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CONTENTS

1	INTRODUCTION	1	
2	PRODUCTION, SALES AND EMPLOYMENT		
3	EXTERNAL TRADE		
4	PRODUCTIVITY		
5	GLOBAL INVESTMENT SCENARIO		
6	INVESTMENT PERFORMANCE OF THE MANUFACTURING SECTOR	25	
	 A. PROJECTS APPROVED Overview Approved Projects by Ownership Domestic Investments Foreign Investments Approved Projects by Location Approved Projects by Incentive B. PERFORMANCE OF THE MANUFACTURING SECTOR BY INDUSTRY Electrical and Electronic Products Transport Equipment Machinery and Equipment Engineering Supporting Industry Basic Metal Products Textiles and Textile Products Medical Devices Industry Agriculture and Food Processing Oil Palm Products Chemicals and Chemical Products Biotechnology Industry Petroleum Products Including Petrochemicals Plastic Products Rubber Products Wood & Wood Products and Furniture Non-Metallic Mineral Products 	 26 29 29 31 36 38 40 40 62 70 81 89 94 95 100 105 112 118 123 129 134 138 140 147 149 	

7	INVESTMENT PERFORMANCE OF THE SERVICES SECTOR	161
	A. MANUFACTURING-RELATED SERVICES	162
	Regional Establishments	162
	– Operational Headquarters (OHQs)	163
	 International Procurement Centres (IPCs) 	167
	 Regional Distribution Centres (RDCs) 	169
	 Regional/Representative Offices (ROs/REs) 	171
	Support Services	172
	 Research and Development (R&D) 	172
	 Integrated Logistics Services (ILS) 	173
	– Renewable Energy	174
	B. ICT SERVICES	176
	C. OTHER SERVICES	176
8	INVESTMENT OUTLOOK	187
	BOX ARTICLES	
	Box Article 1 - Biotechnology Industry	126
	Box Article 2 - Promotion of Cross Border Investments	155
	Box Article 3 - An Overview of the Logistics Industry in Malaysia	182

TABLES

PRODUCTION INDICES OF SELECTED INDUSTRIES, 2006 AND 2005	A-1
SALES VALUES OF SELECTED INDUSTRIES, 2006 AND 2005	A-2
MAJOR EXPORTS	A-3
APPROVED MANUFACTURING PROJECTS, 2006 AND 2005	A-4
NEW MANUFACTURING PROJECTS APPROVED BY SIZE OF CAPITAL INVESTMENT, 2006 AND 2005	A-5
APPROVED PROJECTS BY INDUSTRY, 2006 AND 2005	A-6
APPROVED MANUFACTURING PROJECTS WITH INVESTMENTS OF RM100 MILLION AND ABOVE, 2006	A-7
APPROVED NEW AND EXPANSION/ DIVERSIFICATION MANUFACTURING PROJECTS BY INDUSTRY, 2006 AND 2005	A-8
APPROVED MANUFACTURING PROJECTS WITH MALAYSIAN MAJORITY OWNERSHIP BY INDUSTRY, 2006 AND 2005	A-9
APPROVED MANUFACTURING PROJECTS IN THE ELECTRICAL AND ELECTRONIC PRODUCTS INDUSTRY BY SUB-SECTOR, 2006	A-10
APPROVED MANUFACTURING PROJECTS IN THE ENGINEERING SUPPORTING INDUSTRY BY SUB-SECTOR, 2006	A-11
APPROVED MANUFACTURING PROJECTS WITH FOREIGN PARTICIPATION BY SOURCE, 2006 & 2005	A-12
APPROVED MANUFACTURING PROJECTS BY STATE, 2006 AND 2005	A-13

1 • INTRODUCTION



INTRODUCTION

2

The Malaysian economy maintained its steady growth in 2006. Real Gross Domestic Product (GDP) registered a growth of 6.0 per cent in the first three quarters of 2006¹, compared with 5.2 per cent for the whole of 2005. The favourable performance was attributed to continued expansion in domestic demand and exports. Manufacturing was the fastest growing sector (8.0%), followed by agriculture (6.4%) and services (6.3%).

The Third Industrial Master Plan (IMP3) 2006-2020, aims to achieve global competitiveness through innovation and transformation of the manufacturing and services sectors, while contributing to other development thrusts of the National Mission of the Ninth Malaysia Plan, 2006-2010. The manufacturing sector will continue to remain an important source of growth. At the same time, the services sector will assume a greater role in generating growth, broadening the economic base and contributing to exports.

Manufacturing

Manufacturing remained an important sector in the economy contributing to an estimated 32.0 per cent of GDP in 2006². Value-added of the manufacturing sector expanded by 8.0 per cent in the first three quarters of 2006. Exports of manufactured products amounted to RM451.8 billion in 2006 compared with RM413.1 billion in 2005. Exports of manufactured products accounted for 76.7 per cent of Malaysia's total exports in 2006. Manufacturing is also a significant contributor in terms of employment, accounting for an estimated 29.1 per cent of total employment in 2006^{2} .

The continued expansion of the manufacturing sector was also reflected in the increase of the sector's industrial output (as measured by the industrial production index), sales value and productivity. The production index of the sector expanded by 7.3 per cent in 2006 (January-November). Sales of manufactured products amounted to RM468.4 billion in 2006 (January-November), exceeding the amount recorded for the whole of 2005 (RM459.7 billion). Productivity in the sector, as measured by sales value per employee, recorded a growth of 3.8 per cent in 2006.

The IMP3, is expected to drive the transformation of the manufacturing sector, expand sources of growth and move the nation towards a higher level of global competitiveness. During the IMP3 period, an average annual investment of RM27.5 billion is targeted for the manufacturing sector. The strategic thrusts identified in the IMP3 are:

¹ Department of Statistics.

² Economic Report 2006/2007, Ministry of Finance Malaysia.

- Enhancing Malaysia's position as a major trading nation;
- Generating investments in the targeted growth areas;
- Integrating Malaysian companies into regional and global networks;
- Ensuring industrial growth contributes towards equitable distribution and balanced regional development;
- Sustaining the contribution of the manufacturing sector to growth;
- Positioning the services sector as a major source of growth;
- Facilitating the development and application of knowledge-intensive technologies;
- Developing innovative and creative human capital;
- Strengthening the role of private sector institutions; and
- Creating a more competitive business operating environment.

Services

The services sector encompasses broad and diverse activities such as transport, telecommunications, financial services (banking, insurance, and capital markets), real estate, business and professional services, utilities, distributive trade, hotels and tourism, education and health services.

The services sector accounted for the largest share of Malaysia's GDP. In 2006, it was estimated to contribute 58.2 per cent of GDP, with a growth rate of 5.7 per cent. Employment in the services sector

was estimated at 5.7 million persons or 51.3 per cent of total employment in 2006. Non-government services were estimated to account for 50.7 per cent of GDP and 41.8 per cent of total employment in 2006.

In 2006, finance, insurance, real estate and business services maintained their position as the leading sub-sectors, contributing an estimated 15.4 per cent of GDP (RM42.7 billion). This was followed by wholesale and retail trade, hotels and restaurants (RM40.9 billion or 14.8 %), and transport, storage and communications (RM24.4 billion or 8.8 %).

The services sector is expected to assume a greater role in economic development in the IMP3. During the IMP3 period, an average annual investment of RM45.8 billion is targeted for the services sector. The strategic thrusts identified in the IMP3 for the development and promotion of the sector involve:

- Strengthening the efficiency and competitiveness of the sector;
- Developing selected services subsectors, namely business and professional services, integrated logistics, ICT, distributive trade, construction, education and training, health and tourism services;
- Undertaking progressive liberalisation to promote competitiveness;
- Enhancing linkages between the manufacturing and related support services, and collaborations with major foreign service providers;

- Enhancing productivity and the application of technologies in the sector; and
- Promoting outsourcing activities, and investments in services, including outward investments.

2 • PRODUCTION, SALES AND EMPLOYMENT



PRODUCTION, SALES AND EMPLOYMENT

The Industrial Production Index (IPI)³ of the manufacturing sector increased by 7.3 per cent to 138.8 in 2006⁴ from 129.3 in 2005. The overall growth was due to the increase in the production index of 25 out of the 38 groups covered in the survey by Department of Statistics (DOS).

Graph 1





Sales value of the manufacturing sector grew by 11.9 per cent to RM468.4 billion in 2006 from RM418.5 billion in 2005. The E&E industry contributed 41.8 per

cent (RM195.7 billion) while the chemicals and petroleum products industry accounted for 28.1 per cent (RM131.7 billion) of the total sales of the manufacturing sector in 2006.

Graph 2





Based on the monthly manufacturing survey by DOS, employment in the manufacturing sector in November 2006 increased by 7.8 per cent to 1,078,164 persons compared with 1,000,413 persons in November 2005.

The IPI, published by the Department of Statistics, is a measure of the rate of change in the production of industrial commodities in real terms over time.

Production and sales data for 2005 and 2006 in this section are for the period January-November.

Eight industries were selected for analysis for 2006, given the impact of these industries on the overall manufacturing sector in terms of their contribution to exports, output and employment. The eight industries are E&E, chemicals and petroleum products, wood and wood products, iron and steel, transport equipment, food manufacturing, rubber products and textiles and apparel.

Electrical and Electronics

The E&E industry continued to be the largest contributor to output, sales, exports and employment in the manufacturing sector in 2006. Sales of the E&E industry increased by 10.8 per cent to RM195.7 billion in 2006 compared with RM176.7 billion in 2005.

The production index of the E&E industry expanded by 8.7 per cent in 2006. In tandem with the growth in the global semiconductor market, the production of semiconductors and other electronic components expanded by 10.4 per cent in 2006. However, the output of radios, televisions and sound reproducing and recording equipment declined by 12.7 per cent.

Sales of computers and computer peripherals expanded by 35.6 per cent to RM63.5 billion in 2006 from RM46.8 billion in 2005 as personal computers (PCs) became more affordable to consumers due to declining prices. The trend among consumers shifting towards notebook PCs also attributed to the increase. Sales of semiconductors and other electronic components, however, decreased by 4.6 per cent to RM73.7 billion in 2006 compared with RM77.2 billion in 2005.

Employment in the E&E industry increased by 12.0 per cent to 379,736 persons in November 2006 compared with 338,901 persons in November 2005.

Chemicals and Petroleum Products

Production of chemicals and petroleum products registered a growth of 7.6 per cent in 2006. The output of refined petroleum products increased by 13.7 per cent while the production of plastic products expanded by 8.6 per cent.

Sales of the chemicals and petroleum products industry expanded by 13.9 per cent to RM131.7 billion in 2006 from RM115.7 billion in 2005. Sales of the refined petroleum products sub-sector increased by 14.8 per cent to RM75.1 billion. Other sub-sectors which recorded double digit growth included other basic industrial chemicals (30.1%), pharmaceuticals (29.2%), plastic injection moulded components (13.4%) and plastic bags and films (10.4%).

Employment in the chemicals and petroleum products industry increased by 3.8 per cent to 129,589 persons in November 2006 compared with 124,881 persons in November 2005.

Wood and Wood Products

8

Production of wood and wood products increased by 6.8 per cent in 2006 due to sustained demand from export markets such as USA, Japan and Europe. Output of paper products recorded an increase of 12.7 per cent due to strong demand for packaging from the domestic manufacturing industries.

Sales of wood and wood products (including wooden and cane furniture) recorded an increase of 14.0 per cent to RM19.8 billion in 2006 from RM17.4 billion in 2005. Products that registered double digit growth in sales included corrugated paper and paperboard and containers of paper and paperboard (28.1%), veneer sheets and plywood (27.8%), laminboard and particle board and other panels and board (21.3%). Sales of wooden and cane furniture increased by 5.5 per cent from RM4.6 billion in 2005 to RM4.8 billion in 2006.

Employment in the wood and wood products (including wooden and cane furniture) industry recorded an increase of 7.5 per cent to 136,273 persons in November 2006 from 126,806 persons in November 2005.

Iron and Steel

Output of iron and steel in 2006 increased by 4.0 per cent, reflecting an improvement in the construction sector and the positive impact of the implementation of projects under the Ninth Malaysia Plan.

Sales of the iron and steel industry recorded a marginal decline of 0.6 per cent to RM16.8 billion in 2006 resulting from declining prices.

Employment in the industry registered an increase of 17.1 per cent to 18,471 persons in November 2006 compared with 15,768 persons in November 2005.

Transport Equipment

Output of the transport equipment industry expanded by 1.7 per cent in 2006. The increase in output was mainly attributable to motor vehicle parts and accessories which expanded by 17.8 per cent. Production of motor vehicles contracted by 7.8 per cent due to stock overhang in the market.

Sales of motor vehicles manufactured and assembled locally amounted to RM13.3 billion in 2006, the same level as in 2005 despite declining prices of used cars, anticipation by consumers of further reduction in car prices and the impact of the fuel price increase.

Employment in the automotive industry totalled 54,181 persons in November 2006.

Food Manufacturing

The food manufacturing industry registered an output growth of 7.5 per cent in 2006. The manufacture of chocolate products and sugar confectionery expanded by 19.5 per cent while the manufacture of cocoa products increased by 11.5 per cent, attributed to the increase in world demand for confectionery products containing chocolate.

Sales value of the food manufacturing industry increased by 9.6 per cent to RM13.0 billion in 2006 from RM11.9 billion in 2005. Condensed, powdered and evaporated milk (RM2.9 billion), cocoa products (RM1.9 billion) and sugar (RM1.8 billion) accounted for 50.3 per cent of total sales of the food manufacturing industry.

Employment in the food manufacturing sector increased by 9.8 per cent to 36,972 persons in November 2006 from 33,666 persons in November 2005.

Rubber Products

Production of rubber products registered an increase of 6.4 per cent in 2006. Production of rubber gloves expanded by 4.9 per cent due to strong demand from export markets. However, production of rubber tyres and tubes declined by 11.8 per cent largely attributed to competition from imported tyres and inner tubes particularly from People's Republic of China and Association of South East Asian Nations (ASEAN) countries.

Sales of rubber products increased by 21.8 per cent to RM10.4 billion in 2006 from RM8.5 billion in 2005. Sales of rubber gloves registered an increase of 28.8 per cent to RM5.0 billion in 2006 from RM3.9 billion in 2005. This was

largely due to strong global demand driven by stringent healthcare standards as well as increasing hygiene awareness within the food and services industry.

Employment in the rubber products industry increased by 6.7 per cent to 63,582 persons in November 2006. The rubber gloves industry employed the largest number of workers at 32,840 persons in November 2006.

Textiles and Apparel

Output of textiles and apparel increased by 7.3 per cent in 2006, led by apparels which expanded by 20 per cent.

Sales of textiles decreased by 2.8 per cent to RM4.8 billion while sales of apparel declined by 12.0 per cent to RM 2.8 billion. The reduction in sales value was attributed to competition from imported textiles and apparel that resulted in lower prices for domestic products.

Employment in the textiles and apparel industry contracted by 1.9 per cent to 65,174 persons in November 2006 compared with 66,443 persons in November 2005. This was due to increased automation and the focus on the production of higher value-added products.

3 • EXTERNAL TRADE



3 EXTERNAL TRADE

Malaysia's total trade in 2006 was valued at RM1.1 trillion, an increase of 10.5 per cent from RM967.8 billion in 2005. Exports increased by 10.3 per cent to RM588.9 billion in 2006 from RM533.8 billion in 2005. Imports increased by 10.7 per cent to RM480.5 billion from RM434 billion in 2005. This resulted in an increase of 8.7 per cent in trade surplus to RM108.5 billion in 2006 from RM99.8 billion in 2005.

Graph 3





ASEAN, United States of America (USA), Japan and People's Republic of China remained Malaysia's major trading partners, accounting for RM658.4 billion or 61.5 per cent of total trade. Together, these countries contributed 61 per cent of Malaysia's total exports and 62.3 per cent of Malaysia's total imports in 2006.

Malaysia's trade with ASEAN increased by 10 per cent to RM270.9 billion in 2006, accounting for 25.3 per cent of the country's total trade. Singapore remained Malaysia's main trading partner within ASEAN, accounting for 54.4 per cent of total trade with ASEAN. Overall, Singapore was Malaysia's second largest trading partner in 2006.

USA was Malaysia's largest trading partner in 2006, accounting for 16 per cent of Malaysia's total trade. Trade with USA increased by 6.1 per cent to RM170.8 billion in 2006 from RM161 billion in 2005.

Japan was the third largest trading partner for Malaysia in 2006, accounting for 10.8 per cent of Malaysia's total trade. Total trade increased by 11.7 per cent to reach RM115.8 billion in 2006.

People's Republic of China was Malaysia's fourth largest trading partner, accounting for 9.4 per cent of Malaysia's total trade in 2006. Total trade with People's Republic of China recorded an increase of 18.5 per cent to RM100.9 billion in 2006.

Exports of Manufactured Products

Exports of manufactured products increased by 9.3 per cent to RM451.8 billion in 2006 compared with RM413.1 billion in 2005. Manufactured products accounted for 76.7 per cent of Malaysia's total exports in 2006.

Graph 4





E&E products remained the largest contributor, constituting 62.2 per cent of total exports of manufactured products in 2006. The E&E sector recorded an increase of 6.2 per cent in export earnings to RM281 billion in 2006 from RM264.7 billion in 2005.

The increase in E&E exports was mainly attributed to office machines and automatic data processing machines and parts, which increased by 18.2 per cent. These products accounted for 36.5 per cent of Malaysia's total exports of E&E products. Other E&E products which recorded increases were telecommunication equipment and parts, hybrid integrated circuits as well as parts of electronic integrated circuits and microassemblies. Exports to all major markets registered increases, namely, USA (4.8%), Singapore (2.4%), People's Republic of China (25.4%), the Netherlands (25.9%) and Thailand (2.1%).

Other major exports were chemicals and chemical products valued at RM29.1 billion, machinery, appliances and parts (RM19.8 billion), wood products (RM16.7 billion), manufactures of metal (RM14.2 billion) as well as optical and scientific equipment (RM13.6 billion).

Chemicals and chemical products recorded a growth of 10.6 per cent in exports to RM29.1 billion and accounted for 6.4 per cent of total exports of manufactured products. The industry was the second largest export earner for Malaysia. The export growth was attributed mainly to increases in exports of carboxylic acids and anhydrides, polyacetals and polycarbonates in primary form, soap, cleansing and polishing preparations as well as organo-inorganic compounds. Collectively, these products contributed 22.4 per cent of total exports of the chemicals and chemical products sector. Major export markets which registered increases were People's Republic of China (6%), Thailand (16.6%), Singapore (5.3%), Indonesia (5.1%) and Hong Kong (13.4%).

Exports of machinery, appliances and parts increased by 9.5 per cent to RM19.8 billion in 2006. The industry accounted for 4.4 per cent of total exports of manufactured products. The export growth was mainly due to the increase in exports of internal combustion piston engines and parts; heating and cooling equipment and parts; and printing and bookbinding machinery and parts. Major export markets which recorded increases were Singapore (13%), USA (10%), Thailand (15.5%), Indonesia (10.1%) and Japan (4%).

Exports of wood-based products increased by 14 per cent to RM16.7 billion in 2006, mainly due to increases in exports of veneer, plywood and particle board and wooden furniture. These products accounted for 91.9 per cent of total exports of wood products. Exports to major markets registered increases, namely, Japan (32.7%), USA (2.4%), United Kingdom (18.9%), Republic of Korea (11.7%) and Australia (8.4%).

Exports of optical and scientific equipment registered an increase of 10.1 per cent to RM13.6 billion. The growth was recorded mainly in measuring and controlling instrument and apparatus. Major export markets which recorded increases were Japan (13.2%), People's Republic of China (46.7%), Thailand (29.7%), the Netherlands (12.7%), Germany (12.1%) and Taiwan (30.2%). Other products which registered increases in 2006 were manufactures of metal (30.4%), iron and steel products (33.6%), rubber products (33.6%), transport equipment (24.2%), manufactures of plastics (17.3%), processed food (11.1%), non-metallic mineral products (19.5%), textiles and clothing (3%), petroleum products (12.3%), beverages and tobacco (13%), jewellery (7.2%) and paper and pulp products (4.6%).

Major Markets

ASEAN

Malaysia's exports to ASEAN increased by 10.3 per cent to RM153.5 billion in 2006 compared with RM139.2 billion in the previous year. In 2006, ASEAN's share of Malaysia's exports remained at 26.1 per cent. Singapore was Malaysia's largest export market in ASEAN with a share of 59.1 per cent. Exports to Singapore increased by 8.9 per cent to RM90.7 billion in 2006. Indonesia and Viet Nam's share of Malaysia's exports expanded to 9.7 per cent and 4.2 per cent respectively.

Exports of E&E products to ASEAN increased by 2 per cent from RM59.7 billion in 2005 to RM60.9 billion in 2006. This accounted for 39.7 per cent of Malaysia's total exports to ASEAN. The main products exported were parts for office machines and automatic data processing machines, digital monolithic integrated units, hybrid integrated circuits and telecommunications equipment and parts, which together contributed 64.7 per cent of total exports of E&E products to



Graph 5 Major Export Markets, 2006 and 2005

ASEAN. Other main products exported to ASEAN were refined petroleum products, crude petroleum, chemicals and chemical products, machinery appliances and parts, and manufactures of metal.

United States of America

USA accounted for 18.8 per cent of Malaysia's total exports in 2006. Exports to USA recorded an increase of 5.3 per cent to RM110.6 billion in 2006 from RM105 billion in 2005.

Exports of E&E products increased by 4.8 per cent to RM86 billion, accounting for 77.7 per cent of Malaysia's total exports to USA in 2006. Major export items were automatic data processing machines and parts, digital monolithic integrated units, hybrid integrated circuits, electrical machinery and parts as well as telecommunications equipment and parts. Collectively, these products accounted for 75.9 per cent of total exports of E&E products to USA.

Other major manufactured products which registered increases were wood products (2.4%), rubber products (13.9%), machinery, appliances and parts (10%) as well as iron and steel products (130.7%).

Japan

Japan was one of Malaysia's largest export destinations, accounting for 8.9 per cent of Malaysia's exports in 2006. Exports to Japan increased by 4.6 per cent to RM52.2 billion in 2006 compared with RM49.9 billion in 2005.

E&E products were the main exports to Japan, valued at RM16.5 billion or 31.5 per cent of Malaysia's total exports. Other major exports of manufactured products were wood products, chemicals and chemical products, optical and scientific equipment and manufactures of metal.

People's Republic of China

Exports to People's Republic of China increased by 21.1 per cent to RM42.7 billion in 2006 from RM35.2 billion in 2005. The share of People's Republic of China in Malaysia's total exports increased to 7.2 per cent in 2006 from 6.6 per cent in 2005.

E&E products were the main exports to People's Republic of China, accounting for 44.9 per cent of total exports. Exports of E&E products recorded a double digit growth of 25.4 per cent to RM19.2 billion in 2006. The increase was due mainly to exports of semiconductor devices, integrated circuits (ICs), microassemblies, transistors, valves; automatic data processing machines and parts; and sound recorders. Other major manufactured products which registered increases in exports were rubber products, optical and scientific equipment, manufactures of metal as well as chemicals and chemical products.

4 • PRODUCTIVITY



4 PRODUCTIVITY

MANUFACTURING SECTOR⁵

The manufacturing sector recorded improvements in performance in productivity growth as well as labour cost competitiveness. The productivity for the manufacturing sector recorded a growth of 3.8 per cent to RM436,940 in 2006. The productivity growth was attributed to the favourable environment in both the domestic and external markets. Sub-sectors which registered high productivity growth were as follows:

	Productivity Growth Rate (%)
 Telecommunication cables and wires 	152.0
 Domestic appliances 	69.2
 Professional and scientific equipment 	67.5
Other electronic components	61.2
• Electric power cables and wires	29.1
Rubber gloves	20.2
Plastic extruded products	16.9
Other basic industrial chemical	s 16.0
Refined petroleum products	15.1
Other rubber products	13.2
Basic industrial chemicals	13.0

Labour cost competitiveness⁶ in the manufacturing sector recorded an improvement in 2006. This was reflected by the higher productivity growth of 3.8 per cent compared with the growth in labour cost per employee (LCE). This resulted in a decline of 1.1 per cent in unit labour cost. Sub-sectors which recorded improvements in labour cost competitiveness included:

- Telecommunication cables and wires (-52.9%);
- Domestic appliances (-49.4%);
- Other electronic components (-41.8%);
- Electric power cables and wires (-33.4%);
- Professional and scientific equipment (-26.2%);
- Refined petroleum products (-23.6%);
- Other insulated wires and cables (-24.0%)
- Non-ferrous metal (-16.0%);
- Rubber gloves (-14.6%); and
- Pharmaceuticals (-11.2%)

SERVICES SECTOR

All services sub-sectors recorded positive growth in productivity for the year 2006.

⁵ The productivity for the manufacturing sector was analysed based on the Sales Value per Employee which was computed in nominal terms.

⁶ There is an improvement in labour-cost competitiveness if the productivity growth is higher than the growth in labour cost per employee.

120 100 80 90 40 40 20 0 Transport Trade Electricity Other Services 2006

Graph 6

Productivity in the Services Sector, 2006 and 2005

Transport, Storage and Communications Sub-sector

The transport, storage and communications sub-sector which includes activities in providing passenger and freight transport, storage as well as courier and telecommunications industry recorded a productivity growth of 4.2 per cent to RM43,361 in 2006 compared with RM41,601 in 2005. The growth was attributed to the strong expansion in trade related activities and telecommunications services.

In 2006, container handling at major ports grew significantly, on account of increased port activities arising from strong external trade, expansion in port services as well as the arrival of more main line operators. In the air transport segment, there was increased volume in air cargo handled and the number of air passengers underpinned by the growing demand for air budget travel.

In the communications industry, the growth was mainly contributed by the mobile phone segment where there was a significant increase in terms of subscriber base as well as usage of voice and data. In addition, affordable prices of mobile phones and aggressive marketing strategies by service providers contributed to the growth in this industry.

Wholesale and Retail Trade, Hotels and Restaurants

The wholesale and retail trade, hotels and restaurants sub-sector recorded a productivity growth of 2.8 per cent to RM23,754 in 2006 compared with RM23,098 in 2005. This sub-sector benefited from strong domestic demand and expanding retail trade with strong growth in inbound tourist traffic, particularly from ASEAN countries. The growth in the retail trade was reflected in the establishment of new retail complexes and expansion activities of major hypermarkets, superstores and specialty stores.

Electricity

The electricity sub-sector benefited from increasing demand from the industrial, commercial and household sectors and registered a productivity growth of 4.8 per cent to RM117,659 in 2006 compared with RM112,217 in 2005.

Other Services

Other services comprising education and training, healthcare and professional services registered a productivity growth of 1.7 per cent to RM19,578 in 2006 from RM19,248 in 2005. The growth was supported by the expansion in private services such as education and healthcare in line with continuous efforts to promote Malaysia as a centre of education excellence in the region as well as a regional hub for healthcare service.

5 • GLOBAL INVESTMENT SCENARIO



5 GLOBAL INVESTMENT SCENARIO

FDI Inflows

According to the World Investment Report by the United Nations Conference on Trade and Development (UNCTAD), global foreign direct investment (FDI)⁷ inflows declined for three consecutive years from a peak of US\$1.4 trillion in 2000 to US\$558 billion in 2003 before recording increases in 2004 and 2005. Inflows in 2005 amounted to US\$916 billion, an increase of 29 per cent compared with US\$711 billion in 2004 but still below the peak recorded in 2000. United Kingdom (US\$164.5 billion) was the largest recipient of FDI inflows in 2005 followed by USA (US\$99.4 billion), People's Republic of China (US\$72.4 billion) and France (US\$63.6 billion).

Graph 7



The increase in global FDI inflows in 2005 was attributed to an increase in mergers and acquisitions (M&As) especially among developed countries and strong economic performance in many developed as well as developing countries.





Cross border M&As amounted to US\$716.3 billion in 2005 compared with US\$380.6 billion in 2004. The value of cross border M&As in 2005 increased in all three sectors, namely the primary, manufacturing and services sectors.

The services sector accounted for US\$397.2 billion or 55 per cent of the

⁷ FDI is defined by UNCTAD as an international investment made with the objective of a lasting interest by a resident entity in one economy in an entity resident in another economy. It comprises equity capital, reinvested earnings and inter-company debt transactions and is largely based on national balance of payments statistics. total value of cross border M&As in 2005. About 72 per cent of the M&As in services were in transport, storage and communications; financial services; and business services. Manufacturing accounted for US\$203.7 billion or 28 per cent of cross border M&As in 2005, mainly in chemicals and chemical products; food, beverages and tobacco; and metals and metal products.

FDI inflows increased for both developed and developing countries. FDI inflows to developed countries increased by 37 per cent from US\$396.1 billion in 2004 to US\$542.3 billion in 2005 largely due to an increase in cross border M&As. FDI inflows to developing countries increased by 22 per cent from US\$275 billion in 2004 to US\$334.3 billion in 2005. East Asia (US\$118.2 billion) remained the most important regional destination of FDI inflows to developing countries. People's Republic of China was the largest recipient in the region, recording a 19.5 per cent increase from US\$60.6 billion in 2004 to US\$72.4 billion in 2005.

FDI inflows to South East Asia increased by 44 per cent from US\$25.7 billion in

2004 to US\$37.1 billion in 2005. FDI inflows to Malaysia declined to US\$4 billion in 2005 from US\$4.6 billion in 2004. Malaysia was the third largest recipient among ASEAN countries in 2005, after Singapore and Indonesia. Indonesia's second ranking was mainly due to a large M&A involving the acquisition of Sampoerna by Philip Morris of USA for US\$3.1 billion. FDI inflows to ASEAN in 2005 were mainly to the following countries:

- Singapore US\$20.1billion
- Indonesia US\$5.3 billion
- Malaysia US\$4.0 billion
- Thailand US\$3.7 billion
- Viet Nam US\$2.0 billion

Based on data from ASEAN Secretariat, about 94 per cent of FDI inflows to Singapore in 2005 were in the services sector. In comparison, FDI inflows in 2005 were concentrated in the manufacturing sector for Malaysia (44.8%), mining and quarrying sector for Indonesia (36.7%) and in the services sector for Thailand (52%).



Graph 10

Graph 9 FDI Inflows to East Asia, 2005

FDI Outflows

Reflecting the trend for inflows, global FDI outflows reached a peak of US\$1.2 trillion in 2000 and declined to US\$561.1 billion in 2003 before rebounding to US\$813.1 billion in 2004. Global FDI outflows declined to US\$778.7 billion in 2005. Global FDI inflows and outflows differ due to differences in data reporting and collecting methods of countries. Developed countries remained the main sources of global FDI outflows in 2005 accounting for US\$646.2 billion or 83 per cent of total outflows. However, developing economies (US\$117.5 billion) particularly those from Asia (US\$83.6 billion) are emerging sources of FDI.

The main sources of FDI outflows from developing countries in Asia in 2005 were Hong Kong (US\$32.6 billion), People's

Graph 11 FDI Outflows by Region, 2000 - 2005



Republic of China (US\$11.3 billion), UAE (US\$6.7 billion), Taiwan (US\$6 billion), Singapore (US\$5.5 billion), Kuwait (US\$4.7 billion) and Republic of Korea (US\$4.3 billion). FDI outflows from Malaysia amounted to US\$3 billion in 2005.

According to the World Investment Report 2006, developing and transition economies in Asia are becoming an important source of FDI. Asia's share of the total stock of outward FDI stocks among developing and transition economies increased from 23 per cent in 1980 to 62 per cent in 2005. Malaysia's share of total stock of outward FDI among developing and transition economies increased from 0.27 per cent (15th rank) in 1980 to 3.2 per cent (8th rank) in 2005, indicating Malaysia's growing importance as a source of outward FDI.

Table 1

Top 10 Developing and Transition Economies in terms of Stocks of Outward FDI, 2005

		(US\$ million)
Rank	Economy	2005
1	Hong Kong	470,458
2	British Virgin Islands	123,167
3	Russian Federation	120,417
4	Singapore	110,932
5	Taiwan	97,293
6	Brazil	71,556
7	People's Republic of China	46,311
8	Malaysia	44,480
9	South Africa	38,503
10	Republic of Korea	36,478
	TOTAL	1,159,595

Source: World Investment Report, 2006

6 • INVESTMENT PERFORMANCE OF THE MANUFACTURING SECTOR



6 INVESTMENT PERFORMANCE OF THE MANUFACTURING SECTOR

A. PROJECTS APPROVED

OVERVIEW

Malaysia attracted a significantly higher level of investments in the manufacturing sector in 2006. The number of projects approved as well as investments in projects approved in 2006 were the highest recorded to date. Foreign investments and domestic investments also achieved record levels in 2006.

Graph 12 Investments and Employment in Projects Approved, 2001 - 2006



A total of 1,077 projects involving investments of RM46.0 billion were approved in 2006 compared with 1,027 projects with investments of RM31.0 billion in 2005. Approved investments in 2006 exceeded the average annual investment target of RM27.5 billion set in the IMP3.

New Projects

Of the 1,077 projects approved in 2006, a total of 653 (61%) were new projects involving investments of RM29.4 billion or 63.9 per cent of total investments. In comparison, a total of 572 new projects were approved in 2005 with investments amounting to RM13.8 billion. Investments in new projects in 2006 were concentrated in the following industries:

- petroleum products including petrochemicals (RM8.8 billion);
- chemicals and chemical products (RM7.9 billion);
- basic metal products (RM2.5 billion);
- E&E (RM2 billion);
- transport equipment (RM1.2 billion);
- food manufacturing (RM1.2 billion);

- non-metallic mineral products (RM928.6 million); and
- fabricated metal products (RM849 million).

Graph 13

Investments in New Projects by Industry, 2006



Of the 653 new projects approved in 2006, a total of 47 projects involved investments of at least RM100 million each. Total investments in these projects amounted to RM20.4 billion or 69.4 per cent of the total investments in new projects. These projects were largely in chemicals and chemical products (26 projects/RM4.4 billion), E&E (6 projects/RM4.4 billion), E&E (6 projects/RM666 million) and petroleum products including petrochemicals (2 projects/RM8.7 billion).

Expansion/Diversification Projects

Existing companies continued to expand and diversify their operations. Of the 1,077 projects approved, 424 projects (39%) were for expansion/diversification involving investments of RM16.6 billion or 36.1 per cent of total investments. In comparison, there were 455 expansion/diversification projects approved in 2005 with investments of RM17.2 billion. Investments in expansion/diversification projects in 2006 were mainly in the E&E (RM8 billion), petroleum products including petrochemical (RM2.7 billion), chemicals and chemical products (RM1.2 billion), plastic products (RM586.8 million), machinery and equipment (RM560.4 million) and rubber products (RM544.8 million) industries.

Graph 14

Investments in Expansion/Diversification Projects by Industry, 2006



Capital-Intensive Projects

The capital-intensity (as measured by the capital investment per employee or CIPE ratio) of projects approved was RM517,054 in 2006 compared with RM270,161 in 2005. The CIPE ratio of manufacturing projects has registered an increasing trend since 1990 (RM165,925). This reflects the general trend towards more capital-intensive, high value-added and high technology projects.

A total of 77 projects with investments of RM100 million or more each were approved in 2006, of which six had investments exceeding RM1 billion. Investments in these 77 projects amounted to RM32.4 billion or 70.4 per cent of the total investments approved. These capitalintensive projects were mainly in the chemicals and chemical products (27 projects/RM4.5 billion), E&E (18 projects/ RM8.8 billion) and the petroleum products including petrochemical (5 projects/ RM11.4 billion) industries.

Projects Approved by Industry

Petroleum products including petrochemicals (RM11.4 billion) recorded the highest level of investments approved in 2006. This was largely due to the approval of a new petroleum refinery project (RM7.7 billion) and a methanol expansion project (RM2 billion), which together accounted for RM9.7 billion. The E&E industry continued to receive high level of investments amounting to RM10 billion in 2006. Investments in the E&E industry were

mainly in the electronic components subsector (RM7.6 billion or 76%). Investments in the chemicals and chemical products industry were the third highest amounting to RM9.1 billion. Other industries which attracted significant levels of investments included basic metal products (RM2.7 billion), food manufacturing (RM1.6 billion), transport equipment (RM1.4 billion), fabricated metal products (RM1.3 billion) and M&E (RM1.3 billion) industries. These eight industries contributed RM38.9 billion or 84.6 per cent of total investments approved.

