 and C5 fractions). The Petronas project is currently in a feasibility study phase and production is slated to begin in late 2016. The RAPID complex is anticipated to have plants making 'differentiated and highly specialized' chemicals including other types of petrochemical as well as polymers.

BASF's 60:40 joint venture with Petronas, BASF Petronas Chemicals (BPC), is also considering expanding its existing complex at Gebeng, launching a feasibility study that looks into the viability of manufacturing the superabsorbent polymers, nonionic surfactants, methane sulfonic acid, isononanol and other C4-based specialties.

Domestic gas production is encouraging growth in the fertiliser industry. In October 2011, Petronas Chemicals awarded an engineering, procurement and construction contract for a US\$1.5bn fertiliser complex at the Sipitang oil and gas industrial park in the state of Sabah to a consortium led by Mitsubishi Heavy Industries and including Apex Energy and Indonesia's Rekayasa Industri. The Sabah Ammonia Urea (Samur) project will be designed to produce 2,100 tpd ammonia and 3,500 tpd urea using gas feeds from Sabah's offshore wells. Construction is expected to begin in 2012, with completion targeted for 2015.

Further downstream, Malaysia is diversifying production with investment in specialty chemical products. In July 2011, Solutia Inc announced it had selected a site in Kuantan, Pahang for a planned polyvinyl butyral (PVB) resin project in Asia to meet the rising demand for Saflex sheet made at the company's two production lines in Suzhou, China. Production is used to make laminated glass, serving the architectural, photovoltaic and automotive markets. It launched a feasibility project for a plant in Asia during October 2010. Kuantan is already home to the company's Crystex insoluble sulphur manufacturing facility.

In July 2011, Japan's Polyplastics (the 45:55 joint venture between Ticona and Daicel) announced that it would build a new Duracon polyacetal engineering plastics plant at its Kuantan complex. The 90,000tpa unit will be completed in early 201, will lift polyacetal capacity at Kuantan to 120,000tpa and the group's total to approximately 300,000tpa, accounting for about 33% of world demand for polyacetal engineering plastics. The new plant is likely to use Polyplastics ' proprietary polymerization technology, based on methanol feedstock. In addition, Polyplastics will increase engineering plastics compounding capacity in Kaoshiung, Taiwan and Nantong, China.

Chapter 3.2

POLYOLEFINS COMMITTEE

3.2 POLYOLEFINS COMMITTEE

Malaysia is a net exporter of polyolefin products with export recorded 778 KMT in the year 2011 while import recorded 641 KMT. The major export destinations were China (including Hong Kong), and countries in the South East Asia region and India Sub-Continent.

Malaysia recorded a GDP growth rate of 5.1% in 2011 which was about 2% lower than the growth of 7.2% in 2010. Malaysia's economy was partly affected by the unresolved Euro debt crisis which has dampened demand from countries within the Euro zone. The domestic polyolefin demand in 2011 was growing at around 6% in line with the positive growth rate of GDP. In 2012, the Malaysia economy is projected to grow by 5% to 6% and the domestic polyolefin demand is expected to grow moderately to 1,390 KMT from 1,350 KMT in 2011 as Euro zone economy is expected to continue struggling in early 2012 which will be affecting demand for polymers.

There will be no capacity expansion or addition in 2012 for polyolefin products.

3.2.1 LDPE

Unit: KTA

Product		2009	2010	2011E	2012F
Supply	Production	438	458	474	475
	Import	15	14	17	18
	Total	453	472	491	498
Demand	Domestic	125	130	130	133
	Export	321	340	361	360
	Total	446	470	491	498

Review of 2011

Overall production volume was higher in 2011 compared to 2010 following plant turnaround in year 2010. The domestic market demand was robust in early 2011 which was led by the strong demand from electrical and electronic sector but the high prices of LDPE has led to material substitution. Subsequently, the strong demand from the electrical and electronic sector was not sustained in the second half of 2011. Overall, the domestic demand growth was flat in 2011. The export volume has increased by around 6% in 2011 as a result of higher production volume.