Graph 15

Investments in Projects Approved by Major Industry, 2006



Export-Oriented Projects

Of the 1,077 projects approved in 2006, a total of 429 (39.8%) projects with investments of RM35.8 billion would be

exporting at least 80 per cent of their output. Domestic investments in these export-oriented projects amounted to RM19 billion, while foreign investments totalled RM16.8 billion. These exportoriented projects were mainly in the chemicals and chemical products (89 projects/RM7.8 billion), E&E (88 projects/RM8.2 billion), furniture and fixtures (39 projects/290.2 million), M&E (35 projects/RM507.3 million) and rubber products (29 projects/RM532 million) industries. This indicates that Malaysia continues to be a competitive location for export-oriented industries. When these projects commence operations, they are expected to contribute to the increase in exports of manufactured products.

Employment Opportunities

Projects approved in 2006 will generate a total of 88,952 employment opportunities, of which 58,740 or 66 per cent will be in the managerial, technical, supervisory and skilled manpower categories. Industries which are expected to create the most number of employment opportunities are E&E (24,239), plastic products (7,607), furniture and fixtures (6,982), fabricated metal products (6,614) and wood and wood products (6,063).

Expatriate Posts

To facilitate technology transfer and supplement the local pool of managerial

and technical skills, the Government continued to grant approvals for expatriate posts, particularly managerial and technical posts to Malaysian as well as foreign-owned companies. Malaysianowned companies were generally approved technical expatriate posts, mainly in the engineering supporting industries such as moulds, tools and dies and machining. In 2006, a total of 1,731 expatriate posts were approved, of which 349 were key posts which could be permanently filled by foreigners. The remaining 1,382 were term posts, generally granted for three to five years where Malaysians are trained to eventually take over the posts.

APPROVED PROJECTS BY OWNERSHIP

DOMESTIC INVESTMENTS

Domestic investments in projects approved in 2006 amounting to RM25.8 billion were the highest level recorded to date. Domestic investments accounted for 56.1 per cent of total approved investments in 2006. In comparison, domestic investments in 2005 amounted to RM13.1 billion or 42.2 per cent of total approved investments. The major portion of the domestic investments approved in 2006 amounting to RM20.2 billion was in new projects, while RM5.6 billion was in expansion/diversification projects.



Industries which recorded increases in domestic investments in 2006 included petroleum products including petrochemicals, chemicals and chemical products, transport equipment, fabricated metal products, M&E and wood and wood products.

Of the 1,077 projects approved, 707 projects or 65.6 per cent were Malaysianowned, involving investments of RM25.7 billion (2005: 656 projects/RM13.4 billion). The majority of the Malaysianowned projects were new projects (509) with investments of RM20.2 billion or 78.6 per cent of total investments in Malaysian-owned projects. A total of 198 projects were expansion/diversification projects involving investments of RM5.6 billion. Investments in new projects were concentrated in the petroleum products including petrochemical (RM8.8 billion), chemicals and chemical products (RM5.4 billion), transport equipment (RM1.2 billion), E&E (RM1.1 billion), textiles and textile products (RM594.3 million), food manufacturing (RM553.8 million), M&E (RM460.5 million) and fabricated metal products (RM362.5 million) industries.

Investments in expansion/diversification projects were mainly in the petroleum products including petrochemical (RM2 billion), chemicals and chemical products (RM639.4 million), E&E (RM577.4 million), paper and printing (RM389 million) and rubber products (RM319.6 million) industries.

Graph 17

Investments in Malaysian-Owned Projects Approved by Type and Major Industry, 2006



Of the 707 Malaysian-owned projects approved in 2006, a total of 240 projects (34%) with investments amounting to RM18.8 billion would be exporting at least 80 per cent of their output. These export-oriented projects were mainly in the chemicals and chemical products (62 projects/RM4.9 billion), furniture and fixtures (35 projects/RM259.2 million), E&E (29 projects/RM659.1 million), wood and wood products (19 projects/RM387.7 million) and rubber products (18 projects/ RM247.7 million) industries.

Malaysian-owned projects will generate a total of 51,590 employment opportunities or 58 per cent of total employment in approved projects. In 2005, proposed employment in Malaysian-owned projects totalled 53,795 persons.

FOREIGN INVESTMENTS

The level of foreign investments approved in 2006 was the highest recorded to date, indicating Malaysia's ability to continue to attract foreign investments despite a more competitive global investment environment. A total of 571 projects with foreign participation were approved in 2006. Foreign investments in these projects amounted to RM20.2 billion or 43.9 per cent of total investments approved. Foreign investments increased for a second consecutive year compared with RM17.9 billion in 2005 and RM13.1 billion in 2004.

Foreign investments in 2006 were concentrated in the following industries:

- E&E (RM8.6 billion);
- chemicals and chemical products (RM3.0 billion);
- basic metal products (RM2.3 billion);
- non-metallic mineral products (RM962.2 million);
- food manufacturing (RM895.4 million);
- plastic products (RM757.2 million);
- scientific and measuring equipment (RM664.6 million); and
- M&E (RM656.9 million)

Graph 18



Foreign Investments in Projects Approved by Major Industry, 2006

Foreign investments in new projects amounted to RM9.2 billion in 2006, almost double the RM4.7 billion registered in 2005. Foreign investments in new projects were mainly in the chemicals and chemical products (RM2.5 billion), basic metal products (RM2.2 billion), E&E (RM1.1 billion), nonmetallic mineral products (RM810.3 million) and food manufacturing (RM693.2 million) industries.

Foreign investments in expansion/ diversification projects amounted to RM11.0 billion or 54.5 per cent of total foreign investments in 2006. Foreign investments in expansion/diversification projects were mainly in the E&E industry (RM7.5 billion), followed by the petroleum products including petrochemicals (RM601.8 million), chemicals and chemical products (RM558.4 million), plastic products (RM496.6 million) and M&E (RM406.7 million) industries. This indicates that existing foreign investors continued to reinvest in the country particularly in high value-added activities and technology-intensive operations including research and development (R&D) and engineering and product design centres.

A total of 56 projects with investments of RM100 million or more each, involving foreign investments were approved in 2006 (2005: 53 projects). These capitalintensive projects involved foreign investments of RM15.7 billion or 77.7 per cent of total foreign investments approved. Of the 56 capital-intensive projects approved, three projects involved investments of at least RM1 billion each. Foreign investments in these three projects amounted to RM4.9 billion. The 56 capital-intensive projects were mainly in the E&E (17 projects/RM7.9 billion), chemicals and chemical products (16 projects/RM1.7 billion), food manufacturing (4 projects/RM650.1 million), M&E (3 projects/RM364.2 million) and basic metal products (2 projects/ RM2.1 billion) industries.

Major Sources of Foreign Investments

The major sources of foreign investments in 2006 were Japan (RM4.4 billion), the Netherlands (RM3.3 billion), Australia (RM2.6 billion), USA (RM2.5 billion) and Singapore (RM1.9 billion). These five countries together accounted for RM14.6 billion or 72.3 per cent of total foreign investments in approved projects. By region, Asia accounted for the highest amount of investments with RM8.3 billion, followed by Europe (RM4.9 billion) and North America (RM2.5 billion).

Graph 19

Major Sources of Foreign Investments in Projects Approved, 2006 and 2005


Japan

Japan emerged as the largest source of foreign investments in 2006. Japanese investments increased to RM4.4 billion in 2006, the highest level registered since 1996. Japanese investments were in 81 projects, of which 20 (RM1.5 billion) were new projects and 61 (RM2.9 billion) were expansion/diversification projects. In comparison, 84 projects were approved in 2005 with investments amounting to RM3.7 billion.

Graph 20

Japanese Investments in Approved Projects, 2001 - 2006



Japanese investments in new projects were mainly in the non-metallic mineral products (RM693.1 million), scientific and measuring equipment (RM583.4 million), E&E (RM99 million), transport equipment (RM48.4 million) and plastic products (RM30.6 million) industries. A major new project (RM693.1 million) approved was for the production of hard disk glass substrates.

Japanese investments in expansion/ diversification projects were mainly in the E&E (RM1.4 billion), petroleum products including petrochemical (RM600 million), plastic products (RM213.5 million), fabricated metal products (RM204.6 million) and non-metallic mineral products (RM136.4 million) industries. Together, these five industries constituted about 89 per cent of total Japanese investments in expansion/ diversification projects.

Among the significant expansion projects with Japanese investments were:

- an expansion project by Fuji Electric to manufacture thin-film magnetic disks and polished substrates for hard disk drives (RM1.3 billion);
- an expansion project with an initial investment of RM450 million by Toray Plastics for the production of acrylonitrile-butadiene-styrene (ABS) resin; and
- an expansion project by Kobe Precision Technology for the production of disk blanks and disk substrates (RM178 million).

Netherlands

The Netherlands was the second largest source of foreign investments in 2006, with 13 projects approved involving investments of RM3.3 billion compared with 26 projects with investments of RM1.7 billion in 2005. Investments from the Netherlands in 2006 were the highest recorded to date. Of the RM3.3 billion, a total of RM183.4 million or 5.6 per cent was in four new projects, while RM3.1 billion or 94.4 per cent was in nine expansion/diversification projects.

Investments from the Netherlands in new projects were in the E&E (RM167.8 million) and chemicals and chemical products (RM15.6 million) industries. Among the new projects approved was a RM167.6 million project by Sensata Technologies for the production of microfused strain gauges, occupant weight sensors, common rail technology sensors, cylindrical pressure sensors, differential pressure sensors and air classification modules.

Investments from the Netherlands in expansion/diversification projects were concentrated in the E&E (RM2.9 billion) and M&E (RM108.6 million) industries. The high level of investments from the Netherlands in the E&E industry was mainly due to a RM1.6 billion expansion project by STMicroelectronics to manufacture advanced packaged integrated circuits. Another large expansion/diversification project (RM1.2 billion) in the E&E industry was by Flextronics Technology (Malaysia), a leading electronic manufacturing services company, to produce PCB assemblies and system integration for industrial electronic applications such as computer and computer peripherals, office automation, control panels and testing/ measuring equipment, medical equipment,

telecommunication/multimedia equipment and mobile phones.

Australia

Australia emerged as the third largest source of foreign investments in 2006. Australian investments amounted to RM2.6 billion in 20 projects approved. In comparison, 12 projects were approved in 2005 involving investments of RM155.9 million. Australian investments in new projects in 2006 amounted to RM2.5 billion (17 projects), while investments in expansion/diversification projects amounted to RM14.7 million (3 projects).

Australian investments in new projects were mainly in the basic metal products (RM2.1 billion) and chemicals and chemical products (RM402.9 million) industries. A major part of Australian investments in new projects was accounted for by a RM2.1 billion project by Grange Developments to produce iron ore pellets. Four projects involved the production of biodiesel with total investments of RM250.8 million.

Of the three Australian expansion/ diversification projects, two were in scientific and measuring equipment industry involving investments of RM14.7 million.

USA

USA was the fourth largest source of foreign investments in 2006 with investments of RM2.5 billion in 38 projects

approved compared with RM5.2 billion in 43 projects in 2005. The higher investments in 2005 was attributable to three large expansion/diversification projects in the E&E industry with combined investments of RM2.7 billion. Of the 38 projects approved in 2006, 18 were new projects involving investments of RM1.0 billion, while 20 were expansion/diversification projects with investments of RM1.5 billion.

Graph 21

US Investments in Approved Projects, 2001 - 2006



Investments from USA in new projects were concentrated in the chemicals and chemical products (8 projects/RM500.6 million) and E&E (2 projects/RM491 million) industries. Among the major new projects approved were for the manufacture of memory and storage products (RM365.9 million), biodiesel (RM147.9 million) and the design, development and production of wireless transmission and communications equipment (RM125.1 million). Existing US companies continued to expand/diversify their operations in Malaysia particularly in the E&E industry. Of the 20 expansion/diversification projects approved, nine (RM1.2 billion) were in the E&E industry. The expansion/ diversification projects approved in the E&E industry included:

- a diversification project by Motorola Technology (RM351 million) to undertake the development and manufacture of digital 2-way radios, wireless broadband communications equipment/system, rechargeable batteries, accessories and parts.
- an expansion project by Plexus Manufacturing with an initial investment of RM245 million for the production of PCB assemblies, telecommunications including networking equipment and medical devices.
- an expansion project (RM249.9 million) by Smart Modular Technologies to produce memory and communications devices.

A large expansion/diversification project (RM150 million) in the M&E industry by Entegris Malaysia involved the manufacture of liquid and gas micro-contamination products for the wafer fabrication industry.

Singapore

Singapore was the fifth largest source of foreign investments in 2006 with investments of RM1.9 billion in 130 projects. In comparison, investments from

Singapore amounted to RM2.9 billion in 130 approved projects in 2005. The higher level of investments in 2005 was mainly due to a large expansion/ diversification project involving an investment of RM1.5 billion. Of the investments approved in 2006, a total of RM899.6 million or 47.7 per cent was in 64 new projects, while RM985.1 million (52.3%) was in 66 expansion/diversification projects.

Graph 22





Singaporean investments in new projects were concentrated in the chemicals and chemical products (RM320.9 million), plastic products (RM197.5 million), E&E (RM129.1 million), fabricated metal products (RM78.5 million), wood and wood products (RM64 million), M&E (RM39.2 million) and non-metallic mineral products (RM35 million) industries.

Among the new projects approved was a RM124.1 million project by Allied Speciality Compounds to manufacture specialty polymers and compounds. Seven new projects were for production of biodiesel with total investments of RM320.5 million. A project by DSEM Systems Technology, a joint-venture between Malaysian and Singaporean involving Singaporean investors, investments of RM96.4 million, was approved to undertake R&D and manufacture of thermal substrates for semiconductors.

Singaporean investments in expansion/ diversification projects were concentrated in the E&E (RM590.5 million), plastic products (RM197.5 million), chemicals and chemical products (RM97 million) and fabricated metal products (RM37.3 million) industries. A major expansion/ diversification project (RM415.9 million) was by Flextronics Technology (Shah Alam) to manufacture PCB assemblies; sub-assemblies; system integration; moulds, tools and dies; and remanufacturing, re-engineering and repairing activities. Another significant expansion project involving an investment of RM125 million was by Ibiden (Malaysia) for the manufacture of plastic substrates for semiconductor packages.

APPROVED PROJECTS BY LOCATION

The states of Selangor (311), Johor (221) and Penang (156) continued to attract the

majority of projects approved. A total of 688 projects or about 64 per cent of the total number of projects approved will be located in these three states. In terms of investment, the state of Kedah (RM9.9 billion) registered the highest level, followed by Johor (RM7.6 billion), Selangor (RM5.4 billion), Penang (RM5.4 billion), Sabah (RM5.1 billion), Terengganu (RM2.9 billion), Labuan (RM2.2 billion) and Negeri Sembilan (RM1.8 billion).

Graph 23

Investments in Approved Projects by Location, 2006



Investments in Kedah were mainly in the petroleum products including petrochemical (RM7.7 billion), E&E (RM1.5 billion), wood and wood products (RM214.6 million) and M&E (RM156.9 million) industries. The high level of investments in Kedah in 2006 was primarily due to a RM7.7 billion new crude petroleum refinery project.

In Johor, investments were in a wide range of industries including the E&E (RM3.9 billion), chemicals and chemical products (RM1.8 billion), fabricated metal products (RM541.3 million), plastic products (RM351.4 million) and M&E (RM155.4 million) industries.

Investments in Selangor were concentrated in the chemicals and chemical products (RM1.3 billion) and E&E (RM708 million) industries, while investments in Penang were largely in the E&E industry (RM3.6 billion).

The Government continued to promote balanced industrial development in the country. In this regard, more attractive incentives were offered to companies locating their projects in the promoted areas of the Eastern Corridor of Peninsular Malaysia and the states of Perlis, Sabah and Sarawak.

In 2006, a total of 153 projects (RM10.6 billion) were approved to be located in these promoted areas. Of these projects, more than two-thirds (106 projects) were proposed to be located in the states of Sabah (75 projects) and Sarawak (31 projects). The concentration of the projects in these states was due to the availability of natural resources, which favoured the establishment of resource-based industries. Sabah accounted for 25 out of the 84 biodiesel projects approved in 2006. Of the total investments approved in the promoted areas, RM9.4 billion was in 111 new projects, while RM1.2 billion was in 42 expansion/diversification projects.

APPROVED PROJECTS BY INCENTIVE

In 2006, the Government continued to provide incentives to projects engaged in promoted products/activities which will generate spin-offs and economic benefits to the country such as R&D, technology transfer, industrial linkages, social economic development and employment.

A total of 456 projects with investments of RM30.3 billion were approved with incentives in 2006.

Table 2

Manufacturing Projects Approved with Incentives, 2006

Type of Incentives	No. of Projects	Domestic Investments (RM million)	Foreign Investments (RM million)	Total Investments (RM million)
General	244	7,744.7	3,005.4	10,750.1
Small-Scale Manufacturing	114 g	186.7	5.7	192.4
High Technology	30	238.5	638.1	876.6
Strategic	4	184.7	173.2	357.9
Special Incentives for Selected Indu	44 stries	289.6	68.4	358.0
Pre-Packaged	20	9,963.7	7,842.5	17,806.2
Total	456	18,607.9	11,733.3	30,341.2

General Incentives

Companies engaged in promoted products/activities, which fulfill criteria such as value-added, technology and/or industrial linkages, are eligible for Pioneer Status (PS) or Investment Tax Allowance (ITA). In 2006, a total of 244 projects were approved general incentives involving investments of RM10.8 billion, of which 220 projects (RM8.8 billion) were granted PS, while 24 projects (RM2.0 billion) were granted ITA.

These investments were in a broad range of industries, including the chemicals and chemical products (RM6.5 billion), petroleum products including petrochemical (RM1.1 billion), food manufacturing (RM756 million), transport equipment (RM668.1 million) and basic metal products (RM300.6 million) industries.

Incentives for Small-Scale Manufacturing Projects

The Government continued to grant incentives to small-scale manufacturing projects to further promote their development. Companies with shareholders' funds not exceeding RM500,000 and with at least 60 per cent Malaysian equity, involved in promoted products/activities are eligible for PS or ITA.

In 2006, a total of 114 small-scale projects were granted incentives with investments amounting to RM192.4 million. These projects were mainly in the fabricated metal products (39 projects/RM38.4 million), E&E (17 projects/RM40.8 million), food manufacturing (14 projects/RM20 million), furniture and fixtures (11 projects/RM18.7 million) and transport equipment (9 projects/RM15.9 million) industries.

Incentives for High Technology Projects

Companies engaged in promoted activities or production of promoted products in areas of new and emerging technologies are eligible for these incentives. In 2006, a total of 30 projects with investments of RM876.6 million were granted these incentives.

Incentives for high technology projects were approved mainly in the E&E (13 projects/RM184 million), scientific and measuring equipment (6 projects/ RM512.6 million), plastic products (3 projects/ RM133.3 million) and food manufacturing (3 projects/RM20.9 million) industries.

Special Incentives for Selected Industries

The Government provides enhanced incentives to selected industries, namely production of specialised M&E; design, R&D and production of automotive component modules or systems; and the utilisation of biomass to produce value-added products.

In 2006, a total of 44 projects were approved these incentives involving investments of RM358.0 million. Of these, 37 projects were approved for the production of specialised machinery, with investments of RM288.8 million, two projects for manufacturing halal products (RM20.9 million) and five projects for the utilisation of oil palm biomass to produce value-added products (RM48.4 million).

Incentives for Strategic Projects

Strategic projects are those that are of national importance and generally involve heavy capital investments, high levels of technology and generate extensive linkages. Four projects were granted incentives for strategic projects involving investments of RM357.8 million in 2006. The strategic projects approved were in the E&E (3 projects/RM282.6 million) and transport equipment (1 project/RM75.2 million) industries.

Pre-Packaged Incentives

Pre-packaged incentives are granted for projects in selected industries. Projects granted these incentives are those which are technology, capital and R&D intensive, knowledge and skills-driven and capable of generating significant linkages as well as contributing to the development of manufacturing support services such as procurement, marketing and distribution. In 2006, a total of 20 projects were granted pre-packaged incentives with investments of RM17.8 billion.

These projects were mainly in the E&E (9 projects/RM4.4 billion), M&E (4 projects/ RM315.9 million), petroleum products including petrochemicals (2 projects/ RM9.7 billion) and basic metal products (2 projects/RM2.1 billion) industries.

B. PERFORMANCE OF THE MANUFACTURING SECTOR BY INDUSTRY

ELECTRICAL AND ELECTRONIC PRODUCTS

Global E&E Industry

Global electronics output has been increasing since 2002. This is reflected by the trends in the worldwide semiconductor market which recorded growth of 1.3 per cent in 2002, 18.3 per cent in 2003, 28 per cent in 2004 and 8 per cent in 2005. According to USA-based Semiconductor Industry Association (SIA), the global semiconductor market was valued at US\$140.7 billion (RM517.8 billion) in 2002, US\$166.4 billion (RM612.4 billion) in 2003, US\$213 billion in 2004 (RM783.8 billion) and US\$227.5 billion (RM837.2 billion) in 2005.

Table 3

Worldwide Electronics Production by Region, 2002-2005

Country	2002	2003	2004	(US\$ million) 2005*
Asia Pacific	343,119	386,875	448,767	492,684
Americas	317,620	314,137	334,255	341,882
Europe	220,439	247,539	279,072	285,805
Japan	162,400	180,190	197,807	202,307
Rest of World	13,177	14,255	15,733	16,216
Total	1,056,755	1,142,996	1,275,634	1,338,894
*Estimato				

Source: Yearbook of World Electronics Data, Reed Electronics Research

In 2006, the semiconductor and ICT subsectors continued to spearhead the growth of the E&E industry globally.

According to SIA, the worldwide semiconductor market grew by 9.4 per cent from US\$227.5 billion (RM837.2 billion) in 2005 to US\$248.8 billion (RM915.6 billion) in 2006. The SIA has also projected the semiconductor market to grow at a compound annual growth rate of 9.0 per cent for the period 2006-2009, with sales of semiconductors reaching US\$321 billion (RM1,181.3 billion) in 2009. The SIA projected growth in all regional markets. The Asia Pacific region will continue to be the fastest growing market and is expected to account for 48.2 per cent of the worldwide market in 2009.

Graph 24

Semiconductor Sales by Region, 2005 - 2009



Despite high energy prices in 2006, consumer demand for a broad range of electronic products continued to grow

and this was the main driver for the growth of the semiconductor industry. The trend towards digitalisation in multimedia, coupled with the convergence of computing, communications, networking and entertainment, have led to the creation of new generations of hybrid devices. The latest and more advanced consumer electronics products tend to have high semiconductor content. Consumer electronic products, such as digital cameras, digital televisions and MP3 players, accounted for nearly 20 per cent of all semiconductor consumption. Mobile phones accounted for another 20 per cent, while computer products represented over 40 per cent of demand for semiconductors. According to a market research report 'Worldwide Consumer Electronics Market (2006)' by RNCOS, global sales of consumer electronics were estimated at US\$135.4 billion (RM498.3 billion) in 2006, an increase of 8 per cent from 2005. Sales of consumer electronics are expected to reach US\$158.4 billion (RM582.9 billion) by 2008.

The ICT sector is increasingly globalised. Digitalisation enables the convergence of the computer, telecommunications and consumer segments to lead the ICT sector. According to the World Information Technology and Services Alliance (WITSA), ICT spending is growing faster than the global economy at approximately 8 per cent a year from 2003 to 2007. The global economy is projected to grow at 7.6 per cent annually over the same period. Asia is projected to be the centre of global growth in ICT spending, growing at a compound annual rate of 9.3 per cent from US\$568.2 billion (RM2,091 billion) in 2003 to US\$811.1 billion (RM2,984.8 billion) in 2007.



Global ICT Spending and Growth, 1999 - 2007



Asia's share of global electronics output is continuously increasing. According to Reed Electronics Research, electronics output in Asia Pacific increased to 37 per cent of the global output in 2005, compared with 20 per cent in 1995 and 32.5 per cent in 2002. Despite the rapid growth of People's Republic of China, other countries in the region are also assuming an important role in the global electronics industry. The Republic of Korea, Malaysia and Singapore are ranked among the top ten countries globally in terms of production.

Table 4 Asia Pacific Ele

Asia Pacific	Electronics	production,
2002-2005		

Country	2002	2003	2004	(US\$ million) 2005*
People's Republic of China	120,214	147,410	177,130	210,297
South Korea	62,361	73,752	90,285	95,979
Malaysia	38,571	41,318	45,905	47,435
Singapore	36,383	39,396	44,101	45,477
Taiwan	36,564	34,628	35,865	35,448
Thailand	15,728	17,675	20,096	21,071
Philippines	11,332	11,415	12,597	13,426
Indonesia	9,446	8,941	9,454	9,734
India	5,424	6,200	7,001	7,585
Hong Kong	5,548	4,469	4,487	4,303
Viet Nam	1,548	1,671	1,846	1,926
Total	343,119	386,875	448,767	492,681

*Estimate

Source: Yearbook of World Electronics Data, Reed Electronics Research

Asia Pacific also leads in worldwide semiconductor consumption. In 2005, it accounted for 44 per cent of the global chip revenue. If Japan is included, the total semiconductor consumption in Asia was 66 per cent.

Graph 26

Semiconductor Consumption by Region, 2005



The computing segment is the largest application segment for semiconductor consumption in Asia, contributing 48.3 per cent in 2005. Communications and consumer applications are the fastest growing segments. Computing will continue to be the largest application segment in Asia through 2010, but its share is expected to decrease to 41.9 per cent. According to the RNCOS market research report, the consumer electronics market in Asia, which was valued at US\$73.4 billion (RM270.1 billion) in 2004, is forecasted to grow at a compound annual growth rate of 17.2 per cent during the period 2004-2009.

Graph 27

Major Semiconductor End-User Application Segments in Asia, 2005 and 2010



For the Asia Pacific consumer electronics market, the sales boost was due to the convergence of IT, telecommunications and broadcasting industries, which leads to the development of new technologies and standards for flat-panel displays, DVD players/recorders, digital set top box, MP3/portable media players, handsets/ smartphones and in-car entertainment systems. The strong market growth was also contributed by the increasing demand in the region where consumers are enjoying higher levels of disposable income.

Due to the increasingly shorter life-cycles of new products, electronics companies are taking strong efforts to achieve operational efficiency and maximise returns within a shorter time. The continuous search for low cost production bases as well as quicker time to market has prompted many MNCs to establish plants in countries with low cost advantage and untapped markets. This development has contributed to the Asian region becoming the largest manufacturing base for electronics today.

E&E Industry in Malaysia

Over the last three decades, Malaysia has developed into a major global manufacturing base for the electronics industry. The E&E industry in Malaysia started in the early 1970s as a result of the Government's initiatives to promote labour-intensive and export-oriented industries. With the establishment of the first semiconductor plant in Penang in 1972, the electronics industry has developed rapidly to become the largest industry within the manufacturing sector and a significant contributor to the country's economy.

Based on MIDA's records, from a total of just four companies with 577 employees and a total output value of RM25 million

in 1970, the E&E industry has expanded to more than 1,695 companies in operation with investments of RM88.1 billion and employment of more than 596,270 persons or 37.8 per cent of total employment in the manufacturing sector. The total output value of the E&E industry was RM195.7 billion or 41.8 per cent of the total manufacturing output in 2006 (January-November).

The E&E industry in Malaysia comprises four sub-sectors, namely electronic components, industrial electronics, consumer electronics, and electrical products. The E&E industry had undergone structural changes over the years.

Graph 28





The industry has moved up the value chain into the manufacture of high-end products, such as fabricated wafers, mobile phones, telecommunications equipment, computer notebooks and servers, and provision of services such as design of ICs, prototyping, testing and failure analysis. In such activities, the industry has moved away from labourintensive to more capital-intensive operations as reflected by the capital investment per employee (CIPE) ratio which increased from RM79,149 per employee in 1995 to RM333,830 per employee in 2000 and RM413,535 per employee in 2006. The managerial, technical and supervisory (MTS) index has also increased significantly from an average of 14.4 per cent in 1995 to 23.5 per cent in 2000 and 29.2 per cent in 2006. This is also an indication that the industry is moving towards higher valueadded activities incorporating R&D, design and development (D&D), after sales support and marketing, instead of purely mass assembly and production.

The growth of the electronics industry in Malaysia is reflected in the E&E export value. During the period 1996-2005, exports of E&E products registered an average annual growth of 11.1 per cent, from RM99.3 billion in 1996 to RM265.1 billion in 2005. In 2006 (January-November), exports of E&E products amounted to RM257.2 billion representing 62.5 per cent of total exports of manufactured goods.

The overall increase in exports of E&E products in 2006 was contributed mainly by industrial electronics (RM124.5 billion), followed by electronic components (RM93.9 billion).

Graph 29





During the period 2000-2005, a total of 1,276 E&E projects were approved with investments of RM55.6 billion. Foreign investments totalled RM45.5 billion (81.8%), while domestic investments amounted to RM10.1 billion (18.2%).

Graph 30

Investments in Projects Approved in the E&E Industry, 2000-2005



While investments in the E&E industry are driven by MNCs, their continued presence has benefited the domestic industry, in terms of technological progress and skills development:

- It provides a training ground for local Malaysian engineers to build up their technological capabilities and set up their own companies supplying parts and components.
- Some Malaysian companies have been successful in producing their own brands of consumer electrical and electronic products.
- It creates a sizeable local market for components and supporting/ancillary industries, thus creating opportunities for local companies to be part of the supply chain of the MNCs.
- Local companies and public research institutions have benefited from the R&D activities, through collaboration with the MNCs which have established their R&D operations in Malaysia.

Over the last three decades, Malaysian engineers and workers, who had worked with the MNCs, had attained a high level of competency in semiconductor manufacturing process technology to enable some of them to establish new companies to produce semiconductor or other related electronic components and products. These companies have been established either as wholly Malaysian-owned companies or as joint-ventures with foreign parties. Among the products and activities undertaken are design of ICs, testing and packaging of ICs, and assembly of printed circuit boards (PCBs). Presently, some of these Malaysian-owned companies are able to supply parts and components to the global market. These include companies such as Globetronics, Carsem, BCM, Omega Semiconductor and Dominant Semiconductor, which are managed by people who were previously working with the MNCs.

The presence of many large MNCs has created a very sizeable local market for components and supporting/ancillary industry. The presence of leading electronic manufacturing services (EMS) companies such as Flextronics, Solectron, Celestica, Jabil, Plexus and Sanmina-SCI provides opportunities local for companies to be part of their supply chain in the supply of equipment, materials, parts and components, and dedicated services such as contract design, burn-in testing, failure analysis and rapid prototyping. Other local supporting industries focus on activities such as moulds, tools and dies; metal casting; machining; metal stamping; surface treatment; plastic injection moulding; and M&E. There are now more than 50 companies operating as contract manufacturing services (CMS) or EMS companies.

According to the Malaysian American Electronics Industry (MAEI), which comprises 18 companies in the semiconductor and the non-semiconductor industry, more than RM9.2 billion was spent on locally produced parts and components and services in 2005. Sub-contracting to local companies had an estimated value of RM823.6 million and more than 1,500 local SMIs were partners to various MAEI companies.

MNCs have assumed a significant role in increasing the technology level of the industry. Some of the MNCs have transferred their R&D operations to Malaysia to provide research support to their operations in the Asia Pacific region. A number of domestic companies and public research institutions have also benefited from the R&D activities, through collaboration with these MNCs in the areas of product development and process improvement. According to the MAEI Survey 2006, more MAEI companies have chosen to shift their D&D operations to Malaysia to move up the value chain. Some of the MNCs were encouraged by the higher operational competency found in Malaysia. The expenditure on D&D by US companies in Malaysia increased from RM552.1 million in 2002 to RM1.1 billion in 2005. MAEI companies see enormous potential for more D&D investments in Malaysia. D&D investments are expected to increase by 10-15 per cent in 2006.

Intel, for example, which started its operation in Malaysia in 1972, with an initial investment of US\$1 million (RM3.7 million) and 100 employees, currently has cumulative investments of US\$3 billion (RM11 billion) and a workforce exceeding 10,000. In 2006, Intel opened its second D&D centre (US\$40 million) in Malaysia, which designs microprocessors, chipsets and other components for use in Intel's products worldwide.

As part of its ongoing globalisation initiative, Dell is expanding its operations

in the country by setting up a Global Business Centre at Cyberjaya, Kuala Lumpur to drive global IT support development. The centre underscores Dell's commitment to Malaysia and its contribution to its growing economy. Dell employs more than 5,000 people in the country.

A growing number of MNCs have chosen to locate their OHQs, RDCs, IPCs and regional offices in Malaysia. Some companies are also expanding their existing activities into shared services in Malaysia by having additional back-end business functions such as accounting, human resources and procurement as well as call centres, customer support service and technical support centres.

Projects Approved in 2006

In 2006, a total of 170 E&E projects with investments of RM10 billion were approved. Of the projects approved, 111 projects with investments of RM8 billion (80%) were expansion/diversification projects, while 59 were new projects with investments of RM2 billion (20%). Foreign investments in the 170 approved projects amounted to RM8.6 billion (86%) while domestic investments totalled RM1.4 billion (14%). In 2005, a total of 227 projects with investments of RM13.8 billion were approved.

Existing companies continued to expand and diversify their operations in 2006. These companies included STMicroelectronics, Flextronics, Penang Seagate, Fuji Electric, Dyson Manufacturing, Motorola Technology, Plexus, JCY HDD Technology and Smart Modular, which together proposed to invest RM7.3 billion or 73 per cent of total investments to expand their facilities in 2006.

Approved investments in 2006 were concentrated in the electronic components (RM7.6 billion or 76%) and industrial electronics (RM1.4 billion or 14%) subsectors, followed by electrical products (RM0.7 billion or 7%) and consumer electronics (RM0.3 billion or 3%) subsectors.

Graph 31

Investments in Projects Approved in the E&E Industry by Sub-Sector, 2006



Electronic Components

The electronic components sub-sector, encompasses a wide range of products from semiconductor devices (which include fabricated wafers, ICs and IC design) to passive components (such as capacitors, resistors, connectors, inductors, crystal quartz and oscillators); and other components (such as storage media, disk drive parts, PCBs and metal and plastic parts/components for E&E applications).

According to UNCTAD Handbook of Statistics 2005, Malaysia was the second largest exporter of semiconductor devices among developing economies after Singapore. Since 1970s, this industry has attracted leading semiconductor companies in microprocessors, microchips, power ICs, linear ICs, opto-electronic devices and other logic and discrete devices. These companies include MNCs such as Intel, AMD, Freescale Semiconductor, Agilent, Avago, Infineon, Qimonda, Fujitsu, Toshiba, STMicroelectronics, Texas Instruments, STAT ChipPac, Spansion, National Semiconductor, Fairchild, Renesas and NEC. Malaysian-owned companies in this industry include Carsem, Globetronics, Omega, Unisem, AIC Semiconductor and IDS Electronics. To date, there are 53 companies producing semiconductor devices.

Semiconductor companies in Malaysia have moved beyond basic operations such as assembly, testing and packaging of semiconductors to high value-added activities such as cutting and polishing of silicon wafers, IC design and wafer fabrication. Companies which are involved in assembly, testing and packaging have also moved to complex and advanced packages to cater for the demand for faster, smaller, leadless, high computing power and multi functional chips. Some of the packages produced by these companies involve advanced packaging technology such as bumped families of packages [flip chip, ball grid array (BGA), chip scale packages (CSPs)], stacked (3D) packages, systems-in-apackage (SIP) and multi chip modules. Malaysian-owned companies are also capable of producing advanced semiconductor packages. The global trend in the segment has led to many semiconductor companies undertaking specialisation and adopting new technologies, such as nanotechnology in their manufacturing processes.

Currently, four wafer fabrication plants are in operation which include two foundry companies, Silterra and X-Fab Sarawak (formerly known as 1st Silicon); and two integrated device manufacturers (IDM), SCG Industries (a subsidiary of ON Semiconductor) and Infineon Kulim.

Infineon Kulim which started operations in April 2006 is the first of its kind in Malaysia to produce power and logic semiconductors used in automotive and industrial power applications. The other three companies are fabricating wafers for Application Specific Integrated Circuit (ASIC) application. There is also one government-funded corporation, MIMOS which undertakes IC packaging and wafer fabricating activities.

To date, there are 20 companies undertaking IC design activities such as development of smart cards, card chips, flash memory products, non-volatile memory, radio frequency (RF) designs and mixed analog and digital designs. Most of them are MSC status companies. One of the chip design companies, Altera Corporation, has been in operation in Penang since 1996. The company is working with cutting edge, sub-micron fabrication technology and CAD tools to design Altera's programmable logic chips. Another new company which has set up a design centre in Penang is eASIC (M) Sdn. Bhd. The company was incorporated in 2005 and is involved in the design and development of structured ASIC using latest 90, 65 and 45 nanotechnology. Its 90nm product line, which was designed and developed mainly in Penang, has been commissioned. eASIC is a wholly foreign-owned company which has two facilities in Romania. Malaysia is its third base and the main offshore R&D, test and operation hub in Asia Pacific.

The growth of the semiconductor industry in Malaysia has also resulted in the development of supporting industries such as the production of leadframes and bonding wires; metal and plastic parts; specialised M&E; moulds, tools and dies; and activities such as failure analysis; prototyping; and burn-in and testing services. Some of the Malaysian-owned companies that are supporting the semiconductor industry in Malaysia include Polytool Industries, Eng Teknologi, LKT Industrial and Unicos Metal. These companies started by serving the tooling needs of the MNCs' semiconductor assembling industries, and developed world-class capabilities to meet the diversified tooling needs of most electronic components and equipment manufacturers.

Many semiconductor companies especially MNCs have undertaken R&D and D&D

activities. These include IC packaging Freescale companies such as Semiconductor, Intel Technology, AMD, Avago and STMicroelectronics. Freescale Semiconductor and Intel Technology have set up dedicated R&D centres in Malaysia. This trend is very encouraging and is in line with the Government's efforts to encourage companies to undertake valueadded activities in Malaysia. It is also recognition by existing MNCs that Malaysia has the capacity to host such activities. The implementation of these projects would further contribute to capacity building and the creation of a pool of skilled and knowledgeable workforce in the industry.

In addition to semiconductor manufacturers, there are more than 190 companies involved in the manufacture of passive components such as capacitors, inductors, resistors, coils, transformers, magnets, quartz crystals and oscillators. Major companies in the industry include Panasonic, TDK, Alps, Taiyo Yuden, Murata, Shin-Etsu, Rohm-Wako, Epson and Kamaya Electric. This industry assumes a significant role in creating linkages with manufacturers of end products in the consumer, industrial and communications segments. In tandem with the growth of the end products segments, the passive components industry offers tremendous growth potential.

Malaysia is also developing a strong hard disk component industry. The presence of companies such as Komag, Fuji Electric, Penang Seagate, Toyo Memory Technology and Showa Aluminium in Malaysia has benefited the development of the disk drive industry. Among the components manufactured are disk media, magnetic heads and disk substrates. Since their establishment, many of these companies particularly Penang Seagate, Komag and Fuji Electric have undertaken continuous development and expansion. The disk drive industry is changing with the technology transition to perpendicular recording which means disk drives with a much higher capacity than those using traditional longitudinal magnetic recording. Electronic products such as notebook computers, MP3 jukeboxes, handheld digital video cameras, are driving the demand for smaller drives with larger capacities.

Within the electronic components subsector, the semiconductor devices Industry was the leading contributor in terms of exports for the E&E industry. In 2006 (January-November), exports of semiconductor devices amounted to RM85.1 billion or 33.2 per cent of total exports of E&E products. Exports of passive components (such as capacitors, resistors, inductors, crystal quartz and oscillators); and other components (such PCBs and metal and plastic as parts/components for E&E applications) amounted to RM4.8 billion during the same period.

Projects Approved in 2006

In 2006, a total of 57 projects in the electronic components sub-sector were approved with investments of RM7.6 billion. The projects approved were for the

production of semiconductor devices, PCB assembly, disk drive parts, hard disk media and substrates, precision engineering plastic parts for E&E applications and metal stamped parts.

Of the investments approved, foreign investments amounted to RM6.7 billion (88.2%), while domestic investments totalled RM920.3 million (11.8%). Of the 57 projects approved, 22 were new projects involving investments of RM1.4 billion, while 35 with investments of RM6.2 billion were expansion/diversification projects.

The major electronic component projects approved in 2006 included:

- expansion project by an STMicroelectronics Sdn. Bhd. with an investment of RM1.5 billion to produce advanced packaged ICs. The new project will involve technology upgrading of existing packages which include miniaturisation, performance, materials/components, testing and product improvement for multi-stacked BGA (to produce more layers than existing 3 stack). The company has more than 4,000 workers and the expansion project is expected to create an additional 650 new jobs including 200 engineers and technical staff. Among the packages produced by the company are leaded packages and leadless packages. The company is also undertaking back-end processes for wafer fabrication such as wafer dicing/sawing and wafer backgrinding;
- an expansion project by Fuji Electric (Malaysia) Sdn. Bhd. with an investment

of RM1.3 billion to produce thin-film magnetic disks and polished substrates for hard disk drives. Fuji Electric is one of the companies in the world that produces both aluminium-substrate hard disk media for desktop PCs as well as glass-substrate hard disk media for notebook-size PCs. The project when implemented would create an additional employment of 1,200 persons by 2009;

- an expansion project with an investment of RM1 billion by Flextronics Technology (Malaysia) Sdn. Bhd., one of the leading EMS companies in the world. The company is currently involved in PCB assembly; and system integration for industrial electronic applications such as computer and computer peripherals, office automation, control panels and testing/measuring equipment, medical equipment, telecommunications/multimedia equipment/system and mobile phones. The expansion project is expected to create employment opportunities for 4,730 persons;
- an expansion project by Penang Seagate Industries (M) Sdn. Bhd. with an investment of RM790 million to undertake the development and manufacture of advanced magnetic recording devices and perpendicular magnetic recording (PMR) heads. The project is expected to create employment opportunities for 300 persons including 80 R&D personnel. It will also contribute to the development of local vendors and participation of local companies in cluster development such as in tooling,

equipment parts and direct/indirect materials supply. This expansion project will also strengthen the hard disk drive value chain in Malaysia, as well as maintain Malaysia as one of Seagate's main centres for production of magnetic recording heads;

- DSEM Systems Technology Sdn. Bhd., a new joint-venture project between Malaysian and Singaporean investors. This project would involve substrate R&D and manufacture of thermal substrates for the semiconductor industry. The project to be located in Penang, involves an investment of RM482.5 million. When implemented, the project would make Malaysia an advanced material supplier to the electronics packaging industry;
- an expansion project by Plexus Manufacturing Sdn. Bhd. with an investment of RM245 million to undertake PCB assemblies, manufacture of telecommunications products including networking equipment and medical devices. Plexus provides a full range of product realisation services to OEM and other technology companies in the wireline/networking, wireless infrastructure, medical, industrial/ commercial and defence/security/ aerospace industries with a focus on complex and global fulfilment solutions, high technology manufacturing and test services, and high reliability products. The new facility would be Plexus' third plant in Malaysia and would complement Plexus' strategy to develop a Centre of Excellence in its Manufacturing and Engineering Services Hub in Asia;

- SimpleTech Electronics Sdn. Bhd., a new wholly foreign-owned project to design, manufacture and market customised memory solutions based on flash memory and DRAM technologies including solid-state storage drive solutions. The project would involve an investment of RM100 million for the next five years and would create employment opportunities of 530 persons including 120 professionals and engineers;
- an expansion project by Smart Modular Technologies Sdn. Bhd. with an investment of RM249.9 million to undertake designing, manufacturing, testing and delivering both standard and custom modular technologies in memory and communication product solutions. The project would create an additional employment for 103 persons;
- Pacific Twin Advance Sdn. Bhd., a new joint-venture project by Malaysian and Japanese investors to produce polyimide-based copper laminates and copolymerised, plating, block semiconductor plastic substrates, advanced semiconductor modules. memory systems and super capacitors. The project would involve an investment of RM247 million and would create 1,920 employment opportunities including for R&D engineers. This would cater to the needs of PCB manufacturers and semiconductor companies;
- a new project by Sensata Technologies Sdn. Bhd., a wholly foreign-owned company from the Netherlands with an

investment of RM167.6 million to produce micro-fused strain gauge (MSG), occupant weight sensors (OWS), common rail technology sensors (CRT), cylindrical pressure sensors (CPS), differential pressure sensors (DPS), and air classification module (ACM). The products will be used in the automotive industry. The company plans to supply its products to automotive companies such as Toyota, Honda, Delphi, Denso, Siemens, General Motors, Continental and TRW. The project is expected to create employment opportunities for 894 persons; and

 a new wholly foreign-owned project by Marvell Semiconductor Sdn. Bhd. to undertake designing, sorting, testing and packaging of IC chips for consumer electronics equipment with an investment of RM80 million. The company is expected to employ 300 people. The products manufactured are mainly for imaging applications and will be exported world-wide.

Industrial Electronics

The industrial electronics sub-sector covers ICT products such as computer and computer peripherals, telecommunications, optics and photonics; and other industrial electronic products such as office equipment (copier machines, fax machines, typewriters, calculators and word processors), measuring and test equipment (oscilloscopes, multimeters, signal generators) and industrial controllers. This is a fast growing sub-sector driven by rapid developments in digital and wireless technologies. The market growth for ICT is expected to be driven by the trend towards mobile technology for communications and data transfers. The markets for more matured products such as PCs and software, are also expected to register significant growth. The Eastern European and Asian markets for ICT are expected to register double digit growth.

According to the Association of Computer and Multimedia Industry of Malaysia (PIKOM), ICT expenditure in Malaysia is estimated at RM38 billion in 2006 and is projected to increase to RM43 billion in 2007. As reported by WITSA, the manufacturing sector in Malaysia led ICT spending (RM17.8 billion) in 2006, followed by the consumer segment. Overall IT spending in Malaysia is estimated to surpass RM14.4 billion in 2006 or 2.5 per cent of GDP, higher than Thailand (1.6%) but lower than Singapore (4.5%) and USA (4.5%).

In 2006 (January-November), exports of industrial electronic products amounted to RM124.5 billion. Exports of computers, computer peripherals and parts amounted to RM54.3 billion (43.6%), while exports of telecommunication equipment and parts totalled RM30.6 billion (24.6%). Exports of other industrial electronic products amounted to RM39.6 billion (31.8%). Major export destinations were USA, Singapore, People's Republic of China, Japan, Hong Kong, Germany, the Netherlands and Australia. USA and Singapore emerged as the major export destinations for telecommunications products. Major export destinations for computers and computer peripherals were USA, the Netherlands and People's Republic of China. This was largely due to the expansion by established MNCs in Malaysia to manufacture ICT products for the global market. Some of the major products exported included computers, computer peripherals and telecommunications products.

Presently, there are 161 manufacturers of industrial electronic products, including 52 in the manufacture of computers and computer peripherals, 80 in telecommunications equipment and 21 in optics and photonics products. The majority of the manufacturers in these segments are MNCs. Most of the MNCs are world leading technology companies and undertake integrated manufacturing and services activities. The presence of the MNCs has led to the establishment of local supporting activities such as specialised M&E, moulds and dies, and metal and plastic parts.

Computer and computer peripherals are produced by two major global computer manufacturers, Dell and NEC. These companies started with the manufacture of PCs but have since moved up the product value chain to diversify into higher value-added products such as laptops and notebooks. Dell, the world's leading technology company, has been in Malaysia since 1995 when it first began manufacturing and direct-sales operations in the country. The Asia Pacific Customer Centre (APCC) in Penang manufactures desktops, workstations, notebooks, servers and storage products for customers throughout Asia Pacific (excluding North Asia) and is the regional centre for manufacturing, software development, engineering, logistics and quality management. Under the Malaysia Direct Ship program, this Centre supplies 95 per cent of notebooks manufacturing for USA. The Penang Centre also houses multifaceted talent and capabilities, ranging from customer sales, technical support and marketing to finance information services and procurement for the region.

These computer manufacturers are supported by other leading MNCs supplying critical parts and components such as processors (Intel), hard disk drives (Western Digital), motherboards (SCI), keyboards (Fujitsu and Mitsumi), printers (Solectron and Flextronics) and batteries (Sony and Panasonic). Local vendors and component/part manufacturers such as Eng Technology and LKT Automation (precision parts and components); Sanmatech and Globetronics (system integration and ICs) have moved up the value chain and have developed their own competencies in producing these parts and components.

Leading companies in the telecommunications segment include Motorola, Flextronics, Sanyo PT, Polar Twin, Panasonic, Balda Solutions, KUB, Fujitsu, Marconi, CSL Manufacturing and G-Tek. These companies produce switching equipment, transmission equipment/ devices, radio base stations, digital wireless transceivers, mobile phones and Voice over Internet Protocol (VoIP) phones. Motorola, one of the world's leading telecommunications companies, has integrated value-added activities such as product development, manufacturing, distribution, service and support functions at its existing facility. It has a strong R&D set-up that produces locally designed analogue and digital walkie-talkies for the world market. Motorola has also been very active in the local vendor development program and has created several established local vendors such as BCM Electronics (PCB assembly), Green Point Precision (M) Sdn. Bhd. (plastics and speakers) and Centurion Wireless Components (antenna and batteries). Flextronics Shah Alam is the first major producer of mobile phones in the country. The company is a major contract assembler of leading brands of mobile phones and is the biggest producer in South East Asia. A Malaysian-Finnish joint-venture company, Polar Twin Advance is involved extensively in R&D activities and undertakes the manufacturing of MEMS pressure sensors, RFID and wireless telecommunications equipment and advanced semiconductor devices, while CSL, a local company is involved in R&D of mobile phones.

The optics and photonics industry is largely dominated by MNCs such as Finisar, Iriichi, Nichia, Avago, Osram Technologies, Philips Lumileds Lighting, Opcom Cables and Huber & Suhner. Finisar, one of the world's major producers of photonics components from USA has set up a facility in Ipoh, Perak to produce photonics components such as optical transceivers, passive optics components and optical filters. Nichia, a leading player in LED technology had set up the first integrated project in Malaysia to undertake fabrication of LED. Osram is the first company in Malaysia and one of the leading companies in the world in organic LEDs (OLED), a new generation of LEDs used to make bright flat panel display for high technology products such as measuring instruments, PDAs and mobile phones. PWB Technologies, a German company is producing optical encoders and optical modules, which are major components for laser printers and copiers.

Projects Approved in 2006

In 2006, a total of 49 projects were approved in the industrial electronics sub-sector with investments of RM1.4 billion. Of the projects approved, 37 projects were expansion/diversification projects with investments of RM1.1 billion (78%), while 12 were new projects with investments of RM321.8 million (22%). Foreign investments amounted to RM1.2 billion (86%) while domestic investments totalled RM233 million (14%).



Investments in Projects Approved in the Industrial Electronics Sub-Sector, 2006



Of the 49 projects approved:

- twenty-seven (27) projects were for telecommunications products with investments of RM826 million (59%);
- ten (10) projects were for computer and computer peripherals with investments of RM78 million (5%);
- four projects were for optics and photonics with investments of RM25 million (2%); and
- eight projects were for other industrial electronic products with investments of RM471 million (34%).

Major projects approved in 2006 were:

- an expansion project by Flextronics Technology (Shah Alam) Sdn. Bhd. with an investment of RM415.9 million. The expansion activities would involve manufacture of existing and new products which include PCB assemblies; sub-assemblies; system integration for industrial electronic applications and consumer electronic applications; and remanufacturing, re-engineering and repairing activities. A complete design and manufacturing facility for injection moulds is being set up under this expansion project. The project is expected to create employment opportunities for 718 persons;
- a diversification project by Motorola Technology Sdn. Bhd., with an investment of RM351 million to undertake the development and manufacture of digital 2-way radio, wireless broadband

communications equipment/system, rechargeable batteries, accessories and parts;

- a new project with an investment of RM125 million by Laird Technologies (M) Sdn. Bhd. to undertake design, development and production of wireless transmission and communications equipment;
- a new project with an investment of RM121.6 million by Christel Technologies (M) Sdn. Bhd. to undertake design, development and production of global system mobile (GSM) system equipment and VoIP system equipment; and
- an expansion project by Finisar Malaysia Sdn. Bhd. to produce network monitor system, network analyser system and network test system.

The quality of the approved projects indicates that the industrial electronics sub-sector especially ICT, has moved beyond assembly into higher value-added activities such as R&D, technical support and distribution.

Consumer Electronics

The consumer electronics sub-sector comprises products such as colour television receivers, radios, compact disc (CD) and video compact disc (VCD) players, home theatre systems, speakers, multimedia networking devices, digital music players, network music centres, video games, camcorders and digital cameras. The consumer electronics industry was first established in Malaysia in the late 1970s with the setting up of operations by a number of European and Japanese companies such as Robert Bosch, Philips, Grundig, Matsushita and Sanyo to produce audio/visual products. The operations then were labour-intensive and the raw materials were mainly imported.

The industry has undergone restructuring and consolidation due to intense competition from lower cost countries. Some of the companies have relocated their low-end assembly and labourintensive assembly operations to lower cost countries while maintaining their high end products in Malaysia. To date, there are 144 companies in operation producing colour television receivers, radios, CD and VCD players, home theatres, decoders, video games, camcorders and digital cameras. Among the major producers are Sony, Sharp, Samsung, Panasonic, JVC, Onkyo, Yamaha, Hitachi, Pioneer and Inventec. The larger manufacturers are Japanese MNCs, which are world leaders in audio visual products.

In tandem with global trends, MNCs are increasingly outsourcing their activities to Malaysian-owned companies. Among the major brands being sub-contracted to Malaysian-owned companies are Philips, JVC, Toshiba, Pioneer, Panasonic, Samsung, Sharp, RCA, Daewoo, Elba, Hitachi, Thomson and LG. Some of the companies now undertake R&D activities in support of their operations in Malaysia as well as in other manufacturing sites. These companies include Panasonic, Sharp, JVC, Onkyo and Inventec. Sharp has set up an R&D company to undertake design and development of audio-visual equipment for its manufacturing activities. Onkyo has set up an R&D Centre to undertake R&D of speakers and parts. Inventec, a Taiwanese company, is actively undertaking production and development activities to produce multifunctional digital audio/video telecommunications products including colour LCD television receivers, EPS, wireless internet radios, set top box and VoIP.

The display devices industry in Malaysia is moving towards the production of larger colour LCD display units for mobile phones, computer monitors and wide screen televisions. To date, there are 35 companies in operation producing colour television receivers. These include Malaysian-owned companies, which are undertaking assembly activities for OEM brands. The majority of these companies which started by producing cathode ray tube (CRT) colour television receivers are now producing both CRT televisions and flat panel televisions (plasma TV and LCD TV).

To date, two companies, Sharp and AIC-MTN Corporation, are producing LCD panel modules for colour television receivers. Sharp is producing the module for in-house use. Other television manufacturers are importing LCD/plasma panel modules for their production.

LCD and LED modules for various applications, including displays for calculators, organisers and watches are being produced by MNCs such as Flextronics and Vikay Technology, and Malaysian companies such as Display Technology and Industronics. Industronics has established itself as a leading producer of large LED information display boards/scoreboards.

In line with advances in new technologies and innovation, the industry is moving towards the utilisation of flat panel display technology and production of multifunctional digital audio/video products utilising the combination of digital audio/video technology and multimedia/IT technology. The production of consumer electronic products, especially audio visual products, is projected to grow with the trend towards the digitalisation of broadcasting in developed countries. The global market for consumer electronics is expected to register strong growth with sales of US\$158.4 billion (RM582.9 billion) in 2008. Audio visual products will be the leading source of revenue in the segment.

Potential growth areas for Malaysia are in integrated home entertainment networks, digital entertainment systems, homenetwork devices and portable digital video device players. The domestic companies, which are OEMs and ODMs, will need to take advantage of the growing consumer market to promote their own brand products, through networking with MNCs in the country.

Malaysia's exports of consumer electronic products amounted to RM17.5 billion in 2006 (January-November). The main products exported were sound recorders or reproducers, radio receivers and television receivers. The major export destinations were Europe, Asia and the Middle East. According to the UNCTAD Handbook of Statistics 2005, Malaysia was the fourth largest exporter of consumer electronic products among the developing economies after Mexico, People's Republic of China and Republic of Korea.

Projects Approved in 2006

A total of 23 projects were approved in the consumer electronics sub-sector with investments of RM278.6 million in 2006. Of these, three were new projects with investments of RM119.2 million (42.8%) and 20 were expansion/diversification projects with investments of RM159.4 million (57.2%). Foreign investments amounted to RM179.9 million (64.6%) while domestic investments totalled RM98.7 million (35.4%).

Projects approved were for the production of colour television receivers, DVD players, VCD players, home theatre and IT/Multimedia related audio video products. These projects are expected to create employment opportunities for 2,012 persons.

A major consumer electronics project approved in 2006 was Hanpac Technologies (M) Sdn. Bhd., a new joint-venture project between Malaysian and Korean investors to produce plasma and LCD monitors/ televisions in Pahang. The project would involve an investment of RM59.7 million and would create employment opportunities for 26 persons.

Electrical Products

The electrical products sub-sector can be categorised into three segments, namely industrial electrical, electrical components and electrical household appliances. There are presently more than 238 companies producing a wide range of products such as household electrical appliances, wires and cables and electrical industrial equipment and other electrical products.

Manufacturing activities in the electrical industry have evolved from assembly of components and products such as coils, rice cookers and refrigerators of foreign brands to sophisticated higher valueadded activities including R&D, design and marketing of own brands for the regional and global markets.

In 2006 (January-November), Malaysia exported RM21.3 billion worth of electrical products. Exports of industrial electrical products amounted to RM11.5 billion (54%), while exports of electrical components totalled RM5.2 billion (24%) and exports of electrical household appliances amounted to RM4.6 billion (22%). The major items exported were airconditioners, electrical appliances, electric distribution equipment, batteries and electric accumulators. Major export destinations were ASEAN countries, USA, People's Republic of China, Japan, Hong Kong, the Middle East, Pakistan and India.

The industrial electrical equipment segment covers products such as electrical apparatus for power distribution and industrial lightings. Growth in this segment is dependent on the demand for electricity transmission and distribution especially in the manufacturing and housing sectors. This segment is dominated by Malaysian-owned companies such as Tamco, Malaysian Transformer, Arab Malaysian, TNB Switchgear and EPE Power, catering essentially for the local power utility companies such as TNB, SESCO and SEB. Some of these companies are also supplying to the local engineering companies.

The electrical components segment covers products such as cables, wires and conductors, industrial parts and components. There are more than 135 companies producing a wide range of power and telecommunications cables, circuit breakers, motor coils, terminal blocks and thermostats. The major products are wires and cables, manufactured mainly by local companies such as Leader Cable, MITTI Cables and Power Cables, which cater mainly for TNB and Telekom Malaysia and other domestic customers. These companies are also exporting to Indonesia, Thailand and other neighbouring countries. Major MNCs are Fujikura, Elektrisola and Sumitomo which produce electric wires, cables and enamelled copper wires, mainly for the export market. Elektrisola's highly automated facility in Malaysia is the company's manufacturing hub for ultra fine magnet wires.

The electrical household appliances segment covers 'white goods' such as airconditioners, vacuum cleaners, washing machines, microwave ovens and other small home appliances such as blenders, grinders, toasters, electric kettles and electric irons.

The industry can be broadly classified into three main groups based on their activities:

- Malaysian-owned companies that do purely assembly operation from imported components in CKD and/or SKD form;
- Malaysian-owned companies that have acquired considerable manufacturing capabilities incorporating substantial local content in their products and undertaking R&D activities; and
- large MNCs undertaking complete manufacturing and R&D.

Two major foreign companies with a strong presence in this segment are Samsung (microwave ovens) and Dyson (vacuum cleaners). These companies also undertake R&D activities locally while Dyson outsources the manufacturing of its product to local companies. Samsung produces medium and high-end microwave ovens including locally designed smart ovens.

More companies in this segment are concentrating on the production of higher-end products such as multi-feature air-conditioners, power motors and precision parts. Companies operating in Malaysia such as Panasonic and OYL have established integrated facilities to undertake R&D and manufacturing activities for air-conditioners. Malaysianowned brand products such as Pensonic and Khind have been exported to ASEAN and the Middle East. Acson brand airconditioners, produced by OYL, have also been exported to countries such as USA, People's Republic of China and Japan.

Projects Approved in 2006

In 2006, a total of 41 projects were approved in the electrical products sub-sector with investments of RM703.7 million, of which 22 were new projects (RM118.3 million) and 19 were expansion/ diversification projects (RM585.4 million). Foreign investments amounted to RM533.7 million (76%) while domestic investments totalled RM170.0 million (24%). Of the 41 projects approved, 11 projects (RM32.2 million) were in electrical industrial equipment, 23 projects (RM99.9 million) in electrical components and seven projects (RM571.6 million) in electrical appliances.

Graph 33

Investments in Projects Approved in the Electrical Products Sub-Sector, 2006



A major project approved in 2006 was an expansion project by Dyson Manufacturing Sdn. Bhd., a UK-based company, with an investment of RM489.7 million. This project would expand the company's virtual manufacturing capability which includes design, development and manufacture of cyclonic vacuum cleaners. The company outsources the manufacturing of its products to dedicated local contract manufacturers.

The E&E industry attracted substantial investments in 2006 in both new and expansion/diversification projects. The continued inflows of investments, in scale and in scope, to expand or build new facilities in Malaysia was attributed to a combination of factors – conducive business environment, first class infrastructure, competitive package of incentives, and increasingly the availability of a significant pool of skilled and knowledge workforce necessary for undertaking technology development and business support activities.

The MAEI survey in 2006 showed that MNCs have confidence in Malaysia and planned to continue investing further in the coming years. The reasons cited by MAEI were:

- modern infrastructure, and good international air, sea and cyber linkages;
- excellent trade ties with most countries;
- English speaking workforce and highly skilled workers. Salaries of managerial and professional personnel are lower than those in some competing countries; and
- highly trainable Malaysians. This helps to speed up project implementation and enhance efficiency.

During the IMP3 period, the E&E industry is expected to maintain its position as the largest exporter of manufactured goods. In addition, total investments in the E&E industry are targeted to reach RM82.4 billion, with an average annual growth rate of 7.2 per cent per annum. To realise the targets of IMP3, investments of RM5.5 billion per annum is needed in the E&E industry. With approved investments of RM10 billion in 2006, Malaysia is on track in meeting the targets.

In the IMP3, seven strategic thrusts have been set for the further development of the E&E industry:

- Strengthening and deepening the semiconductor segment;
- Deepening and widening the development of the ICT industry value chain;
- Intensifying R&D and design activities;
- Promoting the application of new and emerging technologies;
- Integrating the industry into the regional and global supply chain networks;
- Making available a sufficient supply of highly skilled and innovative workforce; and
- Strengthening institutional support such as standards certification, management and disposal of scheduled wastes, strengthening the role of industry association and package of support schemes.

The strategic thrusts have been formulated to meet the challenges facing the E&E industry:

- Positioning Malaysia in the global supply chain networks – to identify various E&E sub-sectors, such as industrial electronics, consumer electronics and semiconductors, as well as opportunities in new and emerging technologies which need to be promoted and developed;
- Development of semiconductor and ICT clusters;
- Limited R&D;
- Shortage and mismatch of qualified human resources;
- Limited global marketing networks, particularly among local companies;
- Inadequate infrastructure for high technology projects which require facilities, such as uninterrupted power supply and clean water and other key related services, such as training, R&D, incubation centres, specialised testing, and assistance in technical and technology development;
- Managing and disposing of scheduled wastes;
- The new ruling on "Green" guidelines imposed by the European Union which could have adverse impact on the competitiveness of SMIs as the costs of compliance involved are substantial and burdensome; and

• Lack of certified testing and calibration centres in Malaysia.

Globally, the Asia Pacific region has emerged as the largest manufacturing base for electronics due to its lower cost of production as well as huge market potential. Electronics output in Asia Pacific increased to 37 per cent of the global total in 2005, compared with 20 per cent in 1995. The Asia Pacific region also leads in worldwide semiconductor consumption, accounting for 44 per cent of global chip revenue in 2005. The region will continue to be the fastest growing market and is expected to account for 48.2 per cent of global market in 2009. In anticipation of continued growth of the global E&E industry, more MNCs are expected to establish their operations in the Asia Pacific region.

With this development, Malaysia needs to continue to provide competitive incentive package and conducive environment to attract more investments in the E&E industry. Malaysia has already proven itself as a country capable of hosting highend activities by leveraging on its skilled workforce. As Malaysia faces stiff competition from a number of low cost emerging economies with huge domestic market such as People's Republic of China, India and Viet Nam, there is a need to ensure that the costs of doing business in Malaysia remain competitive, the number of skilled personnel and qualified workforce is sufficient, and the Government delivery system is continuously improved to meet the needs of investors.

TRANSPORT EQUIPMENT

The transport equipment industry covers automotive, aerospace the and shipbuilding and ship repairing subsectors. For the period January to November 2006, exports of transport equipment totalled RM8.0 billion compared with RM7.0 billion for the whole of 2005. Exports of road vehicles (comprising passenger vehicles, commercial vehicles, motorcycles/ scooters, trailers/semi-trailers, bicycles/ other cycles and parts and components) amounted to RM3.2 billion while exports of ships, boats and floating structures amounted to RM3.3 billion and exports of aircraft and associated equipment and parts totalled RM1.5 billion. Major export destinations were Singapore (RM2.0 billion), Viet Nam (RM1,261.6 million), Thailand (RM698.5 million), UK (RM481.9 million), USA (RM462.1 million) and Indonesia (RM323.6 million).

Automotive

The automotive sub-sector is the largest sub-sector within this industry and comprises the manufacture/assembly of motor vehicles, including motorised twowheelers, reconditioning/reassembling/ rebuilding/conversion of motor vehicles and the manufacture of parts and components, including coach and vehicle bodies. There are currently six motor vehicle manufacturers with an annual installed capacity of 785,000 units, nine assemblers with an annual installed capacity of 111,000 units and 50 franchise holders. In addition, there are 10 manufacturers/assemblers of motorcycles and scooters with an installed capacity of 1,063,000 units per year. There are also three composite body sports car manufacturers.

Major models manufactured/assembled in Malaysia include PROTON's Neo, Savvy, Gen-2, Wira, Waja, Satria and Perdana; PERODUA's Myvi, Kancil, Kelisa, Kenari and Kembara; INOKOM's Atos, Permas and Lorimas; NAZA's Naza Ria and Citra; Honda's City, Civic and Accord; and various models of Toyota, Ford, Mazda, Volvo, Mercedes Benz, Hyundai and BMW. Motorcycle and scooter models manufactured/assembled include Kriss, Jaguh, Karisma, MZ, Yamaha, Suzuki, Honda, Kawasaki, Demak, Nitro and Comel.

According to the Malaysian Automotive Association (MAA), production of motor vehicles totalled 503,048 units in 2006 (comprising 377,952 units of passenger cars and 125,096 units of commercial vehicles), a decrease of 60,462 units or 10.7 per cent compared with production of 563,510 units in 2005. Sales of motor vehicles also decreased, by 11 per cent from 552,316 units in 2005 to 490,768 units in 2006. According to MAA, the decline in the sales of motor vehicles was due to the difficulties in securing hire purchase loans and weak trade-in value of used cars. In the case of motorcycles and scooters, increases were recorded in both production and sales. According to the Motorcycle and Scooter Assemblers and Distributors Association of Malaysia, production of motorcycles and scooters increased from 400,000 units in 2005 to 432,300 units in 2006. In terms of sales, there was an increase of 16,450 units or 4.1 per cent from 406,100 units in 2005 to 422,550 units in 2006.

Graph 34

Production and Sales of Motor Vehicles, Motorcycles and Scooters, 2006



The value of imports and exports of motor vehicles and parts (including accessories) in 2005 and 2006 were as follows:

Table 5

	RM million				
	Expo	orts	Imports		
	2006 (Jan-Nov)	2005	2006 (Jan-Nov)	2005	
Passenger Motor Vehicles	468.96	412.6	4,733.06	4,934	
Goods & Special Purpose Transport Vehicles	124.12	239.9	1,039.06	1,663.2	
Road Motor Vehicles	125.83	74.7	340.33	407.9	
Parts, Tractors, Motor Vehicles	1,438.00	1,440.5	3,625.68	3,942.3	
Cycles, Motorcycles, Non-Motorised & Motorised	818.73	867.8	704.65	683.7	
Trailers, Semi-Trailers	233.77	308.2	211.75	196.6	
TOTAL	3,209.41	3,343.7	10,654.53	11,827.8	

Imports and Exports of Motor Vehicles, 2006 and 2005

Source: Department of Statistics

Exports of motor vehicles and parts and components in 2006 (January-November) amounted to RM3.2 billion, compared with RM3.3 billion for the whole of 2005. The bulk of the exports comprised motor vehicle parts.

Imports of motor vehicles and parts and components in 2006 (January-November) totalled RM10.6 billion compared with RM11.8 billion in 2005. The bulk of the imports comprised passenger vehicles and automotive components.

The automotive sub-sector employs about 54,200 workers (January-November 2006). PROTON and PERODUA together employed about 13,500 workers or 29.1 per cent of the total employment in the sub-sector. The local content achieved by motor vehicle manufacturers is about 60 to 90 per cent while local content for assemblers ranges from 40 to 50 per cent.

New Tax Structure for Motor Vehicles

The Ministry of Finance announced the following changes to the tax structure for motor vehicles:

(a) Import Duties on Passenger Vehicles

- Import duty on ASEAN CBU is reduced from 20 per cent to 5 per cent;
- Import duty on non-ASEAN CBU is reduced from 50 per cent to 30 per cent; and

• Import duty is maintained at zero per cent on ASEAN CKD and at 10 per cent on non-ASEAN CKD.

(b) Excise Duties on Passenger Vehicles

- Excise duty on both CKD and CBU vehicles from ASEAN and non-ASEAN are as follows:
 - Passenger cars reduced from 90 per cent-250 per cent to 75 per cent-125 per cent;
 - 4WD and MPV/Van changed from 40 per cent-170 per cent to 60 per cent-125 per cent; and
 - Motorcycles changed from 20 per cent-60 per cent to 20 per cent-50 per cent.

As at December 2006, there were about 591 automotive component manufacturers and about 170 motorcycle/scooter component manufacturers. The automotive component industry produces over 4,000 components and of the 591 component manufacturers, 227 are PROTON vendors (32 tier one vendors) and 161 PERODUA vendors (some vendors are supplying to both PROTON and PERODUA).

More than 70 per cent of the automotive component companies are Malaysianowned. A number of these companies have technical collaborations with global automotive component companies. There are also a number of foreign global automotive component manufacturers operating in Malaysia, including Bosch, GKN, Denso, Delphi, Nippon Wiper Blade, Siemens VDO Instruments, TRW and ZF. About 45 of the automotive component manufacturers are presently exporting their components. Major components exported include steering wheels, rims, bumpers, brakes, radiators, shock absorbers and clutches. The sales value of automotive components in 2006 (January – November) amounted to RM4.9 billion, compared with RM5.4 billion in 2005. Currently, about 80 per cent of all national car components are either supplied or manufactured by local vendors.

The automotive component industry, which commenced manufacture of accessories and replacement parts in the 1960s, is today capable of manufacturing a wide range of products from engines to electronic components and modules. The Government is continuously encouraging the development of this sector. Under the National Automotive Policy, various funds, grants and incentives, such as Automotive Development Fund, Industrial Adjustment Fund, training grants, R&D grants and customised incentives, have been put in place to integrate the industry into the global supply chain.

Automotive Industry in ASEAN

Sales of passenger cars in ASEAN totalled 734,263 units in 2006. Motor vehicle sales in ASEAN for the year 2005 and 2006 are shown in the table:

- ··	2006			2005		
Countries	РС	CV	TIV	РС	CV	TIV
Indonesia	17,710	300,978	318,688	35,529	494,738	530,267
Thailand	191,763	490,398	682,161	188,211	515,221	703,432
Philippines	38,061	61,369	99,430	35,361	61,702	97,063
Malaysia	366,738	124,030	490,768	416,692	135,624	552,316
ASEAN 4	614,272	976,775	1,591,047	675,793	1,207,285	1,883,078
Singapore	103,378	11,737	115,115	108,741	13,200	121,941
Brunei	8,916	3,113	12,029	9,854	3,019	12,873
Laos	74	209	283	24	125	149
Viet Nam	7,486	24,865	32,351	11,619	23,645	35,264
Myanmar	120	165	285	151	245	396
Cambodia	17	95	112	3	198	201
ASEAN 10	734,263	1,016,959	1,751,222	806,185	1,247,717	2,053,902

Table 6

Motor Vehicles Sales in ASEAN, 2006 and 2005

Legend: PC - Passenger Car

CV - Commercial Vehicle

TIV - Total Industry Volume

Sources: Malaysian Automotive Association Other Countries: Toyota Motor Corporation through UMW Toyota Motor

Malaysia remained the largest market for passenger cars in ASEAN, accounting for almost 50 per cent (366,738 units) of the market in 2006. However, for the commercial vehicle segment, Thailand constituted the largest market in ASEAN, accounting for 48 per cent (490,398 units).