Outlook for 2012

In Malaysia, the domestic LDPE demand is expected to grow slightly to 133 KTA spurs by demand from packaging sector but overall growth rate will be affected by external economy. The production volume is expected to be similar compared to year 2011 as there is no plan maintenance shutdown in 2012.

3.2.2 LLDPE

Unit: KTA

Product		2009	2010	2011E	2012F
Supply	Production	70	74	76	78
	Import	279	300	324	336
	Total	349	374	400	414
Demand	Domestic	345	370	400	414
	Export	4	4	0	0
	Total	349	374	400	414

Review of 2011

The domestic demand for LLDPE continued to rise in 2011 in tandem with Malaysia economic growth and expansion of stretch film capacity. Import volume rose by about 8% to cover most of the domestic requirement LLDPE is under-served by the local production and production volume was more or less flat in 2011.

Outlook for 2012

LLDPE demand in 2012 is expected to improve moderately in view of the forecasted positive GDP growth rate. However, any adverse external demand may affect the growth rate as Malaysia is a major producer and exporter of stretch film. The domestic LLDPE demand is forecasted to improve to about 414 KTA with projected slight increase of production to 78 KTA.

3.2.3 HDPE

Unit: KTA

Product		2009	2010	2011E	2012F
Supply	Production	480	490	481	490
	Import	182	170	193	190
	Total	662	660	674	680
Demand	Domestic	430	420	450	463
	Export	232	237	224	217
	Total	662	657	674	680

Review of 2011

Overall, domestic demand for HDPE recovered in 2011 after slowing down in 2010. Although demand was slightly affected by the on-going Euro debt crisis, demand from Japan after the March tsunami has resulted in overall higher domestic demand for HDPE. The domestic demand was estimated to have increased by around 7% in 2011. Import volume was also higher by around 13% to support the domestic demand.

Outlook for 2012

In view of the unresolved Euro debt crisis, domestic demand for HDPE is expected to grow marginally to 463KTA in line with the projected GDP growth rate as the carrier bags export to the developed countries is not likely to register any strong growth. Production is expected to increase to about 490 KTA barring any unforeseen production issue. Import volume is expected to remain similar to 2011 volume.

3.2.4 PP

Unit: KTA

Product		2009	2010	2011E	2012F
Supply	Production	433	435	456	470
	Import	90	98	107	105
	Total	523	533	563	575
Demand	Domestic	340	350	370	380
	Export	183	184	193	195
	Total	523	534	563	575

Review of 2011

Overall, the production volume increased by around 5% in 2011 as compared to year 2010 after recovering from production shortfall and major turnaround in 2010. The domestic demand was growing by around 6% due to stronger economy which led to higher PP demand. Import volume grew by 9% to support the stronger domestic demand and export volume increased by around 5% as more volume was available with higher production volume.

Outlook for 2012

The stronger GDP growth rate of 5% to 6% projected for Malaysia economy is expected to lead to demand growth for PP. However, the domestic demand for PP is likely to grow only 3% in 2012 to 380 KTA in view of the possibility of adverse effect on global economy resulted from the Euro debt crisis. The production volume is projected to increase to 470 KMT to provide for the expansion in demand in Malaysia. The import and export volume are not expected to differ very significantly compared to 2011.