Under the ASEAN Industrial Cooperation (AICO) scheme, participating companies can enjoy CEPT tariffs of zero per cent immediately upon approval. As at December 2006, a total of 77 AICO arrangement applications in the automotive industry had been approved.

Projects Approved in 2006

In 2006, a total of 51 projects were approved in the automotive industry with investments of RM536.3 million, compared with 52 projects approved in 2005 with investments of RM1.1 billion. A total of 33 projects with investments of RM318.9 million (59.5%) were new projects while 18 projects with investments of RM217.4 million (40.5%) were expansion/diversification projects. Domestic investments amounted to RM370.4 million (69.1%), while foreign investments totalled RM165.9 million (30.9%). Of the 51 projects approved, 44 were Malaysian-owned projects with investments of RM374.9 million. Malaysian-owned companies were mainly involved in the manufacture of automotive parts and components, such as alloy wheels, airconditioning systems, seats, motors, wiring harnesses, automotive accessories, automotive plastic parts and fabrication of truck and coach bodies.

Of the 51 projects approved:

- three projects were for the manufacture of automobile air-conditioning systems and parts with investments of RM157.2 million;
- six projects were for the manufacture of automotive plastic parts with investments of RM36.5 million;
- five projects were for the assembly of special purpose vehicles, namely armoured vehicles and truck mounted road sweepers with investments of RM23.7 million; and
- thirty-seven (37) projects were for the manufacture of parts and components, including fabrication of vehicle bodies, with investments of RM318.7 million.

Major projects approved included:

- an expansion project with an investment of RM113.2 million to manufacture automobile air-conditioning compressors;
- a new project with an investment of RM54.8 million to manufacture bus body kits and bus chassis; and

• a new project with an investment of RM26.9 million to manufacture alloy wheels.

The number of new makes and models entering the regional and global markets at competitive prices and reasonable quality acts as a threat to the local automotive industry. Domestic component manufacturers have upgraded their engineering and technological capabilities through mergers, joint-ventures and other forms of collaboration to compete in the industry. They are also leveraging on the global networks of their respective principals to penetrate the export market.

While market opening has threatened the operations of some companies, many domestic automotive component manufacturers have also capitalised on trade liberalisation measures by increasing efficiency, productivity and consequently capacities. They have adopted disciplines that have created higher productivity and generated an even stronger focus on export.

Domestic firms linked into the global supply chain have acquired international standards, as it is crucial and essential that their products meet the required technical specifications and standards of end-users, such as ISO 9000, QS 9000, ISO 14000 and TS 16949.

Potential areas which have been identified for development in the IMP3 include designing and manufacture of critical components such as engines, transmission systems, electronic components and special purpose vehicles. Strategic thrusts for this industry in the IMP3 are:

- Providing Government support, based on sustainable economic contribution;
- Increasing scale of operations through rationalisation to enhance competitiveness;
- Promoting strategic linkages with international partners;
- Developing Malaysia as a Regional Hub, focussing on niche areas and complementary activities;
- Promoting investments in growth areas;
- Intensifying skills upgrading;
- Strengthening institutional support;
- Promoting the participation of the subsector in the regional and global supply chains; and
- Enhancing the competitiveness of the manufacturers of parts and components.

The Malaysian automotive industry is an important driver of industrial development, provider of technological capabilities and generator of inter-industry linkages as it brings together various parts and components, many of which are produced by suppliers in other industries such as plastic, electronics, steel, rubber and textiles. To remain competitive in an increasingly liberalised market, the anchor manufacturers will have to extend their supplier chain regionally and internationally.

Aerospace

The aerospace industry comprises the aviation and space sub-sectors. The aviation sub-sector encompasses design and development; assembly and operation of light aircraft; manufacture of parts and components; maintenance, repair and overhaul(MRO) activities; support services; and training. Currently, there is one company assembling light aircraft, seven companies manufacturing aircraft parts and components and 28 companies involved in MRO activities.

The growth of parts and components manufacture is dependent on the ability of companies to secure work packages (contracts) from major international companies such as Airbus, Boeing and BAE System. Malaysian companies have been able to win contracts from OEMs by proving their capabilities to meet stringent customer requirements in terms of quality, price and delivery.

CTRM Aero Composites Sdn. Bhd., a manufacturer of parts and components, produces composite parts mainly for Airbus aircraft series. Parts and components manufactured include fixed trailing edges, leading edges, trailing edge panels, spoilers, moveable and aft fairings, underwings, top assemblies, overwings, aileron panels, engine nacelles and thrust reverser parts. Asian Composites Manufacturing Sdn. Bhd. (ACM) is the sole supplier of fixed trailing edge panels for Boeing. In the production of metalbased parts, SME-Aerospace Sdn. Bhd. has developed the capability to manufacture weapon pylons for Hawk aircraft, leading and trailing edges for Airbus aircraft, leading edges for Boeing and ground support equipment for other companies in the aviation industry.

MRO activities are expanding in tandem with the growth in the aviation industry, especially in Asia. In Malaysia, these activities range from modification and remanufacturing of engines and engine components, repair and overhaul of aircraft parts and components, repair and testing of aircraft instruments and components and providing line and heavy maintenance to military and civil aircraft. Of the 28 MRO companies in operation, 12 companies are involved in repair and overhaul of aircraft parts and components, including testing of aircraft instruments, 12 companies provide line and heavy maintenance; and four companies are involved in engine and engine parts maintenance. Major MRO companies in Malaysia include MAS (Engineering Department), GE Engine, National Aerospace and Defence Industries (NADI) Bhd. (holding companies for AIROD, SME), Airfoil, Hamilton Sundstrand, Honeywell, Parker Haniffin and Eurocopter.

The Government will continue to promote the Malaysia International Aerospace Centre (MIAC), as the aerospace hub in Malaysia. A consortium, led by Malaysian Airports Holdings Berhad (MAHB) and comprising Malaysia Industry Government Group for High Technology (MIGHT), Malaysia Airlines (MAS) and NADI, has been appointed to monitor the successful development of the Centre. The consortium provides the required infrastructure for the establishment of aerospace industry. Currently, there are 41 aviation-related companies operating in MIAC.

For the period January to November 2006, exports of aircraft and associated equipment, spacecraft and spacecraft launch vehicles and parts amounted to RM1.5 billion, compared with RM1.4 billion in 2005. Imports of these products totalled RM5.5 billion in 2006 (January-November) compared with RM4.1 billion in 2005.

Projects Approved in 2006

In 2006, three projects were approved for the manufacture of aerospace parts and components with investment of RM113.2 million. Domestic investments in these projects amounted to RM80.7 million (71.3%), while foreign investments totalled RM32.5 million (28.7%).

The projects approved were:

- UPECA Aerotech Sdn. Bhd., a new Malaysian-owned project with an investment of RM75.2 million, for the design, development and manufacture of aerospace components;
- a new wholly foreign-owned project with an investment of RM30 million to manufacture parts of aircraft (inspar rib for aircraft wings); and
- a new joint-venture project with an investment of RM8 million to manufacture aircraft components (rib structure).
In the IMP3, four strategic thrusts have been identified to further develop and promote the aerospace sector:

- Developing and promoting potential growth areas in the sub-sector;
- Strengthening domestic capabilities;
- Promoting support services; and
- Developing Malaysia as an outsourcing centre for aerospace products and support activities.

The potential growth areas identified in the IMP3 in this sub-sector include:

- MRO, including modification and conversion of aircraft and refurbishment and remanufacture of aircraft components and parts;
- Manufacture of light aircraft;
- Manufacture of aircraft parts and components; and
- Development of the space segment.

Shipbuilding and Shiprepairing

The shipbuilding and shiprepairing industry in Malaysia is one of the core sectors in the marine transportation industry. The industry has developed specialised skills and technological capabilities in engineering design, metallurgy, corrosion control, machining, welding and fabrication. The industry includes the manufacture of ships, boats, patrol vessels, barges, leisure crafts, yachts, hydrofoils and hovercrafts and shiprepairing activities.

Currently, there are six large shipyards involved in shipbuilding, shiprepairing and metal fabrication activities. These are Malaysia Marine and Heavy Engineering (formerly known as Malaysia Shipyard Engineering), Boustead-Naval and Dockyard, Sabah Shipyard, Ramunia Shipyard, Sasacom and Muhibbah Marine Engineering. The largest shipyard in Malaysia has the capability of building vessels up to 30,000 DWT (dead weight tonnes) with the installation of 70,000 DWT ship-lift facility and repair vessels of up to 400,000 DWT.

Generally, the demand for boats and ships in Malaysia is based on replacement of ships (scrapped due to age or damage), demand for new ships on a jobbing basis, development of the oil and gas industry and requirements of the military and police.

Exports of ships, boats (including hovercrafts) and floating structures amounted to RM3.3 billion in 2006 (January-November) compared with RM2.2 billion in 2005. Major export destinations were Singapore (RM1.2 billion), Viet Nam (RM1.2 billion) and Thailand (RM264.4 million).

Projects Approved in 2006

In 2006, seven projects were approved with investments of RM697.9 million. Of these, five were Malaysian-owned projects

with investments of RM682.6 million. These projects were for shipbuilding and shiprepairing activities and the manufacture of metal fabricated products. The remaining two projects were wholly foreign-owned projects with investments of RM15.3 million. These projects were for the manufacture of sail membranes with synthetic fibres and reconditioning and chrome plating of marine engines and components.

One of these projects was approved with an investment of RM500 million to undertake shipbuilding and shiprepairing activities.

In the IMP3, five strategic thrusts have been identified for the long term viability of the marine transport sub-sector:

- Enhancing domestic capabilities in the building of smaller vessels, ship repairing and maintenance activities;
- Intensifying the upgrading of skills and engineering capabilities;
- Strengthening infrastructure and support facilities:
- Strengthening the institutional support; and
- Expanding activities in the fabrication of offshore structure

The development of the shipbuilding and shiprepairing sub-sector will continue to create other related services such as insurance, banking and finance, logistic and port services. The IMP3 focuses on the development of the sub-sector which

includes the production of 30,000 DWT or below vessels, tugs and pusher crafts, fabrication of off-shore structures and production of small vessels for leisure, recreation and sports. There is also potential for the manufacture of marine equipment, hardware components and engineering & precision equipment, such as propellers, shafts, magnetic compasses, maritime cables and other related products.

MACHINERY AND EQUIPMENT

The Government has identified the M&E industry as one of the key areas for growth and development. The growth will focus on the manufacture of high value-added and high technology M&E. During the IMP3 period, the industry is expected to expand further in tandem with the growth of major economic sectors, in particular the manufacturing, agriculture and services sectors.

With increasing competition from lower cost producing countries, the industry is expected to move up the value chain and strengthen its design, development and innovation capabilities in the production of high technology M&E and specialised M&E for specific industries.

According to DOS, there are about 2,140 M&E companies employing about 87,900 persons. Malaysia continues to import a major portion of its requirement for M&E. In 2006 (January-November), Malaysia's imports of M&E amounted to RM29.6 billion compared with RM32.4 billion for the whole of 2005. However, local manufacturers of M&E have been able to

not only secure a share of the local market demand, but are increasingly exporting their products.

Exports of M&E in 2006 (January-November) which amounted to RM18.3 billion have reached the total exports for the whole of 2005. Major categories of M&E exported were specialised M&E and general industrial M&E. Exports were mainly to Singapore, People's Republic of China, Thailand and USA.

Graph 35

Trade Performance of the Machinery and Equipment Industry, 2001 - 2006



The M&E industry can be categorised into the following sub-sectors:

- specialised M&E for specific industries;
- power generating M&E;
- metalworking machinery; and
- general industrial M&E, parts and components.

The specialised M&E sub-sector caters for the needs of specific industries such as agriculture, food and beverage, E&E, oil and gas, woodworking and plastic processing.

These M&E are mainly custom-made machinery and fabricated according to users' specific requirements. Companies in this sub-sector undertake R&D, engineering design, innovation and system integration, while most parts and components are outsourced. There are about 207 companies producing a wide range of specialised M&E for the manufacturing and agriculture sectors.

Currently there are 22 major companies in operation producing specialised M&E for the E&E industry. The types of M&E produced include surface mounting machines, vision inspection systems, tape and reel machines, automatic moulding systems, trim and form machines, laser marking machines, die bonders, auto dispensing machines and other flexible manufacturing systems with full automation, incorporating advanced handling systems and intelligent robots. Presently, Malaysia is the leading manufacturer of automation equipment for the E&E industry in the ASEAN region.

Of the 22 companies, 18 are Malaysianowned. Local companies continue to benefit from the presence of MNCs who have assisted in their development through vendor development programmes. Over the years, these companies have built their reputation and capabilities, are recognised internationally and have become contributors to the global supply chain. Local machine specialists such as Genetec, LKT, Pentamaster and UPECA are primarily design houses for industrial automation processes, conceptualising and building specialised automation equipment to meet their clients' various needs. These companies serve the semiconductor, hard disk drive, medical and pharmaceutical industries. They are also involved in R&D to develop new automation processes in tandem with stringent requirements specified by their clients.

In the oil and gas industry, prospects for Malaysia's oil and gas related M&E manufacturers are bright. In the Ninth Malaysia Plan, RM43.8 billion has been allocated for the oil and gas upstream and downstream activities. This allocation is expected to lead to an increase in demand for oil and gas extraction and production M&E. Existing manufacturers of oil and gas extraction and production M&E such as FMC, Aker Kvaener and Cooper Cameron and local fabrication companies such as KNM Process Systems, Malaysia Shipyard & Engineering, Sime Sembawang and HL Engineering are expected to benefit from these opportunities as well as opportunities from the development of oil and gas industries in other countries in this region.

In recent years, oil and gas exploration has expanded from Malaysia's broad and shallow continental shelf to deepwater prospective areas with water depths of 200 metres or more. These extraction and production activities require radically different M&E which are not only controlled by remote means or umbilical (cables) but are also designed for harsh and extreme environment of high pressure and temperature. In view of this, three of the top five companies in the world in subsea extraction and production equipment technology, namely FMC, Aker Kvaerner and Cooper Cameron have expanded their operations in Malaysia and invested about RM552.5 million to produce these equipment. This will also spur the development of advanced and high precision engineering supporting services.

The country's first deepwater field in Kikeh, Sabah which is the first deep water development of its kind in the Asia Pacific region, will commence production in the fourth quarter of 2007. This is expected to lead to other similar developments in the region. The increasing interest to invest in Malaysia indicates that the country is viewed by global companies as an ideal location for this industry. This augurs well with Malaysia's aim to be the regional hub for oil and gas M&E manufacture as well as fabrication and services such as maintenance, oilfield development and monitoring, inspection and testing.

Currently, there are about 46 companies in operation producing M&E for the agricultural products and processing sector particularly food & beverage industry and rubber & palm oil processing industries. The M&E manufactured include raw rubber processing machinery, latex dipped product manufacturing lines and crude palm oil production and edible oil processing plants.

Malaysia's position as the largest producer

of rubber gloves has led to the development of domestic glove manufacturing technology and has attracted foreign manufacturers to source glove manufacturing plants and equipment from Malaysia. Local M&E manufacturers have developed into providers of turnkey engineering and total solutions for latex dipped products such as gloves, condoms, finger cots and balloons. Leading exporting companies include Kendek Products Sdn. Bhd., Doeka Asia Sdn. Bhd. and Richter Hi-Tech Sdn. Bhd.

Malaysian companies have also developed technical expertise in the manufacture of palm oil and palm kernel oil processing M&E. Muar Ban Lee Engineering Sdn. Bhd. (MBL) and Oiltek Sdn. Bhd. are two Malaysian-owned companies which are world renowned manufacturers of such M&E. MBL supplies equipment and complete press plants which include hammer mills, oil filters, elevators, conveyors, elevating scoops, silos and oil storage tanks for palm kernel and copra processing. Using state-of-the-art technology, these companies design, supply, install and commission the plants for major plantations and oil mills.

The rapid expansion and growing interest in the biodiesel sector has created new business opportunities for companies providing support services such as manufacture of related M&E. Oiltek Sdn. Bhd., known for oil fractionation M&E is one of the local companies which has ventured into biodiesel processing plant design and manufacture.

Exports of the specialised M&E sub-sector totalled RM8.8 billion in 2006 (January-

November) compared with RM8.2 billion for the whole of 2005. Imports totalled RM10.9 billion in 2006 (January-November) compared with RM12.5 billion for the whole of 2005. The high imports indicate significant market opportunities for local manufacturers.

The power generating M&E sub-sector comprises the manufacture of boilers, condensers, electric generating sets, turbines and engines. Currently, there are 25 local manufacturers producing power generation M&E serving both the domestic and export markets. There are 15 manufacturers of industrial boilers and seven companies producing industrial generator sets for use in refineries, oil and gas exploration platforms, petrochemical plants and other commercial operations. In addition, there are three companies which undertake the reconditioning of gas turbines.

Malaysia is a leading manufacturer of industrial boilers in the ASEAN region, catering for various industries such as oil and gas, oleochemical, petrochemical, palm oil, rubber, wood, textile and food & beverage and service related facilities such as hospitals and hotels.

Leading companies in the power generating M&E sub-sector in operation include Tractors Malaysia Sdn. Bhd., UMW Industrial Power Sdn. Bhd., Mechmar Boilers Sdn. Bhd., Vickers Hoskins (M) Sdn. Bhd., Enco Systems Sdn. Bhd. and Transtherm Engineers Sdn. Bhd.

Exports of this sub-sector totalled RM900 million in 2006 (January-November) compared with RM1.8 billion for the

whole of 2005. Imports totalled RM2.7 billion in 2006 (January-November) compared with RM3.9 billion for the whole of 2005.

The metalworking machinery sub-sector can be divided into two main categories, namely metal cutting machine tools and metal forming/shaping machine tools.

Among the M&E manufactured in this subsector are laser cutting machines, machining centres, electro-discharge machines (EDM), milling machines, drilling machines, lathes, shearing machines, bending rolls, stamping machines, press brakes, forging machines and hydraulic and power presses. These M&E are generally used in the engineering supporting industry by the machining, mould and die, stamping, metal fabrication and sheet metalworking companies.

Currently, there are six companies manufacturing metalworking machinery for the automotive, E&E and engineering supporting industries. Most of the metalworking machines produced locally are metal forming/shaping machine tools such as hydraulic and power presses, sheet metalworking machines and press brakes. Leading companies include AIDA Manufacturing Sdn. Bhd., Hydra-Link Engineering Sdn. Bhd., Li Chin (S.E.A.) Sdn. Bhd. and Sunfluid Engineering Sdn. Bhd.

Currently, there is only one manufacturer of Computer Numerical Controlled (CNC) metal cutting machine tools such as milling machines, lathes and machining centres. Exports for this sub-sector totalled RM1.3 billion in 2006 (January-November) compared with RM1.0 billion for the whole of 2005. Imports totalled RM3.8 billion in 2006 (January-November) compared with RM3.4 billion for the whole of 2005.

The general industrial M&E sub-sector covers a broad category of products which include industrial air-conditioning plants and equipment, elevators, cranes, pressure vessels and heat exchangers.

There are 19 companies producing industrial air-conditioning plants, equipment, related modules and parts. Most of the leading international brands such as Carrier, McQuay, Daikin, York, and Trane are produced locally by joint-venture companies or under licence.

In the lifting equipment category, there are 13 companies producing tower cranes, port cranes, overhead travelling cranes and other ancillary equipment, both for the domestic and export markets. Internationally, Malaysia is recognised as a major supplier of high speed heavy lifting tower cranes and pedestal cranes for the oil and gas industry.

A local company, Favelle Favco Bhd, is a leading customised crane manufacturer for the offshore oil and gas, construction and marine industries. Having successfully penetrated markets in USA, Mexico, Azerbaijan and countries around the North Sea over the past five years, the company is now expanding into new markets in Russia, Brazil and the Middle East. Favelle Favco is ranked among the top 10 global suppliers of tower cranes, port/wharf cranes and offshore cranes.

Cheng Hua Engineering Works Sdn. Bhd. is another local company providing total integrated turnkey solutions for material handling systems for all phases of distribution and material flow for the local and export markets. The company's line of products in material handling includes conveyors, lifters, auto-storage retrieval systems, automatic palletisers and depalletisers complete with related software and controllers for all types of products.

Currently, there are more than 85 manufacturers of other general industrial M&E, such as pressure vessels, bulk storage containers, process columns and towers and reactors.

Malaysia is the leading manufacturer in ASEAN for pressure vessels, process equipment and modules for chemical, petrochemical, and oil and gas industries. Leading Malaysian companies in this category which have attained international recognition include Petra Fabricators Sdn. Bhd., Torsco Sdn. Bhd, MKE Engineering Sdn. Bhd., Chip Ngai Engineering Works Sdn. Bhd., Tepat Teknik Sdn. Bhd. and Ikatan Engineering Sdn. Bhd.

Exports of the general industrial M&E subsector totalled RM7.3 billion in 2006 (January-November) compared with RM7.2 billion for the whole of 2005. Imports totalled RM12.2 billion in 2006 (January-November) compared with RM12.6 billion for the whole of 2005.

Graph 36

Imports and Exports of Machinery and Equipment by Sub-Sector, 2006 (January-November)



Although Malaysia continues to depend on imported M&E, especially the very high technology and the low cost M&E, growth of the domestic M&E industry will reduce Malaysia's dependence on imports. Considering the vast opportunities that both local and regional markets offer for the M&E industry, promotional efforts will focus on attracting leading foreign companies in Europe, Japan and USA to set up manufacturing operations and regional distribution centres in Malaysia. Local manufacturers will also be encouraged to intensify their export marketing operations.

Projects Approved in 2006

In 2006, a total of 102 projects with investments of RM1.3 billion were approved in the M&E industry compared with 86 projects (RM1 billion) in 2005. Of the 102 projects approved, 78 projects with investments of RM706.9 million were new projects and 24 projects with investments of RM560.4 million were expansion/diversification projects. Foreign investments accounted for RM656.9 million (51.8%) while domestic investments totalled RM610.3 million (48.2%).

Projects approved in 2006 are expected to generate additional employment opportunities for 4,129 persons with the managerial, technical and supervisory categories representing 55.2 per cent of the total.

Graph 37

Investment in Projects Approved in the Machinery and Equipment Industry by Sub-Sector, 2006



In the specialised machinery sub-sector, a total of 46 projects with investments of RM732.1 million were approved in 2006. These comprised 37 new projects with investments of RM373.4 million and nine expansion/diversification projects with investments of RM358.7 million. Foreign investments amounted to RM453.8 million

(62%) while domestic investments totalled RM278.3 million (38%).

Projects approved in the specialised M&E category comprised:

- fifteen (15) projects for the manufacture of M&E for the E&E industry. These were for the manufacture of ultra pure gas/chemical/water distribution systems and parts for the electronics industry; test and measurement systems; filters and purifiers to prevent liquid and gas micro contamination used for wafer fabrication processes; M&E for the hard disk drive industry; machinery for smart card identification and document industry and machinery for the semiconductor industry such as inspection, laser marking equipment, wafer and back-end semiconductor processing equipment and test handling systems. Of the 15 projects approved, 10 were Malaysian-owned projects, four were foreign-owned and one was a joint-venture;
- eleven (11) projects for the manufacture of M&E for the agro-based industry. These were for the manufacture of machinery and modules for poultry and swine rearing and processing systems; machinery for horticulture activities; oil palm expellers, shredders and press machines; machinery and parts for copra and kernel crushing plants; aquaculture re-circulating systems and modules; and integrated aquatic life support systems, modules and parts. Of the 11 projects approved, eight were Malaysian-owned;

- four projects for the manufacture of M&E for the oil and gas industry. These were for the manufacture of sub-sea oil extraction systems and products which include wellheads, christmas trees, downhole tools and advanced manifolds and system modules for incremental oil and gas field development. Of the four projects approved, two were Malaysianowned;
- three projects for the manufacture of M&E for the textile industry. These were for the manufacture of electronic laser embroidery machines and outdoor graphic inkjet printing machines. All the projects were Malaysian-owned;
- two projects for the manufacture of M&E for the surface engineering industry. These were for the manufacture of electroplating lines and equipment. One project was Malaysian-owned and the other was foreign-owned; and
- eleven (11) projects for the manufacture of M&E for food processing, construction, leather, iron and steel, packaging and bio diesel industries. Of the 11 projects approved, nine were Malaysianowned.

Among the significant projects approved were:

Specialised M&E for E&E Industry

• Entegris (Malaysia) Sdn. Bhd. (RM150 million) - a foreign-owned expansion/ diversification project to manufacture filters and purifiers to prevent liquid and gas micro contamination used for

wafer fabrication processes. The company is one of the global players in the industry;

- Muehlbauer Technologies Sdn. Bhd. (RM63.4 million) - a foreign-owned project to manufacture M&E for the semiconductor industry, smart card identification and document industry, smart label (RFID) industry and carrier tapes for semiconductor industry and precision parts. The company is the world market leader in providing complete turnkey solutions in smart identification industry; and
- Pentamaster Instrumentation Sdn. Bhd. (RM43.5 million) - a Malaysian-owned expansion/diversification project to develop and produce test and measurement systems for E&E industry.

Specialised M&E for Oil and Gas Industry

- Cameron International Systems Sdn. Bhd. (RM70.5 million) - wholly-owned by Cooper Cameron Holding (Cayman) Limited of USA to manufacture, install and commission subsea wellheads, christmas trees, connection systems, manifolds and toolings. The Malaysian manufacturing facility will be the regional production hub for subsea systems for the Cameron Group in Asia; and
- AJ Petroleum Sdn. Bhd. (RM36.1 million) a Malaysian-owned project to manufacture valves, surface wellheads and christmas trees, down hole toolings and equipment for the oil and gas industry.

Specialised M&E for Agro-based Industry

- Grand Inizio Sdn. Bhd. (RM25 million)

 a Malaysian-owned project to develop and manufacture biofuel plants and parts. The company will be involved in planning, designing, installing and commissioning of the plants as well as subsequent plant management and technology transfer to plant owners;
- Khun Heng Works Sdn. Bhd. (RM20.8 million) - a Malaysian-owned project to manufacture expellers, shredders and press machines for the palm oil industry;
- Hired-Hand Technologies Asia Sdn. Bhd. (RM10.7 million) - a joint-venture project to manufacture building systems, modules and parts for poultry and swine rearing and horticulture activity; and
- Euroasia Processing Industries Sdn. Bhd. - a joint-venture project, which will be the first company in Malaysia to manufacture automated machinery for poultry processing.

In the power generating M&E sub-sector, five projects were approved in 2006 with investments of RM34.4 million. Of these, four were new projects with investments of RM10.7 million and one was an expansion/diversification project with investments of RM23.7 million. Domestic investments amounted to RM22.1 million (64.2%) while foreign investments totalled RM12.3 million (35.8%).

A significant project approved was Kematek Energy Sdn. Bhd., a Malaysianowned project to develop and manufacture biomass power plants which utilise bio waste such as wood chips and empty oil palm fruit bunches as a source of energy.

In the metalworking machinery subsector, two new projects were approved in 2006 with investments of RM12.9 million. One of the projects approved was a jointventure, CW-MMT Machine Tools Sdn. Bhd., to manufacture CNC machining centres and parts with an investment of RM8.9 million. The other project was by Milai Holding (M) Sdn. Bhd., a foreignowned company to manufacture drill point grinding machines with an investment of RM3 million.

In the general industrial M&E, parts and components sub-sector, 49 projects were approved in 2006 with investments of RM488.8 million. Of these, 35 projects with investments of RM310.9 million were new projects while 14 projects with investments of RM177.9 million were expansion/diversification projects. Domestic investments amounted to RM305.3 million (62.5%) while foreign investments totalled RM183.5 million (37.5%). Of the 49 projects approved, 32 projects were Malaysian-owned, 14 were foreignowned and three were joint-ventures.

Projects approved in the general M&E, parts and components category comprised:

 ten (10) projects for the manufacture of material handling systems and parts such as elevators, escalators, cranes and electromagnet lifters and telescopic spreaders. These projects involved investments of RM75.7 million;

- eight projects for the manufacture of water treatment systems such as tube well systems, ultra pure water and waste water treatment systems, water filtration systems, water purification and recycling systems. These projects involved investments of RM98.6 million;
- five projects for the service, maintenance and refurbishment of rolling machines, motors, generators, transformers, gas turbines and tape and reel machines. These projects involved investments of RM42.3 million;
- fourteen (14) projects for the manufacture of thermoplastic coating equipment, vending machines, air purifiers, dryers, racking systems, fire suppression systems, nitrogen gas separators, steam reduction systems, passenger boarding bridges, aircraft parking guide systems and aircraft maintenance docking systems. These projects involved investments of RM90.7 million; and
- twelve (12) projects for the manufacture of modules, parts and components of M&E such as SCADA controllers, rolling bearings and rollers, printing plates, parts for printing machines, valves and centrifugal pumps. These projects involved investments of RM 164.6 million.

Significant projects approved were:

- Favelle Favco Cranes (M) Sdn. Bhd. (RM37.5 million) - a Malaysian-owned expansion/diversification project to manufacture offshore pedestal cranes, portal/whaft cranes, crawler cranes, tower cranes, ship derricks cranes and overhead travelling cranes;
- Konzen Environment Sdn. Bhd. (RM33.4 million) - a Malaysian-owned project to manufacture ultra pure water and waste water treatment plants and parts; and
- Muhibbah Airline Support Industries Sdn. Bhd. (RM30.6 million) - a Malaysianowned project to manufacture passenger boarding bridges, aircraft parking guide systems and aircraft maintenance docking systems. This company offers comprehensive aircraft maintenance docking solutions for fleet operators worldwide.

Investments in the M&E manufacturing sector continued on an increasing trend over the last three years. The specialised high technology M&E sub-sector was of particular interest to investors with investments increasing from RM676.1 million in 2005 to RM732.1 million in 2006.

Malaysia has attracted three of the top five global manufacturers of M&E for the oil and gas industry, namely FMC, Aker Kvaerner and Cooper Cameron to locate the manufacture of their subsea production M&E in Malaysia. The increasing interest to invest in the country clearly indicates that Malaysia is a suitable location for such activities. This will further strengthen Malaysia's capabilities to support the oil and gas industry in Malaysia and the region.

Malaysia's capabilities in R&D, D&D, system integration and the fabrication of quality parts, components and modules, are major factors influencing investors' decision to invest in Malaysia. Strong Intellectual Property Protection laws are also an added factor influencing foreign manufacturers of M&E to locate their operations in Malaysia in preference to other fast emerging Asian economies.

The Government's attractive incentives in the form of 10-year Pioneer Status and 100% Investment Tax Allowance with full tax exemption introduced in 2002 and 2003 for the manufacture of selected high value-added and high technology M&E, have also contributed to the increasing investments in the M&E industry. Products eligible for these incentives include machine tools, plastic injection machines, material handling equipment, robotics and factory automation equipment, specialised/process M&E for specific industries, packaging machines, plastic extrusion machines and parts and components of these M&E.

In the IMP3, six strategic thrusts have been identified for the further development of the industry:

• Promoting Malaysia as a regional production, trading and distribution centre for M&E;

- Intensifying the development and promotion of selected specialised and high technology M&E;
- Strengthening the engineering supporting industries and support services;
- Developing Malaysian Standards for M&E;
- Developing sufficient highly skilled workforce; and
- Strengthening the institutional support for the further development of the industry

The future development of the M&E industry in Malaysia will be driven by technological advances, process specialisation and customer requirements for shorter throughput times, faster delivery and lower costs. These demands will compel manufacturers to leverage upon their strengths in core activities, such as R&D, D&D, software development, system integration, assembly, testing and calibration as well as focus on product quality.

The manufacture of parts and components, and modules which are more capitalintensive will need to be outsourced to keep costs low. Increases in demand and costs of production will necessitate further outsourcing of assembly, and testing and calibration operations by OEM) companies.

To benefit from this, the engineering supporting industry will need to enhance and modify its production capabilities to cater for the supply of low volume, high value-added and high precision parts, components and modules for the M&E industry. In the IMP3, development and promotion activities will focus on metalworking machine tools, material handling equipment, robotic and factory automation equipment, specialised/process machinery or equipment for specific industries, packaging machinery and fuel cell power generators for stationary domestic applications.

ENGINEERING SUPPORTING INDUSTRY

The engineering supporting industry which comprises the mould and die, metal casting, machining, metal stamping, surface engineering, and metal fabrication sub-sectors, assumes an important role in the industrial development of the country. Malaysian companies have achieved international recognition in terms of capability and quality in a diverse range of activities in these sub-sectors.

The industry has grown in tandem with the growth of resource-based, telecommunications, E&E and automotive industries. The industry is diversifying and moving towards developing and producing modular components, sub-assemblies and providing total solutions to the requirements of high value-added and high technology industries such as the high-end E&E, automotive, medical equipment and devices, M&E, oil and gas, measuring and laboratory equipment and aerospace industries.

During the IMP3 period, the industry is expected to expand further by strengthening its services, capability and quality of production to become a significant contributor to the global outsourcing market.

Malaysia's mould and die industry has the capability to manufacture most types of moulds, dies and toolings to meet the requirements of the manufacturing sector. The bulk of current production is limited to the manufacture of medium range moulds and dies for the electronics and semiconductor industry, and moulds weighing less than 10 tonnes for the automotive and plastic industries. Presently, about 20 per cent of the manufacturers are capable of producing some high precision and complex as well as large moulds and dies.

The industry is moving towards advanced manufacturing technologies to meet miniaturisation of products by the E&E and telecommunications industries and supply large moulds required by the automotive industry. There are 400 companies in operation which supply their products to MNCs operating in Malaysia and overseas.

Leading companies in this industry include LKT Precision Engineering Sdn. Bhd., Sun Tong Seng Mould-Tech Sdn. Bhd., D-R Engineering Sdn. Bhd., Kobay Technology Sdn. Bhd., Microlead Precision Technology Sdn. Bhd., HH Precision Mould Sdn. Bhd., Impressive Edge Sdn. Bhd., and Sum Hing Works Engineering Sdn. Bhd.

Malaysia's exports of moulds and dies in 2006 (January-November) amounted to RM231.7 million. Export destinations

included Japan, People's Republic of China, Singapore, Indonesia and Taiwan.

Imports of moulds and dies amounted to RM764.6 million in 2006 (January-November) compared with RM946.4 million in 2005. Imports were mainly from Japan, Taiwan, Germany, Singapore, People's Republic of China and Republic of Korea. These imports were mainly for high precision and complex toolings such as progressive dies for lead frame stamping for the E&E industry, and large moulds and dies used in the manufacture of body panels, bumpers and dashboards for the automotive industry.

The machining industry in Malaysia is a total solution provider for all the machining needs of the country, with most companies employing state-of-the-art CNC machine tools in their operations. Many of these services have undergone significant improvements in terms of capabilities and quality. A number of companies have diversified into design and manufacture of automation systems and equipment particularly for the E&E industry.

There are about 170 companies in operation, providing machined parts and components and machining services to the E&E, automotive, M&E, medical and healthcare, aerospace and telecommunications industries. Companies in the machining industry not only serve MNCs in Malaysia but also export their services to MNCs in Singapore, Japan, USA, UK, France, the Philippines, Thailand, Hong Kong and Indonesia.

UPECA Engineering Sdn. Bhd., Eng Technology Sdn. Bhd., Paradigm Precision Components Sdn. Bhd. and Alpha Master Sdn. Bhd. are leading Malaysian high precision turnkey manufacturing partners to high technology industries globally. They have embarked on cross border investments with manufacturing facilities in Thailand, Viet Nam and People's Republic of China. These companies are well equipped with high precision M&E including surface treatment and heat treatment facilities and are, capable of offering integrated services from product conception to production and management of entire processes.

Other leading companies in the industry include Alpha Precision Turning Sdn. Bhd., UWC Holdings Sdn. Bhd., TNH Engineering Sdn. Bhd., Synturn (M) Sdn. Bhd., Swissmatic Precision Engineering (M) Sdn. Bhd., Ohta Precision (M) Sdn. Bhd. and Atasmi Precision Machinist Sdn. Bhd.

The metal stamping industry is wellestablished in Malaysia with about 300 companies in operation supplying stamped/pressed parts to a wide range of industries, including E&E, automotive, industrial M&E, precision measuring and testing equipment.

The industry is rapidly expanding into high speed stamping and fine blanking, including the manufacture of higher precision and miniaturised parts to serve the various market needs of MNCs operating in Malaysia. Malaysia also exports stamped parts and sub-assembly products to ASEAN, the Middle East, UK, France, Chile and Brazil. Kein Hing International Bhd, AE Technology Sdn. Bhd. and Wong Engineering Bhd. are Malaysian-owned engineering supporting companies which have developed into fully integrated manufacturing facilities undertaking designing, mould making, sheet metal forming and stamping, as well as precision machining and components assembly. These companies are expected to become global suppliers and total solution providers.

Leading companies in this industry are on an expansion drive to increase their cross border investments in Viet Nam, People's Republic of China and Thailand to lower their production costs as well as to serve the MNCs operating in these countries.

Other leading companies in this industry include Tohoku-Wada Sdn. Bhd., VSP Technology Sdn. Bhd., Cybron TL Manufacturing Sdn. Bhd. and Kobakin (M) Sdn. Bhd.

The surface engineering industry covers a wide range of activities such as batch and continuous electroplating, electroless plating, phosphating, passivation, anodising, chromating and sinter plating. It employs a wide range of technologies designed to modify the surface properties of metallic and non-metallic components for specific and sometimes unique engineering purposes. The industry is presently focussing on establishing modern plating plants with state-of-the-art equipment and technology for high precision surface treatment and coating for the E&E, medical and aerospace industries.

Currently, there are about 40 companies

in operation in this industry. The majority of these companies are foreign-owned. Foreign investments are mainly from Japan, Taiwan and Singapore. Leading companies in operation include Malaysian Halotech Sdn. Bhd., Kobe Precision Technology Sdn. Bhd., Abric Micromechanics Sdn. Bhd., SII Ishizaki (Melaka) Sdn. Bhd., AKN Technology Bhd., Metek Kitamura (M) Sdn. Bhd., Dipsol Chemicals (M) Sdn. Bhd., Ueda Plating (Malaysia) Sdn. Bhd. and Metal Polishing Industries Sdn. Bhd. Most of these companies are currently servicing MNCs.

Current trends in surface engineering technologies involve moving from aesthetic purposes to surface modification needed in high-end industries such as aerospace and medical industries. Latest technologies in surface engineering include physical and chemical vapour deposition and sputtering. These technologies enable both conductive and insulating materials to be coated onto any type of substrates such as metals, ceramics, and heat-sensitive plastics. The services are applicable to hard disk manufacturing, computer and video displays, flat display panels, thin and hard coating of cutting tools and anti-reflective/ anti-glare coatings for automotive and glass industries.

The metal casting industry in Malaysia can be divided into five main areas namely foundries, die casting, investment casting, powder metallurgy and magnesium injection moulding (thixomoulding[©]):

• Foundries in Malaysia are upgrading their facilities and capabilities to meet the stringent demands of the M&E industry. Some of the more advanced foundries have automated casting facilities and are producing castings to international standards for the export market. Currently, there are about 70 companies in operation. Malaysian-owned SMIs dominate the industry and are exporting their products to Australia, Japan, Singapore, Germany, UK, Egypt and Oman.

MMC Metal Industries Sdn. Bhd. (formerly known as Bradken Malaysia), is a leading Malaysian integrated alloy steel foundry in the South East Asia region. It has complete in-house facilities from pattern making to heat treatment and quality assurance throughout the manufacturing process.

MMC supplies wear-resistant, high temperature, corrosive-resistant and high precision castings to the railway, mining, quarrying, cement, construction, oil and gas, marine and general engineering industries. The company exports mainly to Australia, Germany, Canada, Japan, South America, Singapore, India, Thailand and Indonesia.

Other leading companies in operation include Anshin Casting Sdn. Bhd., Yuen Lee Casting Sdn. Bhd., MMI Industries Sdn. Bhd., Yoonsteel (M) Sdn. Bhd., Lestari Casting Sdn. Bhd., Swanmet (M) Sdn. Bhd. and Metalock Castings Sdn. Bhd.

• The die-casting industry has developed and acquired the necessary know-how and production capabilities to produce high quality die-cast components. The development of the domestic automotive industry and the increasing demand for automotive and motorcycle die-cast parts have increased the demand for die-cast components. There are about 60 companies in operation producing precision die-cast parts for the E&E, automotive and general hardware industries. Export markets include the Netherlands, Singapore, USA, UK, Australia, Germany, Thailand and Indonesia.

ZincAlu Casting Sdn. Bhd. manufactures over 200 types of aluminium alloy high pressure die-castings, aluminium alloy low porosity die-castings and zinc alloy die-castings for the automotive, E&E and office furniture industries. With technical collaboration from Japan, the company has successfully developed a casting method which is excellent for leak and porositysensitive applications. The company is capable of producing critical automotive cast parts such as steering components, pumps and compressors, pistons con rods, motorcycle crankcases and cyclinders.

Other leading companies in operation include Hicom Die Casting Sdn. Bhd., Diayo Die-Casting Sdn. Bhd., Dynacast (Melaka) Sdn. Bhd., Swanmet (M) Sdn. Bhd., Wincast Precision Engineering Sdn. Bhd., Asahi Kosei (M) Sdn. Bhd., Kawamura (M) Sdn. Bhd., Nakazawa Die Casting (M) Sdn. Bhd. and Sumber Terang Sdn. Bhd.

• Investment casting technology is fast becoming the preferred technique for

complex castings. This technology successfully produces parts of a wide range of metal alloys with accurate dimensional tolerances and complex shapes. Industries such as aerospace, automotive, defence, medical and machinery rely on this technology for some of their components.

There are currently four companies in Malaysia capable of producing investment castings. They are MMI Precision Sdn. Bhd., Nostalgia Investment Casting Sdn. Bhd., Rigel Metalcraft (M) Sdn. Bhd. and Swanmet (M) Sdn. Bhd.

- Powder metallurgy industry in Malaysia uses leading edge manufacturing processes to produce high performance metal components from metal powders. It facilitates the manufacture of complex or unique shapes of metal which are impractical or impossible to manufacture with other metalworking processes. As a result of its versatility, powder metal technology continues to be adopted by industries to cater for their needs. There are three companies in operation in this industry serving the E&E, automotive and machinery industries. They are Sumitomo Electric Sintered Components (M) Sdn. Bhd., Diamet Klang (M) Sdn. Bhd. and Porite (Malaysia) Sdn. Bhd. These companies export to Japan, USA, Singapore and People's Republic of China.
- Magnesium injection moulding (thixomoulding[®]) is a revolutionary semisolid process for high speed injection moulding of net-shaped magnesium alloy parts. It is regarded as the most

advanced method of fabricating high quality, high strength, complex and light weight magnesium alloy parts and components to precision tolerances. These parts and components are usually for aesthetic, structural and functional uses for the electronics, telecommunications and automotive industries.

AB Technology is the only local company which through its R&D, has successfully integrated the thixomoulding[®] technology into its one-stop process centre to produce magnesium alloy parts and components.

There are about 20 companies in operation in the heat treatment industry. Expansion of the mould and die, automotive and M&E industries and production of downstream iron and steel products offer good prospects for the growth of heat treatment services. A few of these companies have attained internationally accepted quality standards. Malaysia can offer heat treatment services in carburizing, carbonitriding, nitriding, nitro-carburizing, vacuum hardening, quenching, annealing, normalising and tempering for a diverse range of iron and steel products.

A local company, Micromagna Engineering Sdn. Bhd., has invested in nitriding furnaces to provide ammonia nitriding heat treatment services to industries such as plastic and rubber processing, oil and gas, aerospace, shipbuilding and cement.

Other leading companies in this industry include Tohken (M) Sdn. Bhd., Umetoku (M) Sdn. Bhd., Belton Oriental Heat Treatment Sdn. Bhd., Yongshen Sdn. Bhd., Yeh Chang Heat Treatment Sdn. Bhd., Vital Scale Sdn. Bhd. and Upsilon Heat Treatment Services Sdn. Bhd.

Projects Approved in 2006

A total of 105 projects were approved in the engineering supporting industry in 2006 involving investments of RM1.1 billion compared with 94 projects (RM598.4 million) in 2005. Of these, 75 were new projects with investments of RM786.2 million and 30 were expansion/ diversification projects with investments of RM358.6 million. Domestic investments amounted to RM556.3 million (48.6%) and foreign investments totalled RM588.5 million (51.4%). Projects approved in 2006 are expected to generate additional employment opportunities for 5,564 persons with the managerial, technical and supervisory categories representing 37 per cent of the total.

Graph 38

Investments in Projects Approved in the Engineering Supporting Industry by Sub-Sector, 2006



In the mould and die industry, 42 projects with investments of RM522.4 million were approved in 2006. These comprised 29 new projects with investments of RM463.2 million and 13 expansion/ diversification projects involving investments of RM59.2 million. Domestic investments amounted to RM282.8 million (54.1%) while foreign investments totalled RM239.6 million (45.9%). A total of 32 projects approved were Malaysian-owned, of which 27 were new projects and five were expansion/diversification projects.

Significant projects approved included:

- Euromould Sdn. Bhd. (RM352.5 million)

 a subsidiary of Simoldes Group of Portugal, one of the largest automotive mould makers in Europe. The plant will be equipped with advanced and high technology facilities and an R&D centre and will produce large plastic injection moulds of 10 – 100 tonnes in weight. This facility will be the production hub for Asia and will also support European automotive manufacturers such as Volkswagen, BMW, Volvo, Audi, Peugeot and Renault;
- Micro Carbide Engineering Sdn. Bhd. (RM24.4 million) - a Malaysian-owned project to manufacture mould and die parts, machinery parts, jigs and fixtures to serve MNCs in the semiconductor, opto-electronics, connectors and medical industries;
- BTS Tools Manufacturing (M) Sdn. Bhd. (RM17.1 million) - a Malaysian-owned project to manufacture cutting tools for

the automotive, hard disk drive and aerospace industries including regrinding of parts for the aerospace industry;

- Sunking Metal Works Corporation Sdn. Bhd. (RM7.7 million) - a Malaysianowned project to manufacture injection moulds for plastic packaging products;
- Microlead Precision Technology Sdn. Bhd. (RM7.2 million) - a Malaysianowned expansion project to manufacture moulds, tools, dies, jigs, fixtures, suspension toolings and progressive toolings for the semiconductor industry; and
- Entegris (Malaysia) Sdn. Bhd. (RM6 million) a foreign-owned expansion/ diversification project to manufacture moulds and parts for the electronics industry.

In the machining industry, 23 projects with investments of RM87.6 million were approved in 2006. These comprised 20 new projects with investments of RM56.4 million and three expansion/diversification projects with investments of RM31.2 million. Domestic investments totalled RM52.5 million (59.9%), while foreign investments amounted to RM35.1 million (40.1%). Of the projects approved, 20 projects were Malaysianowned. These included 17 new projects and three expansion/diversification projects.

Significant projects approved included:

• Joonhee Micron Sdn. Bhd. (RM20.3 million) - a Malaysian-owned expansion project to manufacture machined parts

and sub-assembled parts for the E&E industry; and

• Iris Selatan Sdn. Bhd. (RM6 million) - a foreign-owned project to manufacture machined parts for the oil and gas industry.

In the metal stamping industry, 18 projects with investments of RM115.6 million were approved in 2006. These comprised 12 new projects with investments of RM84.8 million and six expansion/ diversification projects with investments of RM30.8 million. Domestic investments amounted to RM49.8 million (43.1%) while foreign investments totalled RM65.8 million (56.9%). Of the projects approved, eight were Malaysian-owned projects comprising five new projects and three expansion/diversification projects.

Significant projects approved included:

- E&W Engineering Sdn. Bhd. (RM20 million) a Malaysian-owned project to manufacture stamped parts for the automotive and E&E industries. This is an integrated project which includes design and fabrication of precision tools and progressive die parts; and
- Seik Lam Components Industries Sdn. Bhd. (RM13.1 million) - a Malaysianowned project to manufacture precision stamped parts and machined parts such as switchgear components, parts/ components for M&E, engineering parts and stationery items. The company will have its own in-house tool room facilities to fabricate stamping dies.

In the surface engineering industry, 12 projects with investments of RM247.2 million were approved in 2006. These comprised nine new projects with investments of RM32.0 million and three expansion/diversification projects with investments of RM215.2 million. Domestic investments amounted to RM46.0 million (18.6%) while foreign investments totalled RM201.2 million (81.4%). Of the projects approved, six were Malaysian-owned projects. These included five new projects and one expansion/diversification project.

Significant projects approved were:

- Kobe Precision Technology Sdn. Bhd. (RM178 million) - a foreign-owned expansion project undertaking grinding and polishing of disk blanks for the hard disk drive media industry; and
- Abric Micromechanics Sdn. Bhd. (RM36 million) a Malaysian-owned expansion project to undertake electroplating and electroless plating and heat treatment activities for the E&E industry.

In the metal casting industry, eight projects with investments of RM164.7 million were approved in 2006. Of these, three were new projects with investments of RM142.5 million and five were expansion/ diversification projects with investments of RM22.2 million. Domestic investments amounted to RM120.6 million (73.2%) while foreign investments totalled RM44.1 million (26.8%). Five of the approved projects were Malaysian-owned. These included two new projects and three expansion/diversification projects. Significant projects approved included:

- MG Mutiara (M) Sdn. Bhd. (RM52.2 million) a Malaysian-owned project to manufacture magnesium injection moulded parts and chassis used in telecommunications devices, consumer electronics, medical and industrial scanners, computer and peripherals, office equipment and bicycle and automotive parts. The company will be the second company with thixomoulding[®] facilities in the country; and
- Swanmet (M) Sdn. Bhd. (RM16 million) a foreign-owned expansion/diversification project to manufacture ferrous and non-ferrous castings in a new location in Melaka.

In the heat treatment industry, two projects with investments of RM7.3 million were approved in 2006. One was a foreign-owned project (RM4.0 million) while the other was a Malaysian-owned project (RM3.3 million).

Investments in the engineering supporting industry increased significantly in 2006 with most of the investments being in new projects. Foreign investments in this industry more than doubled in 2006, reflecting confidence in Malaysia's high level of supporting technology capabilities. These investments will cater for the advanced requirements of high valueadded and high technology industries such as automotive, E&E, aerospace and medical equipment and devices.

Several leading companies in the

engineering supporting industry have undertaken cross border investments in Viet Nam, People's Republic of China and Thailand to lower their production costs as well as to serve the MNCs operating in these countries. In order to integrate into the regional production network of MNCs operating in Malaysia, Malaysian companies would need to provide consistent quality products with advanced facilities and adequate skilled manpower. In the global scenario, OEMs are increasingly outsourcing their requirements (except for a few key processes) to improve efficiency and reduce costs. In addition, the general trend is to decrease the supplier base so as to reduce supply chain management costs. This will necessitate key suppliers to become total solution providers or global suppliers by pooling the resources of smaller speciality suppliers to provide complete solutions to OEMs.

In response to this, Malaysia is presently encouraging companies to position themselves to become 'one-stop centres' providing total solutions to customers. These 'one-stop centres' would offer integrated services from product conception to production and manage the entire processes including logistics, packaging, testing and certification.

Malaysia will continue to intensify the development and promotion of the engineering supporting industry and support services. Challenges faced by the industry include international certification for supply of parts and components for the aerospace, medical and defence industries. The industry will continue to strengthen its services, capability and quality of products to achieve the country's vision to be a global outsourcing centre.

BASIC METAL PRODUCTS

The basic metal products industry covers primary processing and downstream manufacturing of ferrous (iron and steel) and non-ferrous (aluminium, tin, copper, zinc, lead, etc.) metal products. The industry can be categorised into two main sub-sectors, namely:

- long products comprising billets, blooms, sections, bars, wire rods and downstream wire products, such as wire mesh, hard drawn wire, bolts, nuts and nails; and
- flat products comprising hot rolled coils, plates and sheets, cold rolled coils and sheets and downstream products, such as pipes, galvanised coils, tin plate and fabricated products.

There are currently 390 companies in operation with investments of RM22.9 billion and employment of 42,600 workers. A wide range of ferrous and non-ferrous products are produced including primary steel products [direct reduced iron (DRI), hot briquetted iron (HBI), billets and blooms], rolling/finished products (bars, wire rods, sections, hot rolled coils, plates and sheets, cold-rolled coils), secondary long products (wire and wire products) and secondary flat products (pipes and pipe fittings, tinplate), aluminium sheets/foils, aluminium finstock, aluminium ingots (recycled), aluminium rods, aluminium extruded profiles, copper rods/wires, copper strips, copper tubes/ extrusions and tin.

In 2006 (January-November), sales of iron and steel products amounted to RM19.4 billion while sales of non-ferrous metal products amounted to RM6.2 billion. In 2005, sales of iron and steel products were valued at RM21 billion while sales of non-ferrous metal products were valued at RM5.4 billion.

Exports of iron and steel products amounted to RM8.5 billion while exports of nonferrous products amounted RM6.2 billion in 2006 (January-November). In 2005, exports of iron and steel products and nonferrous products amounted to RM6.9 billion and RM5.3 billion respectively.

The industry is dominated by iron and steel products such as long products (steel bars and wire rods) and flat products (hot rolled coils, cold rolled coils, coated steel and steel pipes). The main raw materials for steel making are scrap metal, DRI and HBI.

Graph 39





Malaysia's steel consumption decreased by 8.5 per cent from 7.78 million tonnes in 2004 to 7.12 million tonnes in 2005. However, with the implementation of projects under the Ninth Malaysia Plan, and the forecast of 6.0 per cent economic growth in 2006, steel consumption is projected to grow further.

Flat products constituted 52.1 per cent (3.7 million tonnes) of the steel consumption, and long products accounted for 47.9 per cent (3.42 million tonnes). Steel bars and wire rods together constituted 37.8 per cent, followed by hot rolled coils (23.8%), cold rolled coils (11.2%), steel sections (10.2%), coated steel sheets (6.0%) and steel plates (5.5%).

Graph 40





ASEAN's steel consumption totalled 40.08 million tonnes in 2005. Thailand has the largest steel consumption at 14.14 million tonnes (35.3%), followed by Indonesia at 7.23 million tonnes (18%), Malaysia at

7.1 million tonnes (17.7%), Viet Nam at 6.4 million tonnes (16%), Philippines at 2.68 million tonnes (6.7%) and Singapore at 2.53 million tonnes (6.3%).

With the implementation of AFTA, import duties on iron and steel products have been reduced to 0 - 5% for Malaysia. ASEAN's current apparent steel consumption of 40.08 million tonnes is expected to reach 50 million tonnes by 2010 as the region continues to develop.

Graph 41

ASEAN Steel Consumption by Major Country, 2005



Singapore has the largest per capita steel consumption of 584 kg among ASEAN countries, followed by Malaysia at 288 kg/capita, Thailand at 218 kg/capita, Viet Nam at 75 kg/capita, Indonesia at 31 kg/capita and the Philippines at 30 kg/capita. The ASEAN average per capita steel consumption is 79 kg.

Graph 42

ASEAN Steel Consumption Per Capita, 2005



The global iron and steel industry had witnessed strong growth since 2001. The price of hot rolled coil rose from a low of US\$250/tonne in 2001 to a historical high of US\$800/tonne in 2004. In tandem with this trend, the world's crude steel production increased from 850 million tonnes in 2001 to reach the one billion tonne mark for the first time in 2004. Hot rolled coil price in the fourth quarter of 2006 averaged US\$450/tonne.

The International Iron and Steel Institute, Belgium has announced a strong year for the world steel industry with crude steel output reaching 1.24 billion tonnes in 2006, an increase of 8.8 per cent from 2005. The fastest growth in the iron and steel industry was in People's Republic of China with a growth rate of 17.7 per cent and India with a growth rate of 7.6 per cent. In 2006, People's Republic of China ranked number one in terms of steel output at 418 million tonnes, and accounted for 33.8 per cent of world steel output. Given this situation, the development of the iron and steel industry in People's Republic of China would have significant bearing on international steel prices and supply of raw and finished steel materials.

The Malaysian iron and steel industry is basically steel scrap-based. As such, it is affected by the supply and price of steel scrap. Due to the increasing demand of the global steel industry in the past few years, steel scrap price had surged from a low of US\$100/tonne in 2001 to a peak of US\$350/tonne in 2004. Steel scrap price averaged US\$300/tonne in 2006. This had contributed to the higher production cost in the local steel industry and the increasing scarcity of supply of scrap. Currently, 70 per cent (3.5 million tonnes) of scrap for the steel industry is imported, mainly from USA, while 30 per cent (1.5 million tonnes) is from local supply.

The high price of local steel, especially flat products such as hot rolled coils, cold rolled coils and coated steel had affected the competitiveness of downstream manufacturing industries such as steel pipes and tubes, steel furniture and steel fabricated products especially for the export markets.

Some notable projects implemented or under implementation in 2006 were:

• a new DRI project by Lion DRI Sdn. Bhd. with an investment of RM853 million;

- an expansion project by Mycron Steel CRC Sdn. Bhd. with an investment of RM200 million to produce higher grade cold rolled coils;
- an expansion project by Alpine Pipe Manufacturing Sdn. Bhd. with an investment of RM161 million to manufacture steel pipes and hollow sections. The project will utilise stateof-the-art Electrical Resistance Weld Finite Element Method Technology, currently available only in Japan. Products of this project are suitable for structural applications and applications requiring American Petroleum Institute (API) standard;
- a new project by Oriental SP Steel Works Sdn. Bhd. with an investment of RM96.5 million to manufacture heavy gauge cold formed steel sections/ profiles. This project is the first of its kind and is a joint-venture with Arcelor-Mittal, currently the world's largest steel producer;
- an expansion project by Ornasteel Enterprise Corporation Sdn. Bhd. with an investment of RM90 million to produce higher grade cold rolled coils; and
- a new project by Diehl Metall Malaysia Sdn. Bhd., with an investment of RM25 million to manufacture dual gauge slitted copper and copper alloy strips. This wholly foreign-owned project, approved in 2006, employs state-ofthe-art Continuous Hammering Technology which presently is only available in Europe.

Projects Approved in 2006

In 2006, a total of 30 projects were approved in the basic metal products industry with investments of RM2.7 billion compared with 47 projects in 2005 with investments of RM3.2 billion. Twenty (20) of the projects were new projects with investments of RM2.4 billion and 10 were expansion/diversification projects with investments of RM265.3 million. Of the investments in the projects approved, RM2.3 billion or 84 per cent was foreign investments while RM436 million was domestic investments.

Of the 30 projects approved:

- thirteen (13) were for the manufacture of basic iron and steel products with investments of RM2.3 billion;
- thirteen (13) were for the manufacture of non-ferrous metal products with investments of RM270.3 million; and
- four were for recycling of metal waste and scrap with investments of RM91.6 million.

In terms of ownership, 11 projects were wholly or majority foreign-owned. Investments in these projects totalled RM2.3 billion. The remaining 19 projects were either wholly Malaysian-owned or majority Malaysian-owned with investments of RM410.3 million.

Major projects approved included:

• a new wholly foreign-owned project by Grange Developments Sdn. Bhd. with

an investment of RM2.1 billion to produce iron ore pellets. This is the first project of its kind in Malaysia. The project is owned by Grange Resources Limited which is listed on the Australian Stock Exchange;

- a new majority foreign-owned project by Metalysis Malaysia Sdn. Bhd. with an investment of RM60 million to manufacture super capacitor grade tantalum powder;
- a wholly Malaysian-owned project by Ta Zheng Steel Industry Sdn. Bhd. to manufacture electro-galvanised steel coils with an investment of RM55.7 million; and
- a new majority foreign-owned project by Diehl Metall Malaysia Sdn. Bhd. with an investment of RM25 million to manufacture dual gauge slitted copper and copper alloy strips.

The recent downturn in the construction industry has affected the iron and steel industry through contraction in demand for steel products, especially construction bars and rods. Excess installed capacities, coupled with very competitive international prices for steel products and high raw material prices as well as rising exports by People's Republic of China, have aggravated the problems faced by the industry. However, with the implementation of projects under the Ninth Malaysia Plan (2006-2010), the outlook for the iron and steel industry is expected to improve.

Notwithstanding this, the Malaysian iron and steel industry would need to take

cognizance of its capability to export and compete internationally. Towards this end, the IMP3 had identified six strategic thrusts to further enhance the development of the iron and steel industry:

- Enhancing the competitiveness of the iron and steel industry to support the growth of the manufacturing and construction sectors;
- Sustaining and expanding the export of iron and steel products for existing and new markets;
- Promoting new applications of steel in selected industries;
- Encouraging collaboration between producers and users of steel, and upstream and downstream manufacturers;
- Attracting new investments in niche areas in the iron and steel industry; and
- Developing a skilled and qualified workforce for the iron and steel industry.

The Malaysian steel industry would need to venture into new product areas such as seamless steel pipes, high pressure reinforced hose wires, structural hollow sections, steel tyre cords, fine steel wire, oil and gas pipes, cold formed heavy gauge sections and stainless steel coils which have export potential. However, costs of raw materials and energy will continue to represent a major challenge for the steel industry.

FABRICATED METAL PRODUCTS

Metal fabrication activities can be classified into four categories:

- fabrication for offshore/onshore oil and gas industry;
- building and civil construction fabrication;
- processing and manufacturing plant fabrication; and
- industrial M&E structures and component fabrication.

Other activities include the manufacture of tanks, drums, metal boxes, tin cans, metal furniture and fixtures, wire and wire products, non-ferrous metal products and household wares.

According to DOS, there are currently more than 2,200 companies in operation in the fabricated metal products industry. The industry is dominated by SMIs, which undertake simple metal fabrication operations. The industry at present employs more than 70,000 workers and has an annual gross output of RM13 billion.

Malaysian companies have developed world class capabilities in a diverse range of metal fabrication activites. KNM is a home-grown Malaysian company and is Malaysia's leading process equipment manufacturer for the oil and gas, petrochemical and mineral processing industries. Kencana HL Engineering Sdn. Bhd. is one of the major fabrication yards in Malaysia. The company has evolved and developed into an integrated engineering concern that specialises in both upstream and downstream activities for the oil and gas industry.

Other leading companies in the fabricated metal products industry include Torsco Berhad, Ikatan Engineering Sdn. Bhd, Malaysia Shipyard and Engineering Sdn. Bhd., Petra Fabricators Sdn. Bhd. and Shin Eversendai Engineering Sdn. Bhd.

Projects Approved in 2006

In 2006, a total of 18 projects were approved for the manufacture of fabricated metal products with investments of RM180.9 million compared with 21 projects (RM160.4 million) in 2005. Domestic investments amounted to RM153.1 million (84.6%), while foreign investments totalled RM27.8 million (15.4%). Of the 18 projects, 13 were new projects with investments of RM62.8 million and five with investments of RM118.1 million were expansion/ diversification projects. Twelve (12) of the approved projects were Malaysian-owned. These included 10 new projects and two expansion/diversification projects. Projects approved in 2006 are expected to generate additional employment opportunities for 1,050 persons with the managerial, technical and supervisory categories representing 22.7 per cent of the total.

Significant projects approved included:

- Muhibbah Marine Engineering Sdn. Bhd. (RM82 million) - a Malaysian-owned project to manufacture platforms and jackets for the oil and gas industry for both the domestic and export markets; and
- Aik Joo Can Factory Sdn. Bhd. (RM29.7 million) a foreign-owned expansion project to manufacture tin cans and parts.

The prospects for this industry are mainly in the sourcing of jobs outside Malaysia, especially in ASEAN, the Middle East and Africa. Several local fabricators have gained international recognition in this industry. There are also opportunities in cross border investments for Malaysian companies to export their technology and project management skills to developing economies.

TEXTILES AND TEXTILE PRODUCTS

The textiles and textile products industry comprises four sub-sectors, namely primary textiles which cover activities such as polymerisation, spinning, weaving, knitting and wet processing; made-up garments; made-up textiles; and textile accessories.

Currently, there are 646 licensed companies in operation with investments of RM8.1 billion, of which:

• three companies are producing polyester staple fibre;

- nine companies are producing yarn;
- thirteen (13) companies are producing woven fabrics, of which nine are for made-up garments and household products; three are for car seat cover and upholstery; and one for woven geo-textile fabrics;
- one hundred and twenty (120) companies are producing knitted fabrics, largely involved in circular knitting;
- seven companies are producing nonwoven fabrics, of which five are for disposable diapers, interlining and personal care products, while two companies are producing non-woven geo-textile fabrics;
- thirty-five (35) companies are undertaking wet processing activities such as bleaching, dyeing, printing and finishing of yarn and fabrics;
- thirty-five (35) companies are producing various types of made-up textile products such as bed linen, table linen, ropes and carpet;
- twenty-four (24) companies are producing a wide range of textile accessories such as zip fasteners, sewing thread, drawstring, elastic webbing and labels; and
- four hundred (400) companies are producing made-up garments.

The textiles industry continues to make significant contributions to exports and employment. In 2006 (January-November), the textiles and textile products industry was the seventh largest export earner, contributing RM9.7 billion or approximately two per cent of total exports of manufactured goods. In 2005, exports of textiles and textile products amounted to RM10.3 billion. The abolishment of textile quotas in January 2005 and the imposition of textile quotas by USA on People's Republic of China in July 2005, created opportunities for the Malaysian textiles industry to increase their exports globally.

Graph 43

Exports of Textiles and Textile Products by Sub-Sector, 2006 (January-November)



The main export items were apparels, yarns and woven fabrics. Malaysian garment manufacturers have built an excellent reputation for quality and capability of producing up-market brands such as Nike, Adidas, Christine Dior, Yves St. Laurent, Ralph Lauren and Benetton.

Malaysia's major export destination for textiles and textile products in 2006 was USA, accounting for 27.8 per cent of the total exports. Other major export destinations were ASEAN countries (16.1%), Turkey (6.3%), Japan (4.8%) and People's Republic of China (3.8%).

Graph 44

Exports of Textiles and Textile Products by Major Export Destination, 2006 (January-November)



For the period January to November 2006, sales value of textiles and textile products amounted to RM7.6 billion, of which RM4.8 billion or 63.1 per cent was contributed by primary textiles. As at November 2006, the industry employed 65,174 workers, of which 41,131 workers or 63.1 per cent were in the made-up garments sub-sector.

The textiles and textile products industry has been identified as one of the 11 priority sectors under the ASEAN initiative for greater economic integration. Malaysia is the country coordinator for initiatives to deepen the regional integration of the industry. Initiatives that have been implemented to promote greater integration of the industry include improving Customs procedures and reducing non-tariff barriers. Other initiatives that are on-going include collaborations in marketing and promoting intra-ASEAN investment and outsourcing.

Projects Approved in 2006

A total of 30 projects were approved in the textiles and textile products industry in 2006 with investments of RM821.3 million compared with 35 projects with investments of RM373.9 million in 2005. Of these, seven were new projects with investments of RM614.7 million and 23 were expansion/ diversification projects with investments of RM206.6 million. Domestic investments amounted to RM669.1 million (81.5%), while foreign investments totalled RM152.2 million (18.5%).

Of the 30 projects approved, seven projects (RM182.4 million) were for the production of primary textiles, 18 projects (RM91.3 million) for made-up garments, four projects (RM542.3 million) for madeup textile products and one project (RM5.3 million) for textile accessories. These projects would generate a total of 2,863 employment opportunities.

Eighteen (18) projects were Malaysianowned, mainly to manufacture made-up garments. The other projects were for the production of geo-textiles, lace fabrics and integrated carpet manufacturing.

Graph 45

Investments in Projects Approved in the Textiles and Textile Products Industry by Sub-Sector, 2006



In the primary textiles sub-sector, of the seven projects approved, two were new projects with investments of RM54.5 million and five were expansion/diversification projects with investments of RM127.9 million. Domestic investments amounted to RM52.9 million (29%) while foreign investments totalled RM129.5 million (71%).

The major projects approved were:

- a diversification project by an existing foreign-owned company with an additional investment of RM100.4 million for the production of cotton and cotton blended yarn. This company is currently producing Polyethylene Terephthalate (PET) resin. The company proposes to export 50 per cent of its production to People's Republic of China, Australia, ASEAN countries and European countries;
- a new project by a Malaysian-owned company with an investment of RM40

million. The company proposes to manufacture lace fabrics largely for the export market. The lace fabrics produced are of high quality and are mostly used in high-end undergarments and lingerie;

- a new project by Chaudry Textiles (M) Sdn. Bhd., a Pakistani-Malaysian jointventure project with an investment of RM14.5 million. This company proposes to undertake bleaching, dyeing, printing and finishing of fabrics with special features such as anti-shrinkage and silky touch. The project would utilise state-of-the-art equipment for bleaching, dyeing, printing and finishing of fabrics. The project when implemented would service the garment industry in Malaysia; and
- an expansion project by Advance Technical Fabric Sdn. Bhd., a Malaysian-owned company with an investment of RM12.5 million. This company proposes to produce geotextiles for construction and engineering applications. Twenty per cent of its production will be exported to Germany, Australia, India, the Middle East and ASEAN countries.

In the made-up garments sub-sector, 18 projects were approved with investments of RM91 million in 2006. Of these, four were new projects with investments of RM30.2 million while 14 were expansion/ diversification projects with investments of RM60.8 million. Domestic investments amounted to RM76.2 million (83.7%), while foreign investments totalled RM14.8 million (16.3%)

Among the major projects approved were:

- an expansion/diversification project by a Malaysian-owned company, with an additional investment of RM44.2 million for the manufacture of made-up garments. The company is currently producing high-end made-up garments mainly for 'NIKE' brand. The company proposes to export all its products to USA, Canada and Asia; and
- a new project by a Malaysian-owned company, Whitex Knitting Sdn. Bhd., with an investment of RM20.4 million for the production of seamless knitted garments. The project would utilise knitting technology from Italy. The entire production of this project will be exported to USA, Europe and Canada.

In the made-up textile products sub-sector, four projects with investments of RM542.3 million were approved in 2006. Of the approved projects, one was a new project with an investment of RM530 million, while three were expansion/diversification projects with investments of RM12.3 million. Domestic investments amounted to RM535.6 million (98.8%), while foreign investments totalled RM6.7 million (1.2%).

The new project approved was a wholly Malaysian-owned integrated carpet manufacturing project with investments of RM530 million. The project would create backward linkages with the petrochemical industry through the usage of polypropylene resin as its main raw material. The company plans to export a significant amount of its production to ASEAN countries, USA, Europe, Australia and Japan. In 2006, there was continued interest by companies to invest in the textiles and textile products industry. The expansion activities undertaken by existing companies mainly in the made-up garments subsector, indicate that Malaysia is still competitive in the global market for highend and specialty textile products. Over the years, the Malaysian textiles industry has established a reputation for high quality products and as a reliable source in terms of delivery and meeting international standards. This has enabled the industry to sustain its market share globally.

New growth areas in the textiles and textile products industry have been targeted for promotion in the IMP3. The growth areas include industrial and home textiles; functional fabrics; high-end garments; ethnic fabrics; and key support facilities and services. The investment target for this industry during the Plan period is RM13.4 billion. Investments are projected to increase in the primary textiles sub-sector, mainly for the manufacture of synthetic textiles which include functional and technical fabrics.

Six strategic thrusts have been set for further development of the textiles industry during the IMP3 period. The thrusts include:

- Intensifying the promotion of investments in higher value-added textiles and apparel, including key support services;
- Sustaining the market share in textiles and apparel and promoting exports of the targeted growth areas;

- Intensifying regional integration of the industry;
- Enhancing domestic capabilities and facilitating the utilisation of ICT and new technologies;
- Enhancing the skills of the workforce in designing, production and marketing; and
- Strengthening the institutional support for the further development of the industry.

The industry is constantly challenged by the availability of textiles products from low cost producing countries. To remain competitive, Malaysian manufacturers must continue to strive for cost competitiveness by producing high valueadded products, enhancing product quality, emphasising on new designs and product differentiation as well as ensuring prompt response to market requirements.