Chapter 3.3

STYRENICS COMMITTEE

3.3 STYRENICS COMMITTEE

Malaysia SM Capacity & Demand (Unit:KMts)

YEAR	2008	2009	2010	2011	2012	2013	2014
Demand	300	264	308	335	358	355	358
Capacity	240	240	240	240	240	240	240
Balance	-60	-24	-68	-95	-118	-115	-118
Import	135	102	162	160	160	160	160
Export	32	37	49	45	42	45	45

Malaysia Styrenic Derivative Supply & Demand (Unit:KMts)

Derivatives	Producer	2008	2009	2010	2011	2012	2013	2014
PS	Demand	106	100	108	118	120	120	120
	Capacity Idemitsu	132	110	110	110	110	110	110
	Balance	26	10	2	-8	-10	-10	-10
ABS	Demand	100	102	103	105	107	107	107
	Capacity Toray	220	220	220	220	220	220	220
	Balance	120	118	117	115	113	113	113
EPS	Demand	33	33	34	34	34	34	34
	Capacity BASF	75	75	75	75	75	75	75
	Balance	42	42	41	41	41	41	41

Chapter 3.4

PVC COMMITTEE

3.4 PVC COMMITTEE

PVC

(Unit: 1,000MT)

	2010	2011	2012 - Prospects
Capacity	280	280	280
Production	240	160	241
Domestic Demand	165	193	221
Balance	75	-33	20
Import	45	76	60
Net Inventory	120	43	80

Number of producers = 4 (include 1 Paste PVC plant of 30,000MTS Capacity)

2011 RESULTS:

Shortage in supply over demand created by temporary slowdown in supply due to producer's low production rate and high VCM costs contributed by:

- a) Plant problems and long unplanned shutdown faced by the biggest producer in the country. The producer only produced less than half of its nameplate capacity in 2011.
- b) The 11th March 2011 tsunami in Japan worsened the supply availability and resulted in sharp increase of raw material costs. The timing of the tsunami, which coincided with the unplanned shutdown of Malaysia's biggest Vinyl producer, made the VCM and PVC supply very tight in Malaysia.
- c) As a result, domestic converters were importing more PVC from SEA and NEA producers during and after the tsunami period and kept their relationship healthy throughout the year giving converters more supply options. On the other hand, domestic producers faced more competition in the local market.

FUTURE PROSPECTS

Growth is expected for 2012 although the industry will face severe competitive pressure:

- a) Forecast economic growth of 5% - 6% in Malaysia plus the Government's Transformation Program and impending General Election is expected to have positive impact on the petrochemical industry and will further improve PVC demand.

- b) The significant margin erosion due to severe price competition and strong Ringgit may force the industry players to rationalise the PVC industry, to restructure for better cooperation and benefit of integration to avoid damage to the industry.
- c) The turmoil in the Middle East, rising oil prices and Eurozone issue are the significant concern to the global economy in the year ahead.

VCM:

There is only one VCM producer in Malaysia with annual rated capacity of 400,000 MTS.

Chapter 3.5

SYNTHETIC RUBBER COMMITTEE

3.5 SYNTHETIC RUBBER COMMITTEE

Industry Profile

Malaysia rubber industry is mostly driven by glove, footwear and automotive sectors which includes tyre and automotive components. In addition to Natural Rubber and Latex, Malaysia also is currently the Asia fifth largest consumer of synthetic rubber, after China, Japan, Korea and Thailand. This consumption is mainly driven by various types of rubbers such as Acrylonitrile Butadiene Latex (NBL), Styrene Butadiene Rubber (SBR), Butadiene Rubber (BR) and Ethylene Propylene Diene Rubber (EPDM). With support from various organizations such as Malaysia Industrial Development Authority (MIDA), Malaysia External Trade Development Corporation (MATRADE), Malaysia Rubber Export Promotion Council (MREPC), Tun Abdul Razak Research Centre (TARRC) and Malaysia Rubber Board (MRB), Malaysia continue to supply a wide range of rubber products to global market.