MEDICAL DEVICES INDUSTRY

The medical devices industry is one of the new growth areas targeted for promotion and development by the Government in the IMP3. Healthcare is a priority of the Government and presently about three per cent of GDP is spent on healthcare. This is expected to increase with the growing population and a longer life expectancy, as well as the Government's increasing expenditures on provision of better healthcare facilities and services. In the Ninth Malaysia Plan, the Government has allocated a sum of RM5.4 billion for the building of new hospitals (RM1.2 billion) and upgrading of existing facilities (RM4.2 billion).

Globally, the industry is highly competitive and innovative, and is one of the fastest growing industries with a projected annual market growth rate of about 10 per cent. The global industry, producing and distributing a wide range of products used in human healthcare for diagnosis, prevention, monitoring or treatment of a disease, injury or physiological process, is estimated to have a market potential of more than US\$260 billion (RM960 billion) in 2007. In Malaysia, the medical devices industry encompasses a broad range of products and equipment from examination gloves, implantable devices, orthopaedic devices and dialysers to imaging equipment and other devices which can be used for medical, surgical, dental, optical and general health purposes. Malaysia remains the world's leading producer and exporter of catheters and surgical and examination gloves, supplying 80 per cent of the world market for catheters and 60 per cent for rubber gloves, including medical gloves.

While the industry is still dominated by the production of rubber-based products comprising mainly medical gloves, catheters and condoms, there is a gradual shift towards the manufacture of nonrubber based higher value medical devices. These include needles, sutures, orthopaedic products, patient monitors, surgical instruments, medical tubes and bags, medical electrodes, endoscopes, dialysis solutions, procedural/urological kits, blood transfusion sets, and diagnostic radiographic equipment. Apart from these products, hospital support systems such as medical gas, anaesthesia sets and fixed operation theatre and examination tables and equipment as well as disposable surgical gowns, drapes and packs, surgical and medical caps, and masks are also being manufactured. Medical glove manufacturers have also diversified into higher quality and speciality gloves, such as low protein, powder-free medical gloves and safety gloves.

The industry is characterised by many small to medium-sized enterprises with some MNCs. The industry is capital and technology-intensive and employs over 20,400 people, most of whom are in the managerial, professional, supervisory and technical staff levels. Currently, there are 170 medical device manufacturers in the country. The majority of the Malaysianowned companies are involved in the production of surgical and examination gloves while the major foreign-owned companies are involved in the manufacture of medical gloves and other higher value products such as catheters, safety intravenous cannulae and needles, orthopaedic products, medical electrodes, dialysers and contact lenses. The major foreign companies with manufacturing facilities in the country include B. Braun Melsungun AG, Ansell Ltd., CR Bard Inc., Rusch Inc., Tyco Healthcare International Ltd., Ambu Inc., and Japan Medical Products. The leading Malaysian-owned companies include Top Glove, WRP Asia Pacific, Dispo-med, Supermax and Terang Nusa.

Graph 46

Number of Medical Device Companies In Operation by Product Category, 2006



As the global environment for the medical devices industry becomes more competitive with new and innovative products being rapidly developed, manufacturers are expanding and widening their base into higher value products and increasingly moving into product and process R&D as well as design and prototyping. Higher technology processes are utilised such as the utilisation of new materials, better coating for improved performance, increased automation and more efficient processing technologies. The R&D activities are undertaken mainly by the MNCs and are in improvements to process control and product quality, product development such as latex compound formulations and process design of safety needles.

The expanding medical devices industry has contributed to the further growth of support services and supplies such as sterilisation services, clinical trial services, clean room engineering, sterile packaging, precision engineering, medical compounds, contract moulding and assembly, machinery fabrication, tool and die making, logistics and distribution. A number of local SMIs have also built up their capabilities to design and supply customised automated machinery to the industry. The strong engineering supporting services base can meet the needs of MNCs facing rising costs of production at home by undertaking contract manufacturing for the MNCs or supplying parts, components and services at competitive prices.

For the period January to November 2006, exports of medical devices and products amounted to RM5.8 billion compared with RM5.3 billion in 2005. The growth in exports was in tandem with the rising global demand for better healthcare with better education and growing affluence. The bulk of the products exported continued to be medical gloves, catheters and condoms (RM4.6 billion) accounting for about 80 per cent of total exports. Other major exports of medical devices and products included medical and surgical X-ray apparatus (RM169.6 million), ophthalmic lenses including contact lenses (RM125.1 million), electromedical equipment (RM111.7 million), dental and ophthalmic instruments and appliances (RM57.3 million), orthopaedic appliances and artificial joints including hearing aids (RM61.7 million), sutures, syringes and needles (RM44.8 million), medical furniture (RM28.6 million) and other medical instruments, apparatus and appliances (RM603.6 million). The leading export destinations were USA, EU and Japan.

The industry also witnessed the implementation of some notable projects. These included:

- CIBA Vision Johor Sdn. Bhd., a RM500 million project to manufacture contact lenses at the Port of Tanjung Pelepas, Johor. The company has commenced construction of its factory building which is expected to be completed in February 2007 and is scheduled to commence operations in April 2007;
- Delphax Engineering Sdn. Bhd., a majority Malaysian-owned company to commence operations in October 2006 to produce reconstruction orthopaedic products, trauma orthopaedic products and their instrumentations. The company will be working with local surgeons to design and develop new orthopaedic implants suitable for Asian patients. About 60 per cent of the production of orthopaedic implants by the company will be exported to ASEAN countries; and
- Aquabrite Industries Sdn. Bhd., a wholly Malaysian-owned company which commenced production of latex dental dam in May 2006 under the brand OptraDam. The product made from natural latex is a novel device for use by dentists to have access to the oral cavity area of the patient without the use of metal clamps. The company had developed the processing technology to manufacture this product for Ivoclar Vivadent AG, Liechtenstein, the patent holder of OptraDam. All the production will be exported.

Projects Approved in 2006

In 2006, a total of 29 projects with investments of RM1.1 billion were approved compared with 15 projects (RM1.4 billion) approved in 2005. Of these, 14 were new projects (RM798.7 million) and 15 were expansion/ diversification projects (RM316.9 million). Foreign investments, which amounted to RM700.8 million, accounted for the major portion of the investments (63%) while domestic investments totalled RM414.8 million (37%). Compared with domestic investments in 2005 at RM158.7 million, there was a more than two-fold increase in investments in 2006, which reflected the increased awareness of local investors of the potential in this industry.

Of the 29 projects approved, 18 were Malaysian-owned projects (RM417.3 million), comprising eight new projects (RM127.9 million) and 10 expansion/ diversification projects (RM289.4 million). New and expansion projects approved for the production of surgical and examination gloves accounted for the bulk of investments by Malaysian investors, amounting to RM275.8 million (66%) in tandem with increasing global demand for medical gloves for barrier protection. A major Malaysian-owned project with an investment of RM48.7 million was approved for the production of dialysers, A.V. fistula needle sets and bloodline sets. The other Malaysian-owned projects were approved for the production of latex dental dam, haemodialysis solutions, endotracheal tubes and cannulae, digital radiographic medical equipment, dental chairs, wound dressing kits and surgical

procedural kits, clinical pumps and condoms.

The remaining 11 projects (RM698.3 million) were foreign-owned projects, of which six were new projects (RM670.8 million) and five were expansion/ diversification projects (RM27.5 million). A major foreign-owned project (RM172.4 million) approved was for the manufacture of ophthalmic lenses. The other products approved included dialyser, bloodline sets, A.V. fistula needle sets, disposable safety syringes, erythrocyte sedimentation rate (ESR) analysis instruments & ESR vacuum blood collection tubes, orthopaedic therapy equipment, material kits for dental coping, blood measuring pressure devices and examination and surgical gloves.

The medical devices industry has remained a vibrant sector with increasing exports and investments in 2006. The industry is expected to continue to register an average annual growth of eight per cent over the next few years. The year 2006 also witnessed the expansion of production capacities of the rubber gloves segment and mergers and acquisitions as the industry consolidated further. Global demand had also been strong, not only for traditional medical markets in the developed countries, driven by stringent regulations on healthcare standards, ageing population and emergence of new viruses, but also for the growing nonmedical sectors due to increasing hygiene awareness within the food and services industries. The trend is expected to continue into 2007 and Malaysia is expected to retain its leading position in the manufacture and export of medical gloves. The production of a wider spectrum of gloves catering to different market segments will enable Malaysia to be a "one-stop centre" for glove buyers.

There was also greater interest in the production of non-rubber based products as reflected in the approvals for 16 out of the 29 projects approved, especially amongst foreign investors. Increasing global demand is expected to drive the further growth of the industry, especially non-rubber based catheters, surgical drapes and gowns and medical tubings in line with the growing ageing population and higher demand from hospitals and more widespread incidence of diseases. More new players are expected in the areas of implantable orthopaedic products such as hip and knee joints, combination products for the cardiovascular segment such as drug-eluting stents and other drug-coated devices. Home healthcare products such as user-friendly home-use monitoring devices and dialysis machines, are also expected to become one of the fastest growing segments of the medical devices industry.

Malaysia provides a good platform for the manufacture and regional distribution of medical devices with the potential to be developed into a medical device hub in Asia. Given Malaysia's strength in infrastructure and a wide base of supporting industries and services, it is expected that the industry base will expand into the manufacture of higherend medical devices, directly or through outsourcing activities. In addition, with the strong base established over the years, expansion in production of higher quality medical gloves and catheters is also expected to continue, while there is potential for the manufacture of more sophisticated medical devices for niche markets, such as coronary catheters and clean room medical gloves. Other potential areas include high-end diagnostic devices, medical and surgical instruments and appliances, medical imaging equipment and hospital and laboratory equipment.

The introduction of regulations on the production and importation of medical devices by the Ministry of Health (which is in the final drafting stage), is expected to enhance perception on and acceptance of locally produced medical devices. This will strengthen the local manufacturers' ability to compete in the global market and improve their market position besides ensuring quality, safety and reliability of locally produced products. The first phase for voluntary registration of establishments for medical devices was launched in January 2006 and mandatory registration and full enforcement of the regulations are expected to come full stream by 2008.

The developments in the medical devices industry expected for the next few years are in line with the projections of the IMP3. For the first five years (2006-2010) of the IMP3, total investments in the industry are targeted at RM4.1 billion, while exports of medical devices and products are targeted to reach RM9 billion in 2010. Concerted efforts will continue to be undertaken by the Government, with the assistance of the private sector, to implement the strategic thrusts set for the industry. These include:
- Broadening the range of products towards the higher-end category;
- Promoting FDIs and domestic investments in the industry;
- Expanding the range of support industries and services for the industry; and
- Strengthening the institutional support for enhancing human resource development, R&D and compliance to international standards and regulations.

These efforts would be directed at enabling the industry to expand its market share and sustain its competitiveness as well as maintain Malaysia's position as the preferred destination for investments.

AGRICULTURE AND FOOD PROCESSING

In 2006, the agriculture sector (including forestry and fishing) contributed 8.2 per cent of GDP. Oil palm remained the main crop contributing 35.9 per cent of the sector's value-added while fishing accounted for 11.7 per cent and other agriculture crops, forestry and rubber accounted for 52.4 per cent.

The Ninth Malaysia Plan emphasises on New Agriculture which involves largescale commercial farming, wider application of modern technology, production of high quality and valueadded products, application of biotechnology and ICT.

Initiatives to make agriculture the third engine of growth have expanded this sector further. The initiatives include the high impact projects identified in the Ninth Malaysia Plan namely, Aquaculture Industrial Zone, New Agriculture Integrated Development (consisting of National Feedlot Centre (NFC), Permanent Food Park and Contract Farm), and creation of 10,000 agro-based industry entrepreneurs. The National Implementation Task Force (NITF) will monitor the implementation of these projects. With these programmes in place and implemented, the production of agricultural commodities is expected to increase.

Malaysia remained a net importer of food. For the period January to November 2006, food imports amounted to RM18.2 billion compared with RM17.9 billion in 2005. Cocoa beans, vegetables, dairy products, maize, and fresh, chilled and frozen fish were the major import items. Food exports in 2006 (January-November) amounted to RM10.5 billion compared with RM10.7 billion in 2005.

Exports of processed food recorded positive growth indicating the increasing acceptance of Malaysia's food products in overseas markets. Exports of processed food amounted to RM6.6 billion in 2006 (January-November), compared with RM6.5 billion in 2005. Exports in 2006 were mainly cocoa and cocoa preparations (RM1.8 billion), prepared cereals and flour preparations (RM854.6 million), processed seafood (RM570.2 million), and sugar and sugar confectionery (RM450 million). In 2006, the major export markets for processed food were Singapore, USA, Indonesia, Japan, the Netherlands, Australia, Hong Kong, the Philippines, People's Republic of China and UAE.



Graph 47 Exports of Processed Food, 2001-2006

Source: Malaysia External Trade Development Corporation

The food processing industry contributed about 10 per cent of the Malaysian manufacturing output and is predominantly Malaysian-owned. This sector encompasses palm oil and palm oil products, cocoa and chocolate products, fishery products, livestock and dairy products, cereals and cereal products, bakery products and biscuits, spices, other food products and animal feed, beverages and tobacco.

Agriculture

The agriculture sector covers aquaculture and deep-sea fishing, cultivation of crops/fruits/vegetables, floriculture, ornamental fish, livestock farming and apiculture. The livestock, fisheries and fruits sub-sectors were the major subsectors with linkages to the food processing industry.

In the livestock sub-sector, Malaysia is the third largest producer of poultry meat in the Asia Pacific region, contributing to about five per cent of the region's total production. Malaysia is self sufficient in poultry, pork and eggs, but imports about 80 per cent of its beef requirements. The self sufficiency level in poultry, pork and eggs is expected to reach 122 per cent, 132 per cent and 115 per cent respectively by 2010.

Aquaculture is one of the fastest growing segments in the fisheries sub-sector. Annual production from aquaculture is more than 169,000 tonnes. Prawn farming is the main activity, followed by fresh water fish and marine fish farming. Based on Malaysia's large tracts of inland and coastal areas, aquaculture production is expected to triple to 600,000 tonnes by 2010 or 30 per cent of total food fish production.

In the Ninth Malaysia Plan, the production of fruits and vegetables is targeted to reach 2.56 million tonnes and 1.13 million tonnes respectively by 2010. Vegetables are mainly grown on smallscale for fresh consumption. Exports of vegetables are mainly to Singapore. The major locations for the cultivation of vegetables are in Johor, Pahang, Kelantan and Perak. Production by fertigation technique has become widespread among producers in Cameron Highlands and Johor. A number of farms have also adopted hydroponics and aeroponics in vegetable farming to cultivate higher value temperate vegetables for both the domestic and export markets.

Projects Approved in 2006

A total of 33 projects, with investments of RM222.3 million were approved with incentives in 2006 compared with 62 projects with investments of RM207.7 million in 2005. Domestic investments amounted to RM212.6 million or 95.6 per cent of investments. Of the projects approved, 30 were new projects and three were expansion/diversification projects.

The highest investments approved in the agriculture sector were in the cultivation of crops. Approved investments in this sub-sector which includes cultivation of fruits and vegetables and production of planting materials, amounted to RM146.1 million. A total of 11 projects were approved for the cultivation of fruits and vegetables with investments of RM68.6 million. One project with an investment of RM77.5 million was approved for the production of planting materials.

In the fisheries sub-sector, 14 projects were approved with investments of RM51.1 million in 2006. Of these, 12 were aquaculture projects, with investments of RM37 million. The main activity was rearing of tiger prawns while other activities included deep-sea fishing and rearing of ornamental fish.

In the livestock sub-sector, four projects with investments of RM15.1 million were approved in 2006. The approved projects

were for integrated cattle and goat rearing in oil palm estates and poultry farming. Other agriculture projects approved (RM10.1 million) were in floriculture and cultivation of tapioca.

Among the projects approved were:

- Felda Agricultural Services Sdn. Bhd., an existing Malaysian-owned company, with an investment of RM77.5 million for tissue culture activities (oil palm, banana and Tongkat Ali). The company is currently involved in the production and sale of planting materials, fertilisers, laboratory services, agronomic advisory services and replanting management services for settler holdings. The company is also involved in agricultural R&D to support the agricultural activities of the FELDA Group; and
- Pact Mate (M) Sdn. Bhd., a foreignowned company with an investment of RM9.7 million, for the cultivation of tapioca and production of tapioca flakes and tapioca by-products on an integrated basis. More than 70 per cent of the tapioca is used for its own production, while about 95 per cent of its value-added products are for export market.

Food Processing

Malaysia retained its position as a net exporter of cocoa products. Exports of cocoa products including chocolates contributed to about 27.6 per cent of processed food exports in 2006 (January-November). Malaysian exports of cocoa products accounted for 6.5 per cent of the total world demand. Major markets for these products were USA, the Netherlands, France, Australia, the Philippines, Indonesia and Singapore. The highest output growth in the food manufacturing industry was recorded in the manufacture of chocolate and sugar confectionery (21.0%) and cocoa products (12.3%). This was attributed to the increase in world demand for confectionery products containing chocolate.

In the fisheries products sub-sector, the main products are processed seafood products in the form of frozen and canned products, and surimi and surimi products. This sub-sector has also moved into the production of higher value-added products such as breaded and battered products, food ingredients and functional/health foods. This sector is export-oriented and manufacturers have to comply with stringent safety standards including Hazard Analysis and Critical Control Points (HACCP).

In the meat processing sub-sector, major products produced are delicatessen, sausages, burgers, frankfurters and frozen meat products. Various products such as meat balls and meat floss are also produced by SMIs. Raw materials for poultry-based products are sourced locally while for nearly all meat products (beef), it is imported from India, Australia, New Zealand and People's Republic of China.

In the fruit processing sub-sector, dragon fruit is becoming a popular choice for the manufacture of value-added products such as juices and colouring. Among other fruits that have been well received in the export market are pink guava, passion fruits and pineapple for puree and juices. Fruits such as jackfruit, banana and papaya were utilised for the production of snack food while *noni* and *roselle* were for the production of health products. With the increase in demand for healthy and natural products, there is vast potential for the production of minimally processed fruits/vegetables, natural juices and natural food flavours/colourings.

The global market value for halal food is estimated at about US\$547 billion a year. Recognising this, many countries are undertaking various initiatives to capitalise on the growth potential. Malaysia, as a Muslim nation, has the edge and is wellpositioned to be the hub for the promotion, distribution and production of halal food and non-food products. As the Malaysian Government is focussing on increasing food production in the country as well as making Malaysia an international halal hub, food processing companies can leverage on Malaysia's strength in halal certification (MS1500:2004 Standard for the Production, Preparation, Handling and Storage of Halal Food) and the Government's promotional efforts to capture the *halal* food market overseas.

In the Ninth Malaysia Plan, Malaysia will be developed as a centre for the certification of *halal* products and the Department of Islamic Development, Malaysia (JAKIM) certification will be promoted worldwide. In addition, Malaysia will be positioning herself as the reference centre for trade and investment promotion of halal products and services by designating Malaysia International *Halal* Showcase (MIHAS) and the World *Halal* Forum (WHF) as the international annual platforms for halal trade and create opportunities for strategic collaboration and alliances. Recognising the potential of the *halal* industry, the Government has established the *Halal* Industry Development Corporation (HDC), as a body to coordinate the overall development of the industry.

In the IMP3, *halal* food has been identified as one of the targeted growth areas in the processed food sector. Other growth areas include convenience foods, functional foods and food ingredients.

In Malaysia, convenience foods are in the form of chilled and frozen food, homemeal replacements, ready-to-cook, readyto-eat and ready-to-drink meals. A study commissioned by the Federal Agricultural Marketing Authority (FAMA) in 2001 had estimated the local market for frozen and chilled foods at more than RM6 billion by 2010. Functional food comprises food which can promote wellness. The global market for such foods is expected to reach US\$167 billion by 2010. The increasing consumer awareness in nutritional value and food fortification for healthy living and increasing cost of healthcare has created the demand for functional/health food. The local organic food market is also expected to grow with the changing consumer trend towards a healthier alternative. Food ingredients include gelatine, enzymes, emulsifiers, spices, food additives, flavours and sauces.

Projects Approved in 2006

A total of 66 projects with investments of RM849.7 million were approved in the food

processing industry (including beverages and tobacco) in 2006 compared with 64 projects with investments of RM752.5 million in 2005. The projects approved were for the production of cocoa, chocolate and sugar confectionery products, livestock products, flour-based products, seafood products, fruit and vegetable products and other food products such as curry powder, spices, seasoning and sauces, animal feed and beverages.

Of the investments approved in the food processing industry, foreign investments amounted to RM446.9 million (52.6%) while domestic investments totalled RM402.8 million (47.4%). Of the 66 projects approved, 44 were new projects (RM528.0 million) and 22 were expansion/ diversification projects (RM321.7 million). Existing food manufacturing companies continued to expand and diversify their operations in 2006.

The highest investments in 2006 were in cocoa, chocolate and sugar confectionery products with RM149.9 million (13 projects). The proposed products included chocolate confectionery, sugar confectionery and cocoa products such as cocoa butter, cocoa powder and cocoa liquor.

The livestock sub-sector attracted total investments of RM95.3 million (9 projects). The proposed products included the production of milk-based products, ice-cream, processed meat and liquid eggs.

The flour-based products sub-sector attracted investments of RM93.3 million (8 projects). The proposed products included snack food, instant noodles and bakery products.



Graph 48 Investments in Projects Approved in the Food Processing Industry by Sub-Sector, 2006 and 2005

Other projects approved were for the production of animal feed and its ingredients (RM148.4 million), processed seafood products (RM44.5 million) and other food products (RM318.3 million).

Among the significant projects approved were:

- QL Agrobio Sdn. Bhd., a Malaysianowned company with an investment of RM16.1 million, to produce animal feed ingredients. The proposed project is a joint-venture among three companies which have experience in producing fishmeal, R&D in bio-feed and broiler farming. About 10 to 50 per cent of the products would be exported to Viet Nam, People's Republic of China and the Philippines. The company will utilise agricultural by-products such as palm kernel expeller to replace wheat, corn or soyabean in producing the animal feed. This will help in reducing the cost of animal feed production;
- Champro Bio Industry Sdn. Bhd., with an investment of RM 1.9 million, for the development, testing and production of feed or animal feed supplements, bio-fermentation protein animal feed supplements and bio fermentation enzymes animal feed supplements. The research activities include R&D on material sourcing and new formulations with palm kernel cake and other raw materials; R&D on fermentation process and application of the feed supplement to poultry, dairy and swine. About 35 per cent of the products would be exported to Viet Nam, Taiwan, People's Republic of China and Hong Kong;
- QL Foods Sdn. Bhd., an expansion project with an investment of RM20.9 million, for the production of *halal* food such as surimi and surimi-based products. About 30 per cent of the products would be exported to Singapore, Hong Kong, Mauritius,

Australia, Taiwan, People's Republic of China and Canada;

- RB Biotech Sdn. Bhd., a joint-venture project with an investment of RM2.6 million, to establish a rice-based biotechnology centre, where an integrated hybrid rice farming system will be built for rice varietals development, seed production, hybrid rice farming and rice milling with modern biotechnology applications. Its R&D will be in hybrid seed production, mechanisation of farming practices and trial hybrid rice production in a prototype farm. These R&D activities are supported by the Malaysian Agricultural Research and Development Institute (MARDI) and the hybrid rice is proven successfully in People's Republic of China to increase the production of rice compared with inbred varieties; and
- DXN Biotech Consultants Sdn. Bhd., a new company with an investment of RM4 million for R&D in agribiotechnology such as in the production of ganoderma mushrooms, cordycep fungus, mulberry, noni, roselle, Tongkat Ali and algae for spirulina, to expedite the production of high quality raw materials for downstream production.

Investments proposed in the food processing industry in 2006 increased by 13 per cent compared with 2005. There is also a trend towards the production of high value-added products. Apart from manufacturing, the industry is also focussing on R&D activities either through in-house or contract research. An increasing number of local companies have ventured into the export markets. The implementation of the projects approved in 2006 will further increase exports of processed food. The industry has also gained greater access into the export markets as shown in the increase in exports of food products.

Halal products certified by JAKIM are well accepted overseas and Malaysia is viewed as a leading nation in the global halal industry by other Muslim countries. Malaysian halal certified products are globally accepted and supported by the elements of safety, quality, health and cleanliness. In anticipation of increasing demand for halal certification, JAKIM's capacity to provide certification services has been further strengthened. To date, products from 1,088 food manufacturing companies have been certified halal by JAKIM.

With the emphasis given by the Government to transform the agriculture sector into a modern and vibrant sector and to promote Malaysia as an international halal hub, prospects for the halal food industry are promising. In the Ninth Malaysia Plan, the Government is focussing on the development of halal parks such as in Kelantan (Pasir Mas), Perlis (Padang Besar), Terengganu (Chendering), Pahang (Gambang), Kedah (Sungai Petani) and Wilayah Persekutuan Labuan (Kiamsam). The promotion of the Malaysian halal standard as a benchmark for International Standard for halal products, will further contribute to the acceptance of Malaysia's halal food products worldwide.

OIL PALM PRODUCTS

The oil palm products industry comprises palm oil, palm kernel oil, oleochemicals including biodiesel, energy generation and products from palm biomass.

Malaysia remains the world's largest exporter of palm oil, contributing 50.1 per cent of the world palm oil exports. In terms of production, Malaysia and Indonesia each contributed 43.2 per cent to the world production of palm oil.

Palm oil is one of the 17 major oils and fats produced in the world, and was ranked first in terms of volume produced, followed by soyabean oil and rapeseed oil. In 2006, palm oil accounted for 51.5 per cent share of major oils in the global market, of which Malaysia and Indonesia were the major contributors.

In Malaysia, the production of crude palm oil (CPO) increased by 5.8 per cent from 15 million tonnes in 2005 to 15.9 million tonnes in 2006. The production of crude palm kernel oil increased to 2 million tonnes in 2006 from 1.8 million tonnes the previous year.

Total exports of Malaysian oil palm products, comprising palm oil, palm kernel oil, palm kernel cake, oleochemicals and finished products, increased by 7.6 per cent to 20.1 million tonnes in 2006 from 18.6 million tonnes in 2005. Total export value increased to RM31.8 billion from RM28.6 billion in 2005. This was mainly due to the increase in the average price of palm oil products. In 2006, the average price of crude palm oil was RM1,502.50 per tonne as compared with RM1,389 per tonne in 2005.



Graph 49 Exports of Oil Palm Products, 2006

Malaysia exports a wide range of processed palm oil and palm kernel oil products. The products exported are mainly refined products (such as refined, bleached, deodorised or RBD palm products), palm kernel oil products and basic oleochemicals.

Malaysian palm oil and palm oil products are exported to more than 130 countries worldwide with major markets in the People's Republic of China, EU, Pakistan, USA and India. Exports to People's Republic of China increased to 3.6 million tonnes in 2006 from 3 million tonnes in 2005. Exports to USA amounted to 684,000 tonnes in 2006, higher than that to India (562,000 tonnes), making USA the fourth largest export destination for Malaysian palm oil. In the oleochemicals sector, Malaysia continued to be the leading producer and exporter of basic oleochemicals, contributing to 26 per cent of the global capacity for fatty acids and 13 per cent for fatty alcohol. Oleochemicals, comprising basic oleochemicals (fatty acids, fatty alcohol, methyl esters and glycerine) and oleochemical derivatives (fatty amines, soap noodles and metallic soaps) accounted for 10.9 per cent of the total quantity of oil palm products exported and 17.6 per cent of the total export value in 2006. About 80 per cent of the total production of fatty acids and fatty alcohol was exported.

Graph 50

Exports of Oleochemicals, 2006 and 2005



Exports of oleochemical products grew by 16.6 per cent to 2.2 million tonnes in 2006 valued at RM5.6 billion compared with 1.8 million tonnes valued at RM5.1 billion in 2005. EU, USA and Japan remained the major markets for oleochemicals accounting for 60 per cent of total exports while People's Republic of China has emerged as a major market for oleochemicals. Exports to India, Republic of Korea, Taiwan, Pakistan and UAE have also increased. Currently, there are 51 refineries with a total capacity of 18.5 million tonnes per year and 38 crusher plants (5.1 million tonnes capacity per year) in operation. In 2006, the refineries processed a total of 14.4 million tonnes of crude palm oil and 1.3 million tonnes of crude palm kernel oil, while about 4.3 million tonnes of palm kernel were processed by the palm kernel crushers. RBD palm oil, olein and stearin are refined products while crude palm kernel oil and palm kernel cake are products of crushing activities.

Graph 51 Production of Crude Palm Oil by State, 2006



There are 16 companies involved in the production of basic oleochemicals and 30 other companies are producing oleochemical derivatives with five companies producing both basic oleochemicals and oleochemical derivatives. The industry comprises local manufacturers as well as several jointventure companies with multinationals. The major global players operating in Malaysia are Croda, Procter & Gamble, Iffco and Kao while the major local companies are Acidchem International, Palm Oleochemicals, Natural Oloechemicals and Southern Acids.

Production of oleochemicals increased by 5 per cent to 2.1 million tonnes in 2006 from 2.0 million tonnes in 2005. The main raw materials used in the production of oleochemicals are crude and processed palm kernel oil, processed palm oil and crude palm oil. Of the 2.1 million tonnes of palm-based oils consumed in the production of oleochemicals, crude and processed palm kernel oil constituted 56 per cent (1.1 million tonnes) while the balance were processed palm oil (37%) and crude palm oil (7%).

Apart from palm oil, the industry also produces large quantities of palm biomass. Annually, it is estimated that about 30 million tonnes of fibrous biomass (dry weight), can be produced from oil palm fronds, empty fruit bunches and oil palm trunks. These palm biomass are similar to wood and are suitable as raw materials for wood-based industries and pulp and paper.

Currently, 20 companies are in operation producing panel/composite products, moulded products, mulching mat, palm fibre, organic fertilisers and animal feed. Total investments in these projects amounted to RM150.6 million. Annually, these companies are utilise about 330,000 tonnes of palm biomass from empty fruit branches, oil palm trunks and oil palm fronds for their raw materials.

Biomass can also be used for energy generation. In the Ninth Malaysia Plan,

the Government has targeted 350 MW of electricity generated to come from renewable energy sources. As at the end of 2006, a total of 28 projects with investments of RM644.6 million were approved for the production of energy utilising empty fruit bunches and palm kernel shells. Of these, 10 are in operation with five in Sabah and another five in Peninsular Malaysia.

MPOB has developed and launched a total of 344 technologies and oil palm related products, of which about 30 per cent have been commercialised and licensed to industries. Some of the technologies which have been commercialised are biodiesel, vitamin E, palm-based printing ink, cosmetics and personal care products and the extraction of minor components for health food supplements (nutraceuticals).

Projects Approved in 2006

In 2006, a total of 118 projects with investments of RM8.8 billion were approved for the production of oil palm products. These projects included the production of palm oil and palm kernel oil products, oleochemicals, biodiesel, energy generation and products from palm biomass. Domestic investments amounted to RM6.1 billion or 69 per cent of total investments. The biodiesel subsector attracted the highest investments of RM7.6 billion (86%), followed by palm oil and palm kernel oil products with investments of RM814.5 million (9%).

Graph 52

Investments in Projects Approved in the Oil Palm Products Industry by Sub-Sector, 2006



In the olechemicals sub-sector, two foreign-owned projects, comprising one new and one expansion/diversification project, were approved with investments of RM45.4 million. The expansion/ diversification project was for the production of glycerine, fatty acids, soap noodles and soap bars while the new project was for the production of fatty esters. In comparison, 11 projects were approved with investments of RM968.4 million in 2005. A large number of the expansion/diversification proposals received in 2005 have now been implemented.

Biodiesel (palm methyl ester) as a source of renewable energy has attracted a great deal of interest lately, as escalating fossil fuel prices and depleting resources worldwide has put pressure on countries to seek alternative energy sources. In Malaysia, the result has been a surge in investment proposals for biodiesel projects. A total of 83 projects were approved in 2006 for biodiesel production in 2006 with investments valued at RM7.6 billion compared with six projects (RM423.5 million) approved in 2005. Interest in the biodiesel projects were mainly from domestic investors with domestic investments accounting for RM5.5 billion (71%) while foreign investments totalled RM2.1 billion (29%). The major local players were from the large oil palm plantation companies which included Golden Hope Plantations Berhad, IOI Corporation Berhad, Sime Darby Bhd. and Kulim (M) Berhad.

Of the 83 projects approved, 62 were Malaysian-owned, 15 were foreign-owned and six were joint-ventures. The major sources of foreign investments were Australia, Singapore, USA, India, Italy and Japan.

In terms of technology, MPOB has developed its own homegrown technology to produce biodiesel. This technology which is the culmination of MPOB's R&D efforts for the past 10 years has been commercialised through its joint-venture project with Carotino Sdn. Bhd. This plant which commenced operations in August 2006 is producing both winter and summer grade palm biodiesel. Two other biodiesel projects which will be carried out in collaboration with MPOB are Titian Asli Sdn. Bhd. and Rubiatec Sdn. Bhd.

Some of the projects approved included proposals to produce vitamin E, palm-based tocotrienols and tocopherol concentrates and beta carotene through the extraction process whereby methyl ester (biodiesel) will be produced as a by-product.

In terms of location, Sabah has the largest number of projects approved for biodiesel production (26 projects), followed by Selangor (14), Johor (14) and Pahang (11). Of the projects approved in Sabah, 19 will be located in the Palm Oil Industrial Cluster (POIC) in Lahad Datu. The POIC is the first dedicated palm oil industrial cluster in the country with an area of 5,000 acres. Apart from the POIC, the Biofuel Hub in Johor, which covers the area within the Pasir Gudang Industrial Estate and Tanjung Langsat Industrial Complex, has also attracted investments in the biodiesel sector. A total of 12 out of the 13 projects approved in Johor are proposed to be located in this Biofuel Hub.

Graph 53

Status of Implementation of Biodiesel Projects Approved as at 31 December 2006



In 2006, there was active commercialisation of biodiesel projects. Four of the biodiesel companies approved in 2006 are in production with a total capacity of 268,000 metric tonnes. In 2007, another 14 companies are expected to come onstream with a total production capacity of 1.7 million tonnes.

It is estimated that a total of 9 million tonnes of palm oil will be consumed annually once all the 83 approved projects start operations. Feedstock for the approved biodiesel projects is mainly from processed palm oil with about 5.9 million tonnes estimated to be consumed per year. The other oils used are crude palm oil and palm fatty acid distillate.

The overwhelming interest in setting up biodiesel projects has given rise to concerns on the suffiency of supply of palm oil as feedstock, causing the Government to put a temporary halt on the issuance of new licences with effect from 29 June 2006. The Ministry of Plantation Industries and Commodities will undertake a study on the supply of palm oil not only for the biodiesel industry but also for the other downstream industries especially the food sector. Upon the completion of this study, a review of the policy on the issuance of licences will also be made.

In the palm oil and palm kernel oil products sub-sector, 14 projects with investments of RM814.5 million were approved in 2006 compared with 19 projects with investments of RM758.3 million in 2005. Of the 14 projects, five were expansion projects (RM87.2 million) while nine were new projects. Foreign investments amounted to RM381.2 million or 55.2 per cent of total investments. The approved projects included three new refineries in POIC Lahad Datu, Sabah.

Other approved projects included expansion/diversification by existing refineries and crusher plants and valueadded products from oil palm. One of the approved projects was proposed by Nepline Biotechnology Sdn. Bhd., a Malaysianowned company to undertake commercial extraction and purification of lecithin from crude palm oil. Lecithin is a high value product and is commonly used in healthcare products and is a natural emulsifier for food products. According to MPOB, this project is a pioneer project in Malaysia. About 20 per cent of lecithin produced will be exported to Switzerland (Nestle).

In 2006, a total of 13 projects with investments of RM211.7 million were approved for the manufacture of products utilising oil palm biomass and by-products. These included pulp, moulded products, green plywood (plywood from oil palm trunks), veneer and kiln-dried timber from palm biomass. Domestic investments amounted to RM198.1 million or 93.5 per cent of total investments in this sub-sector.

One of the approved projects was proposed by Eko Pulp and Paper Sdn. Bhd., a Malaysian company to produce pulp from palm biomass. The company has signed an MOU with the Forest Research Institute Malaysia (FRIM) to provide the technical know-how and R&D in producing pulp from empty fruit bunches using caustic soda technology. The project is proposed for location in Sabah.