Consumption

Figure – Malaysia’s Rubber Consumption by Type (Tonnes)

Year	Natural Rubber		Synthetic Rubber		Total Rubber (NR and SR)			Reclaimed and Compound Rubber (tonnes)
	Tonnes	% of World	Tonnes	% of World	Tonnes	NR:SR	% of World	
						Ratio		
2000	363,715	4.99	55,608	0.51	419,323	86.7:13.3	2.3	n.a
2001	400,888	5.46	57,699	0.56	458,587	87.4:12.6	2.6	n.a
2002	407,884	5.35	63,150	0.59	471,034	86.6:13.4	2.6	n.a
2003	421,781	5.47	66,452	0.58	488,233	86.4:13.6	2.5	n.a
2004	402,769	4.88	84,236	0.73	487,005	82.7:17.3	2.5	11,316
2005	386,472	4.42	96,417	0.81	482,889	80.0:20.0	2.4	11,693
2006	383,324	4.32	112,385	0.91	495,709	77.1:22.9	2.3	23,125
2007	450,246	4.62	129,002	0.98	579,248	77.7:22.3	2.5	40,180
2008	468,894	6.63	134,297	1.39	603,191	77.1:22.9	3.6	43,205
2009	468,669	4.91	126,376	1.06	595,045	78.8:21.2	2.8	32,110
2010	457,919	4.29	185,077	1.34	642,996	71.2:28.8	2.6	31,768
2011	401,923	2.58	225,961	1.52	627,884	64.0:36.0	2.46	33,940

Source: Malaysia Department of Statistics, International Rubber Study Group

The decline in production of Natural Rubber Latex as well as increase in their price recently has encouraged Malaysia Glove industries to consume more synthetic latex, primarily NBL. Global annual demand for NBL is reported around 550,000 tonnes, most of them in Malaysia. At present, Malaysia is the world largest glove producer and most of the export is largely to USA, Europe, China and Middle East. Malaysia is known for its world-class glove manufacturer with highest quality and complies to world most stringent specifications. The consumption of synthetic (dry) rubbers is also increasing markedly due to rapid expansion of other rubber products sectors, particularly automotive, which significantly contribute towards Malaysia's economic growth.

Producers in the Market

Compared to other Asia countries such as China, Korea, Thailand, Japan and Taiwan, the size of synthetic rubber market is relatively small. However, Malaysia has two synthetic rubber plants which produce NBL namely Synthomer Sdn. Bhd and PolymerLatex. Both plants are located in Johor (Kluang and Pasir Gudang) which make Malaysia the largest producer of NBL with capacity of 230,000 tonnes annually. In December 2010, Yule Cato & Co plc, the owner of Synthomer has acquired Polymer Latex from Tower Brook Capital Partners and PolymerLatex has been renamed to Synthomer Deutschland GmbH.. In the early 2012, Synthomer has announced an investment in its first Carboxylated Styrene Butadiene Latex (XSBL) facility in Asia. The 70,000 tonnes per year plant will be located at the company's Pasir Gudang facilities and planned to be operational by end of 2012.

Future Outlook

In general, the consumption of both synthetic and natural rubber is on the rising trend. In the past few years, efforts have been made by Malaysian rubber industries to improve competitiveness by increasing efficiency and productivity, as well as progressively developing new product with advance features in order to capture export markets i.e. EU and US.

Malaysia is also seriously considering the idea of establishing synthetic rubbers production from its petrochemical sector. The availability of synthetic rubbers will greatly compliment Malaysia's natural rubber production as both of them need to be used together as rubber compound. This will drive the growth of further downstream industries especially manufacturing and will attract foreign direct

investment opportunities. This can be made possible as Malaysia is blessed with the availability of major raw materials such as ethylene, propylene, butadiene as well as isoprene. With combination of both natural and synthetic rubber availability, Malaysia rubber industry will grow rapidly and will open up many opportunities for rubber material development through R&D and industrial product enhancement program.

Chapter 3.6

**SYNTHETIC FIBER RAW MATERIALS
COMMITTEE**

3.6 SYNTHETIC FIBER RAW MATERIALS COMMITTEE

Ethylene Glycols (MEG & DEG) as Synthetic Fiber Raw Material

The Ethylene Glycols (MEG & DEG) market in Malaysia is expected to be stable until 2016 as domestic demand growth is forecasted to be rather limited.