Besides these, six projects with investments of RM142.3 million were approved in 2006 for the generation of energy from palm biomass. These projects were proposed by Malaysian companies and the raw materials included empty fruit bunches, palm kernel shells and mesocarp fibres.

The year 2006 witnessed attempts by companies to further consolidate their business activities through mergers and acquisitions. The move by IOI Corporation Berhad in acquiring Pan Century (Pan Century Edible Oils Sdn. Bhd. and Pan Century Oleochemicals Sdn. Bhd.) and mergers by companies under the Kuok Group in Malaysia and Singapore were examples of initiatives to further strengthen the companies' global positions and marketing network. In addition, the move by Government-linked companies such as Sime Darby Berhad, Golden Hope Plantation Berhad and Kumpulan Guthrie Berhad to merge is a further indication of attempts to consolidate the companies' operations.

The biodiesel industry holds potential for further growth. World biodiesel production has increased more than five-fold, from 591,000 tonnes in 1996 to 3.43 million tonnes in 2006. As many countries are aiming to reduce the greenhouse gases by 5 per cent by 2008-2012 under the Kyoto Protocol, the demand for biofuel including biodiesel will increase. There is a high demand for biodiesel from the West, particularly European countries such as Germany and Italy, as the EU has targeted minimum levels of biofuel usage at 5.75 per cent by 2010. Apart from EU and USA, other emerging large consumers of biodiesel include South Korea, India and People's Republic of China. With Malaysia's production capacity expected to reach two million tonnes by 2008 when several more approved projects come onstream, the local industry will be able to cater to the anticipated increase in global demand for biodiesel.

For the oleochemicals sector, a rising trend in ecological awareness is expected to result in a considerable increase in the demand for biodegradable chemicals. With this development, the demand for oleochemical products is expected to increase with the focus on higher value-added oleochemical derivatives such as active ingredients for dietary supplements and consumer products such as soap and surfactants.

CHEMICALS AND CHEMICAL PRODUCTS

The chemicals and chemical products industry covers pharmaceuticals and other chemicals such as agricultural chemicals, inorganic chemicals, paint and paint products, soaps, detergents, industrial gases and cosmetics and toilet preparations.

Pharmaceuticals

The pharmaceutical industry in Malaysia has good growth potential in the light of its inherent strength in the production of generic drugs and its capability to capitalise on the scheduled patent expiry of several branded drugs over the next few years. The industry is also well-positioned to produce more pharmaceuticals of international quality as the country has adopted and enforced the Good Manufacturing Practice (GMP) standards of the European Pharmaceutical Inspection Cooperation Scheme (PICS).

Recognising this growth potential, the Government has identified the pharmaceutical industry as one of the new growth sectors in the IMP3, 2006-2020.

Pharmaceutical products manufactured

by the Malaysian pharmaceutical industry can be broadly categorised as:

- prescription medicines;
- over-the-counter (OTC) medicines; and
- herbal preparations and health supplements, including traditional medicines.

The Malaysian pharmaceutical industry is characterised by the presence of many small and medium-sized companies engaged in the production of traditional medicines. As at 31 December 2006, of the 246 pharmaceutical companies registered with the Drug Control Authority, Ministry of Health, 161 companies were involved in producing traditional medicines and 85 companies were manufacturing modern medicines. The sector is dominated by domestic investments with major local companies such as Pharmaniaga Manufacturing Bhd., Hovid Berhad., CCM Pharma Sdn. Bhd., Xepa-Soul Pattinson Sdn. Bhd. and Kotra Pharma (M) Sdn. Bhd. These companies focus mainly on generic drugs, particularly antibiotics and painkillers, health supplements and injectables.

Among the bigger foreign-owned companies with a presence in Malaysia are Y.S.P. Industries (M) Sdn. Bhd. (Taiwan), Sterling Drug (M) Sdn. Bhd. (the manufacturing arm of GlaxoSmithKline, UK), Ranbaxy (M) Sdn. Bhd. (India) and SM Chemicals Sdn. Bhd. (UK and India).

In 2006, pharmaceutical companies invested substantially to upgrade their facilities to adhere to the GMP standards of

PICS. These efforts, aimed at raising the standards of locally manufactured pharmaceuticals, will have favourable impact on export potential for local manufacturers as newer versions of generic drugs are launched in the next few years.

Currently, about RM400 million worth of pharmaceuticals are exported to more than 30 countries, including Africa and Central America.

In terms of research and technology development, apart from improving formulations of generic products and drug delivery systems, domestic pharmaceutical manufacturers have continued to undertake R&D activities especially in the herbal nutraceuticals and cosmaceuticals sector. This is a promising sector as it is still largely untapped and provides tremendous potential for growth complemented by rapidly growing consumer awareness and demand for high quality natural products. For example, Innovax Sdn Bhd, a whollyowned subsidiary of Chemical Company of Malaysia Berhad (CCM) and Golden Hope Plantations Berhad (Golden Hope Research Sdn. Bhd.) have signed an MOU to jointly undertake R&D and commercialisation of herbal healthcare and wellbeing products in areas such as oil palm and guava phytonutrients, nutraceuticals, health supplements and cosmaceuticals.

Although the domestic market is relatively small, it registered a growth rate of 20 per cent, as demand for pharmaceuticals increased from RM2.5 billion in 2005 to an estimated RM3.0 billion in 2006. For the period January to November 2006, sales value of locally manufactured pharmaceuticals amounted to RM938 million compared with RM852 million in 2005. Imports of about RM2.5 billion in 2006 constituted more than 80 per cent of the local pharmaceutical market. Major types of drugs imported were lifestyle drugs, such as cholesterol lowering and anti-diabetic drugs, newer generation of antibiotics, drugs to treat erectile dysfunction, and cardiovascular and oncology drugs.

Exports in 2006 (January-November) amounted to RM410 million compared with RM494 million in 2005. There was a temporary halt in the manufacturing operations of some of the pharmaceutical companies which had to undertake the upgrading of their existing facilities to meet the GMP standards of PICS. Nevertheless, major pharmaceutical companies have intensified their efforts in expanding their investments and markets overseas in the year 2006:

- Pharmaniaga Berhad is poised for regional expansion as it already has trading activities in more than 16 countries. Pharmaniaga also has a representative office in Viet Nam, and a manufacturing company in People's Republic of China, and is exploring opportunities in the global arena, specifically in the ASEAN region. Meanwhile, the small volume injectables project of Pharmaniaga Lifescience in Puchong is expected to commence production by the third quarter of 2008;
- Hovid Berhad has started to outsource about 10 per cent of its generic drugs manufacturing to India where it has

collaborated with several Indian pharmaceutical companies to produce these drugs. It also plans to build a manufacturing plant in India in 2008 to take advantage of the country's lower costs for producing generic drugs, its improved regulatory and patent environment as well as the availability of qualified professionals in the field of chemistry and pharmaceuticals. This move would allow the Malaysian plants to focus on manufacturing higher value healthcare products;

- CCM Duopharma Biotech Berhad has increased its number of herbal products to more than 20 and increased its expenditure on R&D for these products. The company also plans to intensify its marketing operations in the Middle East and Africa to boost exports, which now account for 10 per cent of its revenue; and
- Xepa-Soul Pattinson Sdn. Bhd. is investing an additional RM26 million to set up a new production line to meet the growing demand for off-patent pharmaceuticals from both the domestic and export markets. This expansion project will increase the company's production of cream products threefold; eye drops by two and a half times and liquid production by 50 per cent. The company currently exports about 25 per cent of its output to Singapore, Middle East, Africa and other countries in Asia Pacific.

Other developments include the collaboration between the Ministry of Health of Malaysia (MOH) and GlaxoSmithKline Pharmaceuticals (GSK) to supply vaccines and technical support for the new National Institute of Natural Products, Vaccines and Biologicals (9Bio) plant. GSK would collaborate with MOH in R&D with special focus on tropical diseases such as malaria, Japanese encephalitis (Nipah virus) and tuberculosis as well as in vaccines and anti-virals. 9Bio is one of several private funding initiative projects under the Ninth Malaysia Plan set up to spearhead R&D for new vaccines for prevalent tropical diseases.

To facilitate trade within the ASEAN region, efforts to harmonise pharmaceutical regulations have been made since 1992 through the ASEAN Consultative Committee for Standards and Quality (ACCSQ). The Pharmaceutical Product Working Group (PPWG) was set up in 1999 to develop ASEAN common technical requirements for pharmaceutical product registration. To date, member countries are committed to fully implement the ASEAN Common Technical Dossier (ACTD) by 1 January 2009. The sectoral MRA on GMP Inspection, led by Malaysia and Singapore, is tentatively expected to be ready for signing by the end of 2007.

Projects Approved in 2006

In 2006, a total of 13 projects (eight new and five expansion/diversification projects) were approved with investments of RM241.7 million compared with seven projects (RM204.3 million) in 2005. Domestic investments amounted to RM231.3 million (95%) while foreign investments totalled RM10.4 million (5%). The projects approved were for the production of pharmaceutical formulations in the form of tablets, capsules, ointments, solutions and syrups, herbal medicines and empty and soft gelatine capsules.

In the IMP3, investments in the pharmaceutical industry in Malaysia have been targeted at RM450 million per annum while exports have been targeted to grow at an annual rate of 6.3 per cent to reach RM1.2 billion by 2020. Given the limited domestic market, Malaysian pharmaceutical manufacturers need to increase their presence in the export market as part of their growth strategy.

Globally, major pharmaceutical companies are collaborating with or acquiring biotechnology companies to develop and market new biotech drugs and treatments. In this context, Malaysian companies are well-positioned to leverage on the country's extensive biodiversity and local knowledge in traditional medicines to develop new leads for the pharmaceutical and nutraceutical industries.

In addition, herbal-based medicinal products have huge growth potential due to strong domestic and overseas demand as well as their diverse applications. The global herbal industry is estimated to have a market value of US\$80 billion (RM280 billion). In Malaysia, the pace of growth of this industry has been encouraging, growing between 8 to 12 per cent annually. The local herbal market, currently worth RM3.8 billion, is expected to expand to RM8 billion by 2010. Of the 25,000 species of plants in the country, 1,230 species have been scientifically proven to have medicinal qualities and offer potential for sourcing of

active compounds for drugs. The potential from the rich Malaysian bio-diversity coupled with the vast local R&D experience in regional diseases and the country's multi-ethnic population facilitating clinical trial activities, augur well for the development of biotech drugs.

Chemical Products

The chemical products industry is essentially a supporting industry, supplying intermediates and inputs to the end-user industries such as agriculture, electronics, automotive, construction-related industry and personal care products. The growth of this industry is highly dependent on the performance of the other sectors of the economy. Exports for the period January to November 2006 amounted to RM7 billion compared with RM6.3 billion in 2005. The major products exported were ammonia and urea (RM1.1 billion), paint and varnishes (RM703.2 million) and pesticides and herbicides (RM418.1 million).

Graph 54

Number of Chemical Companies In Operation by Sub-Sector, 2006



Currently, there are 164 companies in operation producing a wide range of chemical products which include fertilisers and pesticides, inorganic chemicals, paints and paint products, industrial gases and cosmetics and toilet preparations. Some of the major foreignowned companies in this industry are Air Products STB Sdn. Bhd., OMG Fidelity (M) Sdn. Bhd., ICI Paints (M) Sdn. Bhd., Malaysian Oxygen Berhad and Johnson & Johnson Sdn. Bhd. Amongst the major local companies are CCM Agriculture Sdn. Bhd., Ancom Crop Care Sdn. Bhd., Eng Kah Enterprise Sdn. Bhd. and See Sen Chemical Bhd.

Projects Approved in 2006

In 2006, a total of 43 projects with investments of RM650.9 million were approved compared with 29 projects (RM347.8 million) in 2005. The surge in investments was in both new and expansion/diversification projects. Of the 43 projects approved, 22 were new projects with investments of RM299.6 million while 21 were expansion/ diversification projects with investments of RM351.3 million. Domestic investments amounted to RM380.5 million (58%) while foreign investments totalled RM270.4 million (42%). There were 24 Malaysian-owned projects, comprising 18 new projects (RM249.3 million) and six expansion/diversification projects (RM93.7 million).

Eight projects were approved for the production of fertilisers (RM190.7 million) and seven projects for the

production of industrial gases (RM98.4 million). The other 28 projects (RM361.8 million) were approved for a wide range of chemical products including poly aluminium chloride, cooling water chemicals, masterbatch, pre-wash stain remover, black toner, ammonium sulphate, copper chloride, liquid detergents, dental grade dicalcium phosphate, printing ink and food grade calcium phosphate.

Among the significant projects approved were:

- CCM Agriculture Sdn. Bhd., a Malaysianowned company with an investment of RM77 million to produce compound fertilisers in Bintulu, Sarawak. This company is one of the CCM group of companies which controls 30 per cent of the compound fertiliser market in the country; and
- Jadi Imaging Technologies Sdn. Bhd., a Malaysian-owned company with an additional investment of RM16 million to expand its production of black toner in Shah Alam, Selangor. Jadi Imaging is the only toner producer in the country and is the largest in South East Asia.

The approvals in 2006 reflected the continued growth of the end-user industries. In particular, the approvals for the production of fertilisers reflected a rising demand in the plantation sector and increased agricultural activities in neighbouring ASEAN countries. The chemical products industry is expected to grow in tandem with the overall growth of other manufacturing sectors of the economy.

BIOTECHNOLOGY INDUSTRY

The biotechnology industry encompasses various products including modification of products, improved plant or animal productivity and services derived from the utilisation of technology involving the application of living organisms, their parts and components. A new definition of biotechnology refers to biotechnology involving recombinant deoxyribonucleic acid (DNA), cell fusion and novel bioprocess engineering techniques such as gene transfer and embryo manipulation.

In the 15-year National Biotechnology Policy launched in April 2005, reference is made to biotechnology as an enabling tool for advances in agriculture, healthcare and industry providing immense benefits to the nation, particularly in skills development, value-added employment and improving the quality of a wide range of products and services.

The global biotech industry is currently estimated to be worth US\$54 billion (RM190 billion) with the Asian biotech market valued at US\$31 billion (RM109 billion) with a growth rate of 12 to 13 per cent. The leading Asian countries in biotechnology (by market value) are Japan, People's Republic of China, India and Australia. In terms of sub-sectors, the highest growth areas are agri-biotech, bioinformatics, biopharmaceuticals and biochips.

In the Ninth Malaysia Plan, the biotechnology industry in Malaysia is projected to

contribute up to 2.5 per cent to the country's GDP by 2010. Efforts will be increased to develop the biotechnology industry as a new driver of economic growth. Focus will be on strengthening the strategic segments of the biotechnology value chain in agriculture, healthcare, industrial activities and bio-informatics. In the Plan, the Government has allocated more than RM2.0 billion to boost the country's capabilities in biotechnology R&D, improve funding mechanisms and increase the number of skilled biotechnology workers and researchers. This allocation is designed to complement private sector funding in biotechnology.

Following the announcement of the National Biotechnology Policy in 2005, Government established the the Malaysian Biotechnology Corporation (BiotechCorp) to spearhead the development of the biotechnology industry. BiotechCorp is a one-stop agency entrusted with identifying value propositions in both R&D and commerce, and assisting these ventures via financial support and developmental services as well as coordinate biotech initiatives from all relevant government ministries. In the 2007 Budget, the Government announced new incentives for BioNexus Status companies.

Since the introduction of the BioNexus Status incentives, the Government has awarded BioNexus Status to seven biotechnology companies in Malaysia. Six of the companies are wholly Malaysian-owned while one is a majority Malaysian-owned company with foreign participation from USA. The seven companies are Asiatic Centre for Genome Technology Sdn. Bhd., Inno Biologics Sdn. Bhd., IPT Kosmo Biotechnology Sdn. Bhd., KL Biotech Manufacturing Sdn. Bhd., Malaysian Bio-Diagnostic Research Sdn. Bhd., Nova Laboratories Sdn. Bhd. and Vivantis Technologies Sdn. Bhd.

The Malaysian Life Science Capital Fund (MLSCF) which was announced in Budget 2006 has been set up and is currently managed by the Malaysian Technology Development Corporation (MTDC) and Burrill & Co, a venture capital company in biotechnology. MLSCF, with an initial fund of US\$150 million (RM533 million), was set up to pool investments from various institutions, including Government-linked companies and will work towards developing biotechnology in at least three strategic areas namely agriculture, (including health pharmaceuticals and nutraceuticals) and industrial biotechnology.

To further support the Government's commitment to promote the biotechnology industry, Malaysian delegations comprising representatives from Ministries, State and local Governments, Government agencies, local companies as well as universities and research institutes participated in international biotechnology conventions held in USA for three consecutive years, the latest being the BIO International Convention 2006 in Chicago. On the home front, "Bio Malaysia 2006" organised by BiotechCorp was held on 6-8 December 2006 at Kuala Lumpur Convention Centre.

To date 23 companies, including 17 Malaysian-owned companies, are

involved in R&D activities and/or manufacturing activities in the biotechnology industry. The products and activities of these companies include:

- tissue culture of oil palm planting materials;
- biofertilisers;
- rapid biodiagnostic kits for typhoid fever & PCR kits;
- standardised herbal extracts;
- animal vaccines;
- industrial and bioenzymes;
- nucleic acids (DNA & RNA) extractions;
- probiotics;
- animal feeds; and
- production of glycoproteins and antibodies.

A significant milestone in the development of the Malaysian biotechnology industry was achieved in 2006 with the inauguration of Inno Biologics Sdn. Bhd., the first cGMP (current Good Manufacturing Practices) biomanufacturing facility in Malaysia, on 7 September, 2006. The company, a flagship biotech company of Inno Bio Ventures Sdn. Bhd., a Malaysian Ministry of Finance Incorporated Company, is a contract manufacturing organisation (CMO) and specialises in the production of biopharmaceutical and monoclonal antibodies based on mammalian cell culture.

The country's biotechnology foundation will be further strengthened with the commercial operations of two biotech facilities in the Penang Biotech Park in Bukit Minyak in 2007. The projects are Alpha Biologics Sdn. Bhd. and Progenix Research Sdn. Bhd. Alpha Biologics, a Malaysian-based contract manufacturer of biologics drugs for use in pre-clinical, Phase 1 and 2 clinical trials, is scheduled to be operational by September 2007 at its RM65.4 million facility. Progenix, an independent contract research organisation, which specialises in pre-clinical R&D, is also scheduled to begin operations in 2007. Its facility will conduct regulatory safety evaluation studies for submission to regulatory authorities in support of marketing or clinical trial approvals for new medical products or registration of new chemicals.

Projects Approved in 2006

In 2006, two new biotechnology projects by majority Malaysian-owned companies were approved with investments of RM13.3 million compared with seven new projects (RM176 million) in 2005. Domestic investments amounted to RM11.8 million (88.7%) while foreign investments totalled RM1.5 million (11.3%). The projects were approved for the production of oligonucleotides and probiotics.

Malaysia has tremendous potential to be a biotechnology hub. However, with increasing global competition, Malaysian biotechnology companies will need to identify and build upon niche products and services in appropriate parts of the global biotechnology value chain. With the announcement of the package of customised incentives for BioNexus Status companies, investments in biotechnology are expected to increase significantly from both local and foreign investors.

Box Article 1: Biotechnology Industry

Biotechnology is poised to drive the next wave of knowledge-based industries that will contribute towards growth and wealth creation, new investments and employment opportunities as well as deliver social and environmental benefits. A significant milestone was achieved with the launching of the National Biotechnology Policy (NBP) in 2005, which provides a comprehensive framework for biotechnology development in Malaysia.

The National Biotechnology Policy is underpinned by nine policy thrusts and its implementation will encompass three main phases:

- Phase I (2005-2010) capacity building;
- Phase II (2011-2015) creating business out of science; and
- Phase III (2016-2020) turning Malaysia into a global player.

The nine Policy thrusts are as follows:

• Thrust 1: Agriculture Biotechnology Development

Transform and enhance the value creation of the agricultural sector through biotechnology;

• Thrust 2: Healthcare Biotechnology Development

Capitalise on the strengths of biodiversity

to commercialise discoveries in healthrelated natural products and biogeneric drugs;

Thrust 3: Industrial Biotechnology Development

Encourage growth opportunities in the application of advanced bio-processing and bio-manufacturing technologies;

• Thrust 4: R&D and Technology Acquisition

Establish Biotechnology Centres of Excellence to bring together multidisciplinary research teams in coordinated initiatives, and accelerate technology development via strategic acquisitions;

- Thrust 5: Human Capital Development Build human resource capability in line with market needs in biotechnology via education and training;
- Thrust 6: Financial Infrastructure Development

Apply competitive "lab to market" funding and incentives to encourage committed participation from academia, and the private sector, including Government-linked companies;

• Thrust 7: Legislative and Regulatory Framework Development

Ensure the country's regulatory framework and procedures are in line with global standards and best practices, and develop a strong intellectual property protection regime to support R&D and commercialisation efforts; • Thrust 8: Strategic Positioning

Establish a global marketing strategy to build brand recognition for Malaysian biotech products and applications, and benchmark progress; and,

• Thrust 9: Government Commitment Establish a dedicated and professional implementation agency under an Implementation Council headed by the Honourable Prime Minister to oversee the development of the biotech industry in Malaysia.

During the Ninth Malaysia Plan period (2006-2010), efforts will be geared towards the implementation of the NBP, with the active participation of the private sector. An enabling institutional, regulatory and financial framework will be developed to promote biotechnology as a major driver of sustained economic growth and human capital development will be intensified to meet the industry's skill needs and nurture entrepreneurship.

To achieve its goal of strengthening the biotechnology infrastructure, the government will establish the Bionexus Network comprising biotechnology companies and organizations that will leverage on existing facilities, infrastructure and capabilities of universities and research institutions throughout Malaysia. One of the key features is the establishment of Centres of Excellence to promote and support R&D in biotechnology focus areas. To date, three centres of excellence have been set up, namely:

- Institute of Agricultural Biotechnology located in Serdang, Selangor;
- Malaysian Genome Institute located in the vicinity of the National University of Malaysia (Universiti Kebangsaan Malaysia), Bangi, Selangor; and
- National Pharmaceutical and Nutraceutical Institute located within the Science University of Malaysia (Universiti Sains Malaysia) in Penang.

In line with the NBP, the Malaysian Biotechnology Corporation (BiotechCorp) was established to act as the lead agency in facilitating the development of Malaysia's biotechnology industry. BiotechCorp will help create a conducive business and regulatory environment for both local and foreign investors. Towards this end, the Malaysian Government, through BiotechCorp, will award BioNexus Status to qualified biotechnology and life sciences companies which are able to enjoy privileges contained within the Bionexus Bill of Guarantees and fiscal incentives.

The BioNexus Bill of Guarantees provides the following privileges:

- Freedom of ownership;
- Freedom to source funds globally;
- Freedom to bring in knowledge workers;
- Eligibility for competitive incentives and other assistance;

- Eligibility to receive assistance for international accreditations and standards;
- Strong intellectual property (IP) regime;
- Access to supportive information network linking research centres of excellence;
- Access to shared laboratories and other related facilities; and
- BiotechCorp as the one-stop agency.

BioNexus Status companies are eligible for the following tax incentives:

- 1. For BioNexus status companies
 - 100 per cent income tax exemption for 10 years from the first year the company derives profit; or Investment Tax Allowance of 100% on the qualifying capital expenditure incurred within a period of 5 years;
 - tax exemption on dividends distributed by the company;
 - exemption of import duty and sales tax on raw materials/components and machinery/equipment;
 - double deduction on expenditure incurred for the promotion of exports; and
 - concessionary tax rate of 20 per cent on income from qualifying activities for another 10 years upon the expiry of the tax exemption period.

- 2. For a company that invests in its subsidiary, which is a BioNexus status company;
 - tax deduction equivalent to the amount of investment made in that subsidiary provided the investing company owns at least 70 per cent of that subsidiary.
- 3. For a company or individual investing in a BioNexus company
 - tax deduction equivalent to the amount of investment made in seed capital and early stage financing.

BioNexus Status companies are also eligible to apply for the following Biotechnology Commercialisation Grants from BiotechCorp:

- Seed Funding of up to RM2.5 million;
- R&D Matching Grant of up to RM1.0 million; and
- International Business Development Matching Grant of up to RM1.25 million.

As at 31 December 2006, seven companies have received BioNexus Status from BiotechCorp.

PETROLEUM PRODUCTS INCLUDING PETROCHEMICALS

The petroleum and petrochemical industry covers petrochemicals, petroleum products and natural gas. The industry is one of the leading industrial sectors with total investments of RM55.5 billion. Malaysian investments in the sector amounted to RM34.8 billion (62.7%) with PETRONAS, the national oil company, as the major investor. Foreign investments, mainly from USA and Japan, accounted for 37.3 per cent of the total investments in the sector.

The Malaysian petrochemical industry has developed into a vibrant and strong regional player, largely through the efforts of the Malaysian Government and PETRONAS. PETRONAS has pursued a policy of adding value to its various hydrocarbon streams in partnership with global petrochemical companies. These companies have been selected to bring market and technology skills to complement PETRONAS' own strengths.

There are currently 41 companies in operation with a combined capacity of 12.8 million metric tonnes per annum (mtpa). Total investments in these companies was RM32 billion as at the end of 2006. USA is the largest source of foreign investments contributing 40 per cent of total foreign investments in this industry, followed by Germany (22.8%) and Japan (14%). The major investors are Dow Chemicals, BP Amoco, Shell, BASF, Eastman Chemicals, Toray, Mitsubishi, Idemitsu, Polyplastic, Kaneka, Dairen and the Titan Petchem Group.

Three major petrochemical zones have been established in Kertih (Terengganu), Gebeng (Pahang) and Pasir Gudang-Tanjung Langsat (Johor). Each zone is an integrated complex with crackers, syngas and aromatics facilities to produce basic feedstock for downstream products.

Table 7

Zone	Core Products	Derivatives and Products			
Kertih, Terengganu	Ethylene, propylene, para-xylene, benzene and syngas	Ammonia, acetic acid, polyethylene (PE), ethanolamines, ethoxylates, glycol ethers, butanol, butyl acetate, ethylene oxide (EO), ethylene glycol (EG), vinyl chloride monomer and polyvinyl chloride (PVC)			
Gebeng, Pahang	Propylene and syngas	Polypropylene (PP), acrylic acid and esters, butyl acetate, oxo-alcohols, pthalic anhydride and plasticisers, butanediol, tetrahydrofurane, gamma- butyrolactone, polyester copolymers (PETG), purified terephthalic acid, dispersion PVC (DPVC), methyl metacrylate copolymers, methyl tertiary butyl ether (MTBE) and polyacetals			
Pasir Gudang - Tanjung Langsat, Johor	Ethylene, propylene, benzene, toluene, xylene and butadiene	Polyethylene (PE), polypropylene (PP), ethylbenzene (EB), styrene monomer (SM), polystyrene (PS), expandable polystyrene (EPS) and ethylene vinyl acetate (EVA)			

Products N	1anufactured	in the	Three	Petrochemic	al Zones

In addition, there are also petrochemical plants located in other parts of Malaysia such as the ammonia/urea fertiliser plants in Gurun, Kedah and Bintulu, Sarawak, the acrylonitrile butadiene styrene (ABS) plant in Penang, the methanol plant in Labuan and the nitrile-butadiene rubber (NBR) plant in Kluang, Johor.

The petroleum products industry includes lubricating oils and refinery products such as gasoline, kerosene, fuel oils, gas oils, jet oils, diesel, bitumen and naphtha.

The total capacity of the five refineries and one gas-to-liquid plant in operation is 635,000 barrels of crude oil per day. The refineries supply mainly to the domestic market. Total investments in these projects is RM6.9 billion, of which 87 per cent is domestic investments. The investors are PETRONAS, Shell, Esso and Conoco.

The demand for lubricating oils is estimated to range between 250,000 to 300,000 mtpa. The major companies in this industry are PETRONAS, Shell, BP, Esso, Mobil and Caltex, which together supply 70 per cent of the total demand. The remaining 16 companies in production are mainly SMIs. Total investments in this industry is RM1.1 billion of which 63 per cent is domestic investments. Base oil for the production of lubricating oils is currently imported as base oil production is only expected to start in 2008.

Natural gas is mainly used for the production of liquefied natural gas (LNG), power generation and as feedstock to the petrochemical industry. Malaysia is currently the third largest producer of LNG

in the world after Algeria and Indonesia with a capacity of 24 million mtpa. The Bintulu complex in Sarawak consists of three LNG plants with total investments of RM13 billion. It is the single largest site for LNG in the world. Eighty (80) per cent of the investments are owned by PETRONAS and the Sarawak State Government. Foreign investors involved in these projects are Shell, Mitsubishi and Nippon Oil LNG. The entire LNG production is exported, mainly to Japan, South Korea and Taiwan. The Bintulu complex also produces 450,000 mtpa of LPG, mainly for the export market.

The six gas processing plants (GPPs), with a combined capacity of 2,000 million standard cubic feet of gas per day and total investments of RM4 billion, are located in Terengganu. The GPPs produce methane (sales gas) for power generation and ethane, propane, butane and condensate as feedstock for the petrochemical industry. The GPPs are part of the Peninsular Gas Utilisation (PGU) Project which includes a trans-peninsular gas transmission pipeline system connecting the GPPs to various industrial areas in Peninsular Malaysia.

The availability of hydrocarbon feedstocks from indigenous oil and gas has led to the development of the petrochemical industry. The two ethane crackers in Kertih, Terengganu which use ethane from the six GPPs in Kertih and Tok Arun, Terengganu provide feedstock for the polyethylene plants, acetic acid plant and DOW PETRONAS ethylene derivatives complex. Condensates from the GPPs also provide feedstock to the aromatic plant in Kertih, Terengganu for the production of paraxylene and benzene.

Propane from the GPPs is the raw material for the propane dehydrogenation plant in Gebeng, Pahang. This provides feedstock to the polypropylene and MTBE plants and to the BASF PETRONAS integrated propylene derivatives complex for the production of acrylics, oxo alcohols, butanediol, butylacrylates, plasticisers and tetrahydrofurane.

Titan's integrated operation in Pasir Gudang-Tanjung Langsat, Johor includes a naphtha cracker which provides feedstock for its own production of polypropylene, polyethylene and aromatics. It also provides feedstock for the production of ethylene vinyl acetate (EVA). Naphtha is available from the petroleum refineries and Shell's middle distillates synthesis (MDS) plant in Bintulu, Sarawak. However, a large proportion of the naphtha requirement is still being imported.

For petrochemicals, the range of products produced by the 41 companies in operation includes commodity and engineering grade plastic resins, petrochemical derivatives as well as specialised and fine chemicals.

The main domestic investor in the petrochemical industry is PETRONAS. USA is the largest source of foreign investments, contributing 40 per cent of total foreign investments in the petrochemical industry. PETRONAS has also made significant contributions to the development of support infrastructure, utilities and services dedicated for the industry. This has created an

investment environment which is conducive for the petroleum and petrochemical industry to expand, particularly in Kertih, Terengganu and Gebeng, Pahang.

The development of the plastic fabrication industry is assisted by the local production of polymers and plastic resins. At least 60 per cent of domestic consumption of plastic resins is sourced locally. The plastic conversion and fabrication sub-sector is an important supporting industry catering mainly to the E&E, automotive and construction industries. Plastic resin compounders, converters and fabricators provide the downstream linkage to the polymer industry.

Chart 1

Opportunities in Manufacturing



The development of specialty and fine chemicals for use in the food and pharmaceutical industries, and new areas in the E&E, automotive and machinery industries, will enhance the value-added contribution of petrochemicals. This will also lead to the development of synergies with the oleochemical industry.

Chart 2





In 2006, the petroleum products and petrochemical industry was estimated to contribute RM73 billion to the country's export earnings compared with RM56 billion in 2005. The main export markets were People's Republic of China, ASEAN, USA and Japan. Imports totalled RM58 billion in 2006 compared with RM37 billion in 2005. Imports were mainly from Singapore, Saudi Arabia and USA.

Malaysia was a net importer of petrochemical products in 2006, with imports of RM18.1 billion and exports of RM15.4 billion. In 2005, imports totalled RM17.3 billion while exports amounted to RM16.8 billion.

Singapore, Thailand and Indonesia are

major producers of petrochemical products in ASEAN. In terms of tonnage, Indonesia and Thailand have larger capacities than Malaysia. Indonesia's petrochemical products are mainly fertilisers and resins for fibres while Thailand's main products are plastic resins. Singapore's petrochemical industry is more diversified in terms of higher value-added products.

While People's Republic of China remains the largest export market for Malaysian products, there is potential for increased demand for commodity-type petrochemicals such as polyethylene (PE), polypropylene (PP), polyvinylchloride (PVC) resins from the ASEAN countries, especially Cambodia, Laos, Myanmar and Viet Nam as their economies grow. The demand from the other ASEAN countries, namely Thailand, Indonesia and the Philippines, would be for higher value-added products such as oxo alcohols, polybutylene terephathalate (PBT), polyacetal (PA) and acrylonitrile butadiene styrene (ABS) resins.

Projects Approved in 2006

In 2006, ten projects were approved with total investments of RM11.4 billion compared with 15 projects with total investments of RM735 million in 2005. Six of the projects were new projects involving investments of RM8.8 billion and four were expansion/diversification projects with investments of RM2.7 billion. Domestic investments in the 10 projects amounted to RM10.8 billion while foreign investments totalled RM605 million. The approved projects are expected to generate employment for 1,395 persons.

Graph 55

Investments in Projects Approved in the Petroleum Products including Petrochemical Industry, 2006 and 2005



The major projects approved were:

- SKS Development Sdn. Bhd., a wholly Malaysian-owned project, which is building a new crude petroleum refinery in Kedah with a capacity of 200,000 barrels per day based on imported crude. All the products will be exported. Total cost of the project is RM7.68 billion;
- Petronas Methanol (Labuan) Sdn. Bhd. with an investment of RM2.04 billion, to expand its production capacity of methanol. The project is expected to make Labuan the single largest site for the production of methanol in the world;
- A new butanediol plant in Sabah with an investment of RM1.06 billion by Panca Intan Sdn. Bhd.; and
- Toray Plastics of Japan, to expand its production of acrylonitrile-butadienestyrene (ABS) resin with the introduction of speciality grades of this engineering plastic with an additional capital

investment of RM450 million. Implementation of this project has commenced at the company's existing site in Penang.

The approval in 2006 of a new 200,000 barrels per day refinery in Malaysia will raise the country's refining capacity to over 800,000 barrels of crude oil per day. There is increasing interest to establish oil refineries in Malaysia based on imported crude oil and catering entirely for the export market. This is in view of the advantageous location of the country relative to the major growth centres for petroleum products, namely ASEAN, People's Republic of China and India. If this trend continues, Malaysia will become a hub for the oil refining industry which is expected to result in positive spin-offs for the country's services sector such as logistics and support industries.

Malaysia will also have the largest single site for methanol production in Labuan when the expansion by PETRONAS comes onstream in 2008. Construction work has started on the project which is expected to supply methanol for the production of methyl ester biodiesel and formaldehyde for the production of adhesives for the wood-based industry and acetic acid for the production of fine and specialty chemicals in the country.

The expansion by Toray will deepen the range of engineering plastics produced in the country to supply the requirements of plastic components producers for the electrical, electronics, medical devices and automotive industries. The strategic thrusts for the petrochemical sector in the IMP3 are:

- Expanding and enhancing the valueadded of existing capacities and broadening the range of petrochemicals produced;
- Diversifying into manufacturingrelated services and support industries;
- Enhancing linkages with downstream industries, in particular plastics and oleochemicals;
- Intensifying the development of technologies in materials and product applications;
- Improving chemical process technologies and the application of catalysts to increase yields;
- Undertaking the full integration of existing petrochemical zones in Kertih, Terengganu; Gebeng, Pahang; and Pasir Gudang-Tanjung Langsat, Johor;
- Establishing new petrochemical zones in Bintulu, Sarawak; Gurun, Kedah; Tanjung Pelepas, Johor; and Labuan;
- Making feedstocks available at competitive prices;
- Improving market access through free trade agreements (FTAs); and
- Enhancing the technological and management skills and expertise of the workforce.

The projects approved in 2006 are in line with the strategic thrusts in the IMP3 as the projects will broaden and deepen the petrochemical industry in Malaysia. While efforts will be made to increase the availability of feedstocks through the establishment of a new cracker or to debottleneck existing crackers as stated in the IMP3, the expected slow down of the global petrochemical market in 2008 will impact the timing of such large investments. The focus will remain on generating greater value-added to the country's oil and gas resources.