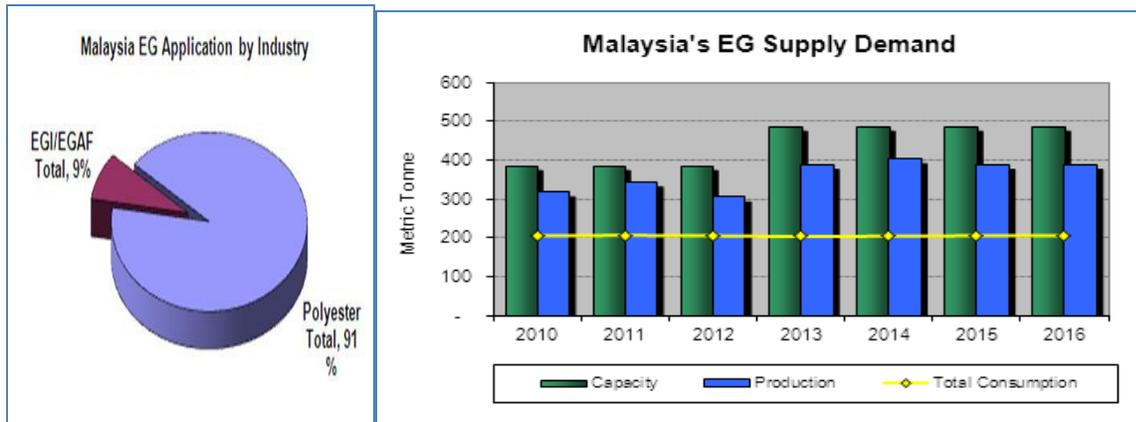
At the moment, Malaysia's only EG producer is OPTIMAL with the capacity of 380kta, having a local demand at 215kta, whereby the biggest EG consumer in Malaysia, a subsidiary of Reliance, accounts for almost 84% of the total demand for Polyester production. Other market segments consuming EG such as Unsaturated Polyester Resin and Automotive are expanding very well but these market segments consume very low quantity of EG and will not be significant in driving future Ethylene Glycols demand.

EG market growth heavily relies on the polyester demand/supply since it is a key feedstock together with Purified Terephthalic Acid (PTA) in this industry. The Asia market however, is projected to have immense potential on the EG growth and consumption.

In terms of new MEG capacities in Malaysia, Petronas Chemicals Group (PCG) has recently announced their new refinery and petrochemical project, RAPID (Refinery and Petrochemicals Integrated Development) located in Pengerang, Johor, Malaysia. EG is most likely one of the potential products which may be produced by RAPID.

Based on global market analysis, the world Polyester demand is expected to increase at 6.5 – 7.5% for the next three years supported by the increasing numbers of new Polyester capacities coming on stream in the coming few years. This rapid growth in the Polyester demand will likely be supported by new EG capacities announced in China, India and Middle East.

Malaysia EG Supply Demand and Application by Industry



Chapter 3.7

CHEMICALS COMMITTEE

3.7 CHEMICALS COMMITTEE

Industry Profile

Chemical industry is one of the leading industries in Malaysia. Not only satisfying the nation's requirement for chemical products, the industry's capability also extends to foreign export market. The expanse of its market is made possible as Malaysia has vast natural resources available including petroleum, natural gas and palm oil resources. Moreover, the industry's robust connections with other sectors such as automotive, electrical & electronics, construction, manufacturing, etc increases its prospect for further growth. Since the chemical industry is high-tech and capital intensive, the players are mostly multinational companies that possess highly trained human resources, advance research and development facilities and well-developed operating activities.

Categories

Basically, chemical industry involves in two main product categories: chemicals and petrochemicals products.

Chemicals and Chemical Products

Chemicals and chemical products are generally categorized into 6 sub-sectors. The sectors cover the production of alcohol, phenols, carboxylic acids, anhydrides, hydrocarbons, and nitrogen-function compound. Some examples of the finished products are packing tape, pallet stretch film, steel strapping band, personal care products, surfactants, electronics, taurine and glyphosate, glycerin, distilled fatty acids, fractionated fatty acids, PVC additives, plastics and master batches.

Petrochemical Products

Petrochemical products are derived from petroleum products and other hydrocarbon sources. Malaysia petrochemical industry currently offers an extensive range of petrochemical products including olefins, polyolefins, aromatics, ethylene oxide, glycols, oxo-alcohols, ethoxylates, acrylic acids, phthalic anhydride, acetic acid, styrene monomer, polystyrene, ethylbenzene, vinyl chloride monomer and polyvinylchloride. These petrochemical products are applied in various industries such as construction, automotive, agricultural products, textiles, packaging and consumer goods.

Performance of the Industry

For 2011, exports of chemicals and chemicals products constitute about 7% of total Malaysia export. Total chemicals export was RM47.2 billion compared to total export value of RM694.5 billions in 2011. China, Japan and Singapore were the major export markets for Malaysia in 2011.

The investment trends in the industry for the past three years have been towards increasing feedstock availability, expanding capacities, enhancing the value-add of existing products and broadening the range of petrochemicals produced in the country. These initiatives have resulted in improved export performance.

Projects Approved, Investment, and Trade Data for Chemicals and Chemical Products

	Year 2010	Year 2011
Projects Approved	89	69
Total Proposed Capital Investments (RM)	2,815,373,368	4,950,080,995
- Domestic Investments (RM)	1,079,779,926	1,729,497,461
- Foreign Investments (RM)	1,735,593,442	3,220,583,534
Export (RM)	40.8 Billion	47.2 Billion
Import (RM)	45.3 Billion	61.1 Billion

(Source: MIDA, MITI)

Industry Outlook

In positioning itself globally, the product portfolio diversification is very likely for the domestic chemical industry. Pricing aspects and reduced production cost are also to be the industry main focus to ensure competitiveness. The emphasis on these aspects is crucial since for over the last 5 years, Malaysia chemical industry has attracted a sizeable inflow of Foreign Direct Investments (FDIs) from the United States, Europe, and Asia.

In view of specialty chemicals, this segment is expected to record a significant growth considering its advantages such as low capital investment and higher returns. The manufacturing sector expansion also becomes the main stimulus for

Malaysia economic growth, fueling a more positive market outlook. Nevertheless, the overall chemical industry growth could be partially offset by a hitch in labour-related issues i.e. increase costs, shortages and imported labor dependency.

There are increased efforts being put in towards exploring and capitalizing bio-based feedstock to realize production of chemicals products globally. As the world's second largest exporter of palm oil, Malaysia's palm oil waste alone holds tremendous opportunity and potential for the creation of high value industrial applications ranging from biochemicals to bioplastics that can be generated from its biomass.

In addition, the government plans to further consolidate and strengthen the competitiveness of the manufacturing sector might also resulted in increasingly concentrated chemicals industry in the coming years. To promote private sector's investment for the petrochemical zones development, the Government encourages investment through a consortium of joint-ventures. This cost-sharing initiative includes the construction and maintenance of support facilities, infrastructure and supply services required for efficient and effective petrochemical establishment. Also being considered is a link between upstream and downstream process to increase market competitiveness. Besides that, there is also focus on successfully developing the three major existing petrochemical zones through a systematic and coordinated approach that align with the ETP and NKEA for oil and gas.

From market point of view, the petrochemical industry is facing challenging times with downward pressure on product prices caused by the extent of capacity increase in Asia and the Middle East. Malaysian producers shall need to constrain feedstock costs to sustain production volumes depending on the industry's ability to maintain competitive advantages over other competing nations in the global market.