PLASTIC PRODUCTS

The plastic products industry currently consists of 1,500 manufacturers employing more than 95,000 persons. The annual turnover was estimated at RM15.6 billion in 2006, an increase of 11 per cent compared with RM14.1 billion in 2005. Resin consumption increased to 1.85 million tonnes from 1.72 million tonnes in 2005, giving a per capita resin consumption of 75 kg.

Of the 1,500 plastic manufacturers, about 900 or 60 per cent are SMIs. About 800 (53%) of the companies are majority Malaysian-owned.

The SMIs in this industry generally lack economies of scale, capital and technical and marketing expertise to become global producers. There is a need to encourage consolidation within the industry through mergers and acquisitions, joint-ventures and other forms of collaborations with MNCs in order to benefit from technology transfer, cost efficiencies and enlarged markets.

Malaysia is a net exporter of plastic products. Exports of plastic products are expected to increase by 18 per cent to reach RM7.9 billion in 2006. Major export destinations were People's Republic of China, Hong Kong, Singapore, Japan and Thailand while major items exported were packaging materials such as flexible films, sheets and bags, bottles and containers (50%) and plastic components for the E&E industry (27%).

Imports of plastic products increased to RM6.5 billion in 2006 from RM5.2 billion in 2005. Major sources of imports were Japan, Singapore, People's Republic of China, USA and Thailand. Main items imported were articles of plastic (54%) and plates, sheets, films and foils (31%).

The main production processes in the plastic products industry are injection moulding, film extrusion, blow moulding, pipe and profile extrusion, foam moulding and composite fabrication.

Graph 56

Profile of the Plastic Products Industry by Manufacturing Process, 2006



The main market segments are plastic packaging, E&E components, household, automotive, construction and agriculture.





Polyethylene (PE), polypropylene (PP), polyvinylchloride (PVC) and polystyrene (PS) remain the main types of resins consumed in the country. The industry also witnessed increasing usage of engineering plastics such as acrylonitrile butadiene styrene (ABS), acrylonitrile styrene (AS), polyacetyl (PA), polyester copolymers and polybutylene terephthalate (PBT), which are available locally. Other engineering plastics such as polyamides (nylons) and polycarbonates (PC) will continue to be imported. Polymer blends such as glass reinforced polypropylene and nylons have also been introduced. These engineering plastics are mainly used for the production of parts and components for the E&E industry, automotive parts and medical equipment. In flexible packaging, more degradable plastics are being introduced as the industry becomes more aware of the need to be environment- friendly.

The medical equipment segment, especially plastic parts and components and equipment for the emerging biotechnology industries which require cleanroom manufacturing environment remains targeted for development. This segment of the industry, while still relatively small, is expected to lead in terms of technology advancement. Local and foreign investors will be encouraged to produce these high value-added and precision products in the country.

New environmental regulations, especially in the EU, continued to be introduced. The Restriction on Hazardous Substances (RoHS) Directive impacts on the plastic parts and components industry directly. Besides the EU, People's Republic of China and Australia are expected to introduce their own versions of the RoHS regulations in the near future. Other regulations, such as the Waste in Electrical and Electronic Equipment (WEEE) Directive, the EU REACH Regulations and EuP (Ecodesign) Directive, will have indirect impact on the plastic products industry.

The EU concluded anti-dumping and antisubsidy investigations on plastic carrier bags imported from Malaysia in 2006. While the anti-subsidy investigations were dropped, the anti-dumping duty margins imposed on Malaysian products were found to be de minis and no countervailing or anti-dumping duties were imposed on imports of plastic carrier bags from Malaysia. This proves that Malaysian plastic bag producers are able to compete fairly in the highly competitive EU market.

Projects Approved in 2006

In 2006, a total of 85 projects were approved with investments of RM1.1 billion compared with 81 projects valued at RM1.2 billion in 2005. Of the 85 projects, 48 were new projects (RM549 million) and 37 were expansion/ diversification projects (RM587 million). Projects approved in 2006 involved domestic investments of RM378 million (33.3%), and foreign investments of RM757 million (66.7%). The projects approved in 2006 will provide potential employment for 7,607 persons.

Graph 58

Investments in Projects Approved in the Plastic Products Industry, 2006 and 2005



Plastic components were the leading subsector in 2006 with 28 approved projects involving investments of RM368.6 million (32%). Of these, 16 (RM151 million) were new projects and 12 (RM217.6 million) were expansion/diversification projects.

For plastic packaging products, there were 21 approved projects in 2006 with investments of RM325.2 million (29%). Of these, 11 (RM133 million) were new projects and 10 (RM192.2 million) were expansion/diversification projects. The

majority of these projects were for the manufacture of flexible films, sheets and bags, and blow moulding bottles and containers.

Graph 59

Investments in Projects Approved in the Plastic Products Industry by Segment, 2006



Major projects approved were:

- Allied Speciality Compounds Sdn. Bhd. for the production of specialty polymers and composites. This is a wholly foreign-owned (Singapore) project with an investment of RM124.1 million. The factory will be located in the Senawang Industrial Park in Seremban, Negeri Sembilan. The company will supply high performance polymer compounds for companies in the E&E industry such as Seagate, Maxtor, Xerox, Hitachi, HP and Shimano;
- Lintec Industries (M) Sdn. Bhd. from Japan, to expand its facilities for the production of silicone-coated polyester films with an additional investment of

RM60.8 million. The company is located in Prai, Penang and produces silicone-coated polyester films for use by producers of ceramic capacitors and for packaging industries. The company will export 50 per cent of its production;

- Shorubber (M) Sdn. Bhd., a wholly Japanese-owned company, to diversify into the production of polyurethane coated gloves with an additional investment of RM60 million at its existing facilities in Perlis;
- Nitto Denko Materials (M) Sdn. Bhd. from Japan, to expand its production of adhesive tape and film with an additional investment of RM53 million at its existing factory in Selangor; and
- Polyplastics Asia Pacific Sdn. Bhd. from Japan to expand its compounding facilities for polyacetyl, polybutylene terephthalate, polyphenylene sulphide and liquid crystalline polymers with an additional investment of RM47.8 million at its existing premises in Gebeng, Pahang.

In 2006, a total of 10 projects were approved with investments of RM242 million, mainly in the engineering plastics and specialty polymers and composites sub-sector. These are high value-added products which are in line with the Government's efforts to move the industry up the value chain. These products are used for the production of plastic components for high performance E&E, medical equipment and automotive industries. The increased interest in the manufacture of plastic components and plastic compounds indicates that the sector is moving up the technology and value chain. This trend is expected to continue in the coming years.

RUBBER PRODUCTS

Rubber continues to be an important source of export earnings for Malaysia as well as a vital raw material for the rubber products manufacturing industries. Currently, there are 500 rubber product manufacturers in this industry which employ more than 68,000 persons.

Production of natural rubber in 2006 amounted to 1.33 million tonnes compared with 1.13 million tonnes in 2005. The smallholding sector contributed 95 per cent of total production while the estate sector contributed the remaining 5 per cent. Malaysia imported 543,740 tonnes of natural rubber, mainly from ASEAN countries (96%). The main type of rubber imported was latex concentrate which accounted for 62 per cent of total imports.

In 2006, the rubber products industry consumed 377,141 tonnes or 28 per cent of natural rubber production. The largest consumers of natural rubber were latex products (71%), followed by tyres and tubes (14.9%) and industrial and general rubber products (13.9%).

Exports of rubber products totalled RM8.4 billion in 2006, registering a growth of 5 per cent compared with RM8 billion in 2005.

Imports of rubber products increased to RM1.6 billion in 2006 from RM1.4 billion in 2005. USA remained Malaysia's single largest export market valued at RM2.2 billion in 2006. Latex products accounted for 72 per cent of the total value of the exports of rubber products.

Malaysia is currently the world's leading producer and exporter of rubber products, mainly consisting of catheters, latex thread and natural rubber medical gloves. Malaysia is also the fifth largest consumer of natural rubber, after People's Republic of China, USA, Japan and India.

The latex products sub-sector is the largest within the rubber products industry. The products in this sub-sector include medical devices, household and industrial gloves, latex thread, balloons, finger stalls and foam products. Currently, there are 142 companies in operation. This subsector was the largest contributor to export earnings in the rubber products industry with RM6.1 billion (73%) in 2006.

In the industrial and general rubber products sub-sector, there are currently 199 companies in operation. In 2006, exports of this sub-sector amounted to RM2.1 billion (24%).

There are 151 companies in the tyres and tyre-related products sub-sector. Of these, 10 are tyre producers while the rest are producing retreads, tyre treads for retreading, valves and other accessories. Currently, there are four major tyre producers producing passenger car tyres, commercial vehicles tyres and earthmover tyres and six manufacturers of other types of tyres. In 2006, exports of this sub-sector amounted to RM264.5 million.

There are currently 14 manufacturers in the rubber footwear sub-sector, mainly producing rubber boots, sportswear, school shoes and casual footwear such as slippers. The industry faces competition from lower cost producers.

Projects Approved In 2006

In 2006, a total of 37 projects with investments of RM714.6 million were approved in the rubber products industry, compared with 27 projects with investments of RM773 million in 2005. Of the 37 projects approved, 15 were new projects with investments of RM169.7 million and 22 were expansion/ diversification projects with investments of RM544.9 million. Projects approved in 2006 involved domestic investments of RM456.8 million (63.9%) and foreign investments of RM257.7 million (36.1%).

Investments were mainly in latex products (RM550.2 million), industrial and general rubber products (RM150.7 million), recycling of waste tyres into rubber crumbs, steel tubes, fuel oil and fibres (RM9.3 million) and tyres and tyre-related products (RM4.4 million).

A total of 15 projects (RM550.2 million) were approved in the latex products subsector, of which four were new projects (RM92.2 million) and 11 were expansion/ diversification projects (RM458 million). Domestic investments amounted to RM379.8 million (69%), while foreign investments totalled RM170.4 million (31%).

Of the 15 projects approved in the latex products sub-sector, 11 projects with investments of RM348 million were approved for the production of industrial gloves, household gloves and examination gloves. This will further strengthen Malaysia's position as the world leader in the production of rubber gloves.

Graph 60

Investments in Projects Approved in the Rubber Products Industry by Sub-Sector, 2006



A total of 19 projects with investments of RM150.7 million were approved in the industrial and general rubber products sector. These projects were for the manufacture of products such as moulded rubber products for automotive, industrial hoses, anti-vibration dampers, tubes and seals. Of the 19 projects approved, nine were new projects (RM68.2 million), while 10 were expansion/diversification projects (RM82.4 million). Domestic investments amounted to RM64.4 million (42.7%), while foreign investments totalled RM86.3 million (57.3%).

The recycling of waste tyres into rubber crumbs, steel wires, fuel oil and fibres attracted two new projects with investments of RM9.3 million. Domestic investments amounted to RM8.2 million (89.1%) while foreign investments totalled RM1.1 million (10.9%).

The major projects approved were:

- an expansion/diversification project by a foreign-owned company to produce natural rubber latex threads with an investment of RM151.5 million. The company plans to export 90 per cent of its products. The latex threads are used in the production of underwear, corsetry, socks, baby diapers and even the meat trade as elastic netting for cooking meat joints; and
- an expansion project by a Malaysianowned company to manufacture examination and surgical gloves with an additional investment of RM 57 million.

The rubber products industry will need to diversify further, emphasising on high valueadded and high technology rubber products, such as for engineering, construction and marine applications. As outlined in the IMP3, more R&D efforts will need to be undertaken on new product development and downstream activities. New areas for promotion would include the extraction of biochemical products from latex using biotechnology. These efforts will ensure that the quality of products is continuously improved to maintain competitiveness in the export market. Latex products will continue to be the major sub-sector in the rubber products industry. To further strengthen Malaysia's position as the world leading producer and exporter of latex products, there is a need to improve promotional and branding strategies. In this sub-sector, Malaysian-owned companies such as Top Glove and Supermax have developed into major global producers. They have established their own brands and marketing channels. They have also expanded their operations abroad for market access and cost competitiveness.

For industrial and general rubber products, there is potential for high value-added products such as engine mountings, suspension bushes and bridge seismic bearings as well as other related products, such as ethylene propylene rubber and ethylene propylene diene rubber.

The rubber products industry is dominated by Malaysians and many Malaysian companies have developed into global players, such as in rubber gloves and rubber thread. The future development of the industry will depend on its ability to diversify and deepen the range of products, especially with more synthetic rubber materials becoming available.

WOOD & WOOD PRODUCTS AND FURNITURE

The wood-based industry can be divided into two categories i.e primary and secondary wood processing. Primary wood processing utilises logs as its raw material to produce sawntimber and veneer. Secondary wood processing turns primary products and other solid wastes such as small branches, off-cuts, edgings or slabs, chippings and sawdust into
downstream value-added products. The industry over the years, has successfully developed and diversified into the production of a wider range of downstream products such as panelbased products which consist of veneerproducts based and plywood; wood-based reconstituted panels (particleboard/chipboard and fibreboard); mouldings and builders' joinery and carpentry (BJC); and furniture and furniture components.

For the period January to November 2006, of wood-based products exports amounted to RM21 billion compared with RM21.2 billion in 2005. Among the major products exported were plywood (RM6.4 billion), wooden furniture (RM5.6 billion), sawntimber (RM3.2 billion), fibreboard (RM1 billion) and BJC (RM936.4 million). There was increase in demand from both existing and emerging markets.

There are about 4,500 wood-based companies in operation and it is estimated that more than 80 per cent of these are SMIs. Malaysian furniture is exported to more than 160 countries and the main destinations are USA, UK, Japan, Australia and Singapore. Besides these markets, Malaysian furniture has gained access to the markets in New Zealand, South America, the Middle East, Africa and Russia. In 2005, Malaysia ranked as the 9th largest exporter of furniture in the world.

About 80 per cent of wooden furniture is made of rubberwood, with the remaining 20 per cent from a mixture of other wood and wood composites such as medium density fibreboard (MDF) and particleboard. Garden/outdoor furniture from tropical hardwood is mainly for the European market. The solid tropical wood species used are known for their durability under different climatic conditions.



Graph 61

Table 8

Number of Wood-Based Processing Mills in Malaysia, 2005

	Pen. Malaysia	Sabah	Sarawak	Total
Total	2,995	725	829	4,549
Sawmills	664	178	290	1,132
Plywood/Veneer	52	67	55	174
Mouldings	167	157	28	352
Furniture, Joinery & other woodworkings	1,774	200	389	2,363
Laminated board	34	n.a.	12	46
Particleboard / Chipboard	12	3	1	16
MDF	9	1	3	13
Others*	283	119	51	453

* Others including woodchips, parquet, prefabricated house, kiln drying (KD) and wood preservations

Source: Ministry of Plantation Industries and Commodities

The production of sawntimber, veneer, plywood and other veneered panel products is concentrated in Sabah and Sarawak where the mills utilise tropical hardwood as raw material. The downstream processing mills such as mouldings, BJC, fibreboard, as well as furniture and furniture components are mainly located in Peninsular Malaysia. These mills mainly utilise rubberwood which is sourced from plantations.

The production of rubberwood sawntimber in Peninsular Malaysia increased from 49,929 cubic metres in 1995 to 251,790 cubic metres in 2005. However, the increase in demand both locally and abroad and an increase in rubber latex prices have discouraged plantation operators and individual owners from harvesting rubberwood timber. This has resulted in a shortage of rubberwood supply. To ensure adequate supply of rubberwood and to further encourage the production of value-added products, the export of rubberwood sawntimber was banned with effect from 8 June 2005. Effective 11 August 2006, the Government announced further measures to ban the export of finger-jointed sawn rubberwood (thickness and/or width of more than $3^{1/2}$ inches and of less than one foot per piece).

In the Ninth Malaysia Plan, the Government has proposed to develop a Material City which will serve as a 'one-stop centre' for wood-based and furniture manufacturers to source raw materials and components. The objectives of the Material City are to strengthen the existing furniture industry, ensure that wood-based products remain competitive globally and facilitate the supply and distribution activities of the wood-based industry.

In the panel products sub-sector, plywood, fibreboard and particleboard/ chipboard remained significant contributors to the total export earnings of timber products with combined exports of RM6.7 billion (31.9% of total exports) in January-November 2006. Malaysian panel products have attained international standards such as Japanese Agricultural Standards (JAS), Japanese Industrial Standards (JIS), British Standards (BS) and Harmonised European Standards (EN). Major export destinations were Japan, Republic of Korea and USA.

Currently, there are 174 plywood mills in operation, with Sarawak as the main

producer and exporter of plywood. The industry has upgraded its mills to cope with a wide variety of species. Some of the mills also manufacture specialty plywood such as plywood overlaid with decorative veneer, printed paper and polyester; plywood for concrete formwork and marine plywood. Plywood has overtaken wooden and rattan furniture as the biggest contributor to export earnings from timber-based products, accounting for 30.3 per cent of total exports for the period January-November 2006. Exports of plywood increased from RM5.6 billion in 2005 to RM6.4 billion in 2006 (January-November).

Malaysia is the largest exporter of tropical plywood and second largest exporter of plywood in the world after the People's Republic of China. Japan remained as the largest export destination, accounting for more than half of Malaysian exports (53.8%), followed by USA and Republic of Korea.

The panel products sub-sector has diversified into the production of high value-added reconstituted panel products such as particleboard/chipboard and MDF to maximise the utilisation of wood resources. The utilisation of sawlogs is expected to increase from 72.4 per cent in 2005 to 75.7 per cent by 2010. The reconstituted panels have been able to replace solid wood and plywood particularly for the manufacture of furniture. The particleboard segment has grown and currently there are 16 companies in operation. Most of the products are for export market, with Japan, People's Republic of China, and UAE as the main export destinations. In 2006 (JanuaryNovember), exports of reconstituted panel products amounted to RM1.3 billion, compared with RM1.4 billion in 2005.

In the MDF segment, there are currently 13 companies in operation with nine companies located in Peninsular Malaysia, three in Sarawak and one in Sabah. A number of these companies have also ventured into the production of laminated/printed MDF for export. Exports of MDF amounted to RM1.1 billion in 2006 (January-November). Currently, Malaysia is the world's second largest exporter of MDF, after Germany. Malaysian exports are mainly to Japan, People's Republic of China and UAE.

Besides reconstituted panel products which are non-structural, the industry has also diversified into structural engineered products such as glue laminated lumber, oriented strand board, structural composite materials and laminated veneer lumber to meet the demand for structural and industrial applications. These products will increase the utilisation of natural resources and serve as an alternative to plywood or solid sawntimber for the construction industry. These products are environment-friendly and can be produced based on specific structural requirements.

The production of logs is expected to decline at an average rate of 1.6 per cent per annum during the period 2006-2010, from 21.3 million metric tonnes to 19.5 million metric tonnes. In view of the diminishing supply of logs and the abundant supply of agricultural waste

such as palm biomass (30 million tonnes), the industry has also diversified into the manufacture of high value-added reconstituted composite products such as fibre-reinforced polymer composites. Besides palm biomass, other sources of fibres include kenaf, bamboo and agricultural wastes (such as rice husks and coconut trunks). These products can be produced in the form of boards/profiles used in industrial, construction, automotive and furniture industries.

Another major sub-sector is wood mouldings and BJC. The products under BJC include architectural mouldings (panelling, skirtings, crowns, and chair rails), doors, windows and accessories, wooden flooring and wooden railings. Exports of mouldings and BJC are mostly to USA, Japan, Australia, and the Netherlands. In 2006 (January-November), exports of mouldings amounted to RM710.2 million while exports of BJC totalled RM936.4 million. Major BJC products exported were wooden doors and wooden floorings (RM624.1 million), accounting for two-thirds of total exports of BJC.

Currently, there are about 2,300 furniture manufacturers, mostly located in Peninsular Malaysia, particularly in Johor, Melaka and Selangor. The rapid expansion of the Malaysian furniture industry since 1990 can be attributed to the development of OEM market where local manufacturers serve as contract manufacturers to overseas buyers with specific designs provided. With competition from lower cost producing countries such as People's Republic of China and Viet Nam, more companies are placing greater emphasis on the finishing, designing and marketing of higher quality products for niche markets. Furniture manufacturers have combined the use of various materials to create designs which are not only aesthetic but also functional.

In line with Malaysia's commitment towards sustainable forest management, the Malaysian Timber Certification Council (MTCC) was established in October 1998 to operate a national timber certification scheme. The scheme [Malaysian Criteria, Indicators, Activities and Standards of Performance for Forest Management Certification - MC&I (2002)] is based on the principles and criteria of the Forest Stewardship Council (FSC). With increasing demand for certified timber products from developed countries, there is a need to intensify efforts to increase the timber certification of Permanent Forest Reserves (PFR) in Malaysia. Currently, a total of 4.73 million hectares (or 32.8% of 14.4 million hectares) of PFR has been certified by MTCC. As at 30 November 2006, a total of 96 timber companies have been awarded the MTCC Certificate for Chain-of-Custody (CoC). The CoC certification involves the verification by an independent third-party assessor, appointed by MTCC, that the wood products (including logs) purchased are derived from certified forests.

During the period January to November 2006, a total of 70,794 cubic metres of certified timber products (sawntimber, plywood, mouldings, finger-jointed moulding and laminated timber) were exported mainly to UK, the Netherlands and Germany. Greater efforts are required to increase the trade of certified timber to achieve the 50 per cent target by 2010 as set by the Government.

Projects Approved in 2006

In the wood-based industry, 103 projects were approved with investments of RM1.4 billion in 2006 compared with 91 projects approved with investments of RM872.2 million in 2005. The industry includes panel products, wooden furniture, mouldings and BJC, sawntimber, nonwood fibres and other timber products such as woodchips, pallets and briquettes. Of the 103 projects approved, 70 were new projects with investments of RM752.1 million (54%) and 33 were expansion/ diversification projects with investments of RM641.9 million (46%). Domestic investments amounted to RM1.1 billion or 75.5 per cent of total investments.

The panel products sub-sector, with 14 projects approved, received the highest investments of RM661.5 million, more than four-fold increase compared with 2005 (RM117.8 million). This was mainly due to the approval of three MDF projects with investments of RM482.6 million or 73 per cent of total investments approved for this sub-sector. Domestic investments totalled RM423.1 million or 64 per cent. Five were new projects with investments of RM163.6 million while nine were expansion/diversification projects with investments of RM497.9 million.

In the wooden furniture sub-sector, 62 projects were approved with investments of RM410.9 million, compared with 55 projects with investments of RM511.7 million in 2005. Domestic investments totalled RM355.8 million or 86.6 per cent. Of the 62 projects, 44 were new projects with investments of RM288.1 million while 18 were expansion/diversification projects with investments of RM122.8 million. Most of the projects approved were proposed for location in Johor (22), Selangor (22) and Penang (7).

In the moulding and BJC sub-sector, 10 projects were approved with investments of RM124.5 million. Most of the projects approved were for the manufacture of mouldings and other BJC products such as flooring boards, and doors and windows. Domestic investments amounted to RM123.9 million or 99.5 per cent. Nine were new projects with investments of RM120.5 million (96.8%) while one project was an expansion/ diversification project with an investment of RM4 million.







In the non-wood fibre products subsector, eight projects were approved with investments of RM88.9 million. Two projects with investments of RM6.5 million were for the manufacture of chips, veneer and plywood from coconut trunks while five projects with investments of RM46 million were for the manufacture of veneer, sawntimber, plywood, blockboard, finger-joints and mouldings from oil palm biomass. Besides these materials, the wood-based industry has also explored the use of other alternative raw materials such as kenaf to complement the use of wood fibre.

Among the projects approved were:

- a diversification project by Jayakuik Sdn. Bhd., a Malaysian-owned company to manufacture plain and melamine impregnated MDF at a new location with an investment of RM148 million in Sabah. Eighty per cent of the production would be exported mainly to the Middle East, India, Viet Nam and People's Republic of China. The project will utilise local tropical hardwood waste and recycled wood;
- a new project with an investment of RM25 million to manufacture wooden furniture, metal furniture and upholstered furniture such as kitchen, bedroom set and seat. The factory will be located in Selangor and all the products are for export to Australia and EU;
- a new joint-venture project by KEFI (Malaysia) Sdn. Bhd. with an investment of RM36.4 million to manufacture kenaf fibres and kenaf insulators with

technology from Italy. The products will be exported mostly to EU and other countries such as Japan, Singapore and Korea;

- a new project by Biowood (M) Sdn. Bhd. with an investment of RM17 million to manufacture oil palm plywood. Plywood made from palm veneer is relatively new to the industry and is also known as 'green plywood'. The factory will be located in Perak and more than 70 per cent of its products will be exported to People's Republic of China and India; and
- a new project by Palm Wood Technology Sdn. Bhd. with an investment of RM5 million to manufacture kiln-dried timber, blockboard, finger-jointed boards and wood mouldings from oil palm biomass. About 50 per cent of kiln-dried timber and blockboard manufactured will be exported to Japan, People's Republic of China, USA and Saudi Arabia while finger-jointed boards and mouldings will be for the domestic market. This is the first project in Malaysia which will be able to supply oil palm sawn timber commercially for the manufacture of furniture.

The wood-based industry will continue to focus on downstream value-added processing activities and reduce the export of unprocessed wood in order to remain viable. The industry has moved up the value chain into secondary processing activities and has invested heavily in capital-intensive industries such as MDF and particleboard manufacturing. Notwithstanding this, the industrial linkage between the upstream industries such as sawntimber, veneer/plywood and other panel products and the downstream industries that utilise these materials as well as components, needs to be strengthened. The export performance is expected to improve with the growth of the global construction industry.

The global furniture industry is expected to expand further (according to CSIL Milano - Furniture Industry Research Institute in Italy) and the world furniture trade is estimated to grow from US\$90 billion in 2006 to US\$97 billion in 2007, with a projected growth of between 7-8 per cent. In Malaysia, furniture is expected to remain the major contributor to export earnings. Malaysia's exports of furniture is expected to grow by 5-10 per cent annually until 2010, in tandem with the increase in global demand. In order to achieve higher export earnings, Malaysian furniture manufacturers need to move away from supplying to the mass market segment into designing their own products and branding for targeted niche markets. The positive outlook for the furniture industry worldwide will continue to support the development of the domestic wood-based industry as most of the projects approved will cater for the export market.

NON-METALLIC MINERAL PRODUCTS

The non-metallic mineral products industry covers ceramic products, glass products, cement and concrete products and other products such as quicklime, barite, marble and granite. In 2006, there were 452 licensed companies with total investments of RM18.9 billion. Domestic investments amounted to RM11.1 billion while foreign investments totalled RM7.8 billion.

Total sales value of the non-metallic mineral products industry in 2006 (January–November) was RM9.5 billion and the industry employed 47,686 workers. Malaysia is a net exporter of non-metallic mineral products. In 2006 (January-November), exports of this industry totalled RM2.9 billion while imports totalled RM2.8 billion.

The ceramics industry can be classified into two categories, namely traditional ceramics and advanced ceramics. The traditional ceramics sub-sector comprises refractory products, pottery, bricks, tiles, sanitary ware and tableware. The advanced ceramics sub-sector involves the manufacture of advanced ceramic parts and components for the E&E industry such as ceramic substrates, ceramic rods and catalytic converters.

In 2006 (January-November), total sales value of the ceramics industry was RM1.8 billion and the industry employed more than 20,000 workers. Malaysia is a net importer of ceramic products. Exports of ceramic products amounted to RM1.1 billion in 2006 (January-November) while imports totalled RM1.3 billion.

Currently, there are eight companies producing sanitary ware. Leading producers are Johnson Suisse (Malaysia) Sdn. Bhd., Sime Inax Sdn. Bhd. and GBH Bathroom Product Sdn. Bhd. In 2006, Johnson Suisse (Malaysia) Sdn. Bhd. was acquired by Roca of Spain, the world's second largest manufacturer of sanitary ware. Roca will introduce state-of-the-art technology in the production of sanitary ware. The involvement of Roca with a local company is expected to boost Malaysian exports.

Currently, there are six companies manufacturing advanced ceramic parts for the E&E industry. Major producers are Maruwa Malaysia, SMCI Globetronics and Fuh Kai Advance Ceramics. Maruwa Malaysia produces chip resistors, sliders, rod printer heads and ceramic substrates.

The glass industry covers the production of float glass, safety glass, glass containers, glassware, architectural glass, glass fibre and technical glass. Glass products manufactured in Malaysia include high value-added products such as glass panels and funnels for cathode ray tube, quartz glass, tempered glass windows and screens for automobiles.

Currently, there are two companies involved in the manufacture of glass components for the E&E industry, namely Nippon Electric Glass (NEG) and Samsung Corning. In 2006, the Malaysian glass industry continued to attract large investments in technical glass such as hard disk glass substrates, quartz glass and plasma display exhaust pipes. These technical glasses are used as devices in the E&E industry.

Total sales value of the glass industry in 2006 (January-November) was RM2.1 billion and the industry employed more than 7,000 workers. Malaysia is a net

exporter of glass and glass products. In 2006 (January -November) exports of this sub-sector amounted to RM1.4 billion.

Graph 63

Exports of Non-Metallic Products, 2006 (January-November)



Projects Approved in 2006

In 2006, a total of 29 projects with investments of RM1.2 billion were approved in the non-metallic mineral products industry compared with 30 projects in 2005 with investments of RM921.5 million. Of the 29 projects approved, 18 were new projects while 11 were expansion/diversification projects. Domestic investments amounted to RM204.3 million, while foreign investments totalled RM1.2 billion.

Of the 29 projects approved:

 seven projects (RM845.4 million) were for the manufacture of glass products such as hard disk glass substrates, quartz glass and plasma display exhaust pipes. Of these, two were new projects (RM697.5 million) while five were expansion/diversification projects (RM147.9 million);

- five projects (RM70.6 million) were for the manufacture of pretension spun concrete piles and ready-mixed concrete. Two of these were new projects (RM11 million) while three were expansion/diversification projects (RM59.6 million);
- ten (10) projects (RM57.5 million) were for the manufacture of ceramic products. Of these nine were new projects (RM56.4 million), while one was an expansion/diversification project (RM1 million); and
- seven projects (RM193.1 million) were for the manufacture of other nonmetallic mineral products such as artificial stone products, quicklime and barite. Five of these projects were new projects (RM163.6 million) while two were expansion/diversification projects (RM29.5 million).

Graph 64

Investments in Projects Approved in the Non-Metallic Mineral Products Industry by Sub-Sector, 2006



Significant projects approved included:

- an expansion/diversification project by Industrial Concrete Products Bhd., with an additional investment of RM43.4 million to manufacture pretension spun concrete piles;
- an expansion/diversification project by Maruwa (Malaysia) Sdn. Bhd. with an additional investment of RM20.8 million for the manufacture of quartz glass. The product is used for various applications in the electronic and communications industry. The quartz glass produced will be supplied to Maruwa's major customers around the world; and
- an expansion/diversification project by Sam Chang Precision (M) Sdn. Bhd. for the manufacture of plasma display panel (PDP) exhaust pipes. The product is a glass-based product used to generate vacuum in PDP and can stand high temperatures and pressure. The PDP exhaust pipes manufactured will be exported to Korea.

PAPER AND PRINTING

The paper and printing industry encompasses the manufacture of pulp, paper, paper products and printing activities. In 2006, there were 339 licensed companies with total investments of RM8.6 billion. Domestic investments amounted to RM6.7 billion while foreign investments totalled RM1.9 billion. Total sales value of the industry in 2006 (January-November) was RM5.6 billion and the industry employed 33,284 workers.

The paper manufacturing sub-sector covers industrial brown paper, printing and writing paper, newsprint, tissue paper and joss paper. Currently, there are 23 paper mills in operation with capacity of 1.5 billion metric tonnes. These companies use recycled paper as their raw material except for Sabah Forest Industries (SFI), which uses virgin pulp from its own plantation. Local paper mills supply 60 per cent of the domestic consumption. The balance is imported mainly from Indonesia, Japan, Republic of Korea, Finland and Sweden.

Currently, there are six major companies producing industrial brown paper such as corrugating medium paper and test liners. Major producers are Genting Sanyen Industrial Paper, Muda Paper Mills and Pascorp Paper. The production capacity of these companies is about 735,000 metric tonnes a year.

There are three major companies producing tissue paper with production capacity of 145,000 metric tonnes a year. These companies are Nibong Tebal Paper Mill, Kimberly Clark and Yeong Chaur Shing. Malaysia is self sufficient in tissue paper production.

Malaysia Newsprint Industries (MNI) is the only producer of newsprint in Malaysia with a production capacity of 250,000 metric tonnes a year. MNI supplies 70 per cent of newsprint for domestic consumption. Sabah Forest Industries Sdn. Bhd. (SFI) is the only producer of printing and writing paper in Malaysia. The total production capacity of this company is 165,000 metric tonnes, which is sufficient to supply 40 per cent of domestic consumption. In 2006, Ballarpur Industries Ltd. (BILT) announced that it will acquire Sabah Forest Industries Sdn. Bhd. (SFI). The acquisition will ensure further expansion and upgrading of the pulp and paper production of SFI. In five years, BILT will invest around RM1 billion to set up a new pulp plant at the existing site in Malaysia.

In 2006 (January-November), total sales value of the paper manufacturing subsector amounted to RM1.9 billion. The sub-sector has total investments of RM2.5 billion and employs 1,403 workers. Malaysia is a net importer of paper. In 2006 (January-November), exports of this sub-sector amounted to RM614 million while imports totalled RM5.6 billion.

The paper products sub-sector includes paper packaging products, labels and stickers, carbon and self-copy papers, wall papers and disposable diapers. The sales value of paper products in 2006 (January-November) was RM3.5 billion. The main activity in this sub-sector is the manufacture of packaging products, such as corrugated cartons and inner packaging and cushioning materials with the bulk of the production comprising corrugated carton boxes. Malaysia is a net exporter of paper products. In 2006 (January-November), exports of this sector totalled RM1.2 billion and imports totalled RM726 million. Major export destinations

were People's Republic of China, Japan and Singapore.

The corrugated carton sub-sector is one of the major sectors within the paper products industry. Presently, there are 45 licensed corrugated carton manufacturers in Malaysia. The sales value of these companies in 2006 (January-November) totalled RM2.3 billion. Major consumers of corrugated cartons are the E&E, food, chemical, textiles and furniture industries.

Printing companies in Malaysia are mainly SMIs. The main activities undertaken are printing of packaging, books, documents, newspapers, greeting cards, labels and stickers. The industry is largely domestic market-oriented. However, there are larger printers which are able to secure contract printing of books for international publishers. Malaysia is a net importer of printing materials. Exports of this subsector in 2006 (January-November) amounted to RM861 million while imports totalled RM1.1 billion.

Graph 65





Projects Approved in 2006

In 2006, a total of 26 projects with investments of RM688 million were approved in the paper and printing industry. Of these, nine were new projects (RM236.4 million) and 17 were expansion/ diversification projects (RM451.6 million). Domestic investments amounted to RM594.6 million while foreign investments totalled RM93.4 million.

Graph 66

Investments in Projects Approved in the Paper and Printing Industry by Sub-Sector, 2006



Of the projects approved:

 five projects (RM439.1 million) were for the manufacture of pulp and paper. Of these, one was a new project (RM90 million) while four were expansion/ diversification projects (RM349.1 million). A significant project approved was an expansion/diversification project by Union Paper Industries Sdn. Bhd., a Malaysian-owned company with an investment of RM106.6 million to manufacture tissue paper;

- twelve (12) projects (RM152.7 million) were for the manufacture of paper products. of which four were new projects (RM88.9 million) and eight were expansion/diversification projects (RM63.8 million); and
- nine projects (RM96 million) were for printing activities. Of these, four were new projects (RM57.5 million) while five were expansion/diversification projects (RM38.5 million).

C. IMPLEMENTATION OF APPROVED MANUFACTURING PROJECTS

A proactive approach has been taken by the Government to support and facilitate investors in implementing approved projects:

- The Project Implementation and Coordination Unit (PICU), established in MIDA on 1 February 2001 is responsible for coordinating, monitoring and expediting approvals for issuance of Building Plans (BPs) and Certificates of Fitness of Occupation (CFOs) by local authorities. As at 31 December 2006, PICU had considered 400 issues, of which 372 have been resolved while 28 are still being addressed. Among the common issues are:
 - problems relating to conversion of land use from agricultural to industrial;
 - amalgamation of land and issuance of land titles;

- delays