**Chapter 4:
Malaysian Petrochemicals
Association
(MPA)**

4.1 BACKGROUND

The Malaysian Petrochemicals Association (MPA) is a formal association registered with the Registrar of Societies in Malaysia. At present, members of MPA include companies engaged in the manufacture and trading of petrochemicals and plastic resins, as well as companies providing services required by the petrochemical industry. The MPA was officially formed on March 19, 1997 with the following objectives:-

- To provide a forum to discuss and resolve common problems of the petrochemical industry.
- To provide a focal point for the petrochemical industry to liaise with the public and government and to make recommendations on relevant issues.
- To advance the philosophy of Responsible Care, its implementation and compliance throughout the industry.
- To represent the petrochemical industry within Malaysia to interface with similar groups on international basis.
- To compile and disseminate information of common concerns and provide facilities for consultation and exchange of views between members.

4.2 MPA MEMBERS

<ol style="list-style-type: none"> 1. Ancom Kimia Sdn Berhad 2. Aromatics Malaysia Sdn Bhd 3. Asean Bintulu Fertiliser Sdn Bhd 4. Aurora Tankers Sdn Bhd 5. BASF (M) Sdn Bhd 6. BASF PETRONAS Chemicals Sdn Bhd 7. BP Asia Pacific (M) Sdn Bhd 8. BP PETRONAS Acetyls Sdn Bhd 9. Chiyoda Malaysia Sdn Bhd 10. Dow Chemical Malaysia Sdn Bhd 11. Du Pont Malaysia Sdn Bhd 12. Ethylene Malaysia Sdn Bhd 13. Foster Wheeler (M) Sdn Bhd 14. Idemitsu Chemicals (M) Sdn Bhd 15. Industrial Resins (M) Berhad 16. Lurgi Malaysia Sdn Bhd 17. Malayan Electro-Chemical Industry Co Sdn Bhd 	<ol style="list-style-type: none"> 18. Malaysia International Trading Corp Sdn Bhd (MITCO) 19. MTBE Polypropylene (M) Sdn Bhd 20. Optimal Group of Companies 21. Petlin (Malaysia) Sdn Bhd 22. Petrochemicals (M) Sdn Bhd 23. PETRONAS Chemicals Group Berhad 24. PETRONAS Fertilizer (Kedah) Sdn Bhd 25. PETRONAS Methanol (Labuan) Sdn Bhd 26. Petrotechnical Inspection (M) Sdn Bhd 27. Sinar Berlian Sdn Bhd 28. Technip Geoproduction (M) Sdn Bhd 29. Titan Petchem (M) Sdn Bhd 30. Toray Plastics (M) Sdn Bhd 31. Toyo Engineering Corporation 32. Vinyl Chloride (M) Sdn Bhd
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4.3 MPA COUNCIL

The members of the MPA Council are elected annually at the Annual General Meeting.

MPA COUNCIL 2011/ 2012

President:	Mr Yusa' Hassan PETRONAS Chemicals Group Berhad
Vice President:	Mr Tan Chai Puan Petrochemicals (Malaysia) Sdn Bhd
Honorary Secretary:	[vacant]
Honorary Treasurer:	Mr Cheong Peng Khuan Titan Petchem (M) Sdn Bhd
Council Members:	Mr Muhammad Nasir Abdul Talib BASF (Malaysia) Sdn Bhd Mr Yasuhiro Hirano Idemitsu Chemicals (M) Sdn Bhd Mr Teo Hock Siong Industrial Resins (Malaysia) Sdn Bhd Mr Muhammad Farid Ngah MTBE Polypropylene (Malaysia) Sdn Bhd Mr Nasruddin M Zain PETRONAS Chemicals Group Berhad <i>(Chairman: MPA Plastic Resins Producers' Group)</i>

4.4 MPA SECRETARIAT

Malaysian Petrochemicals Association (MPA)
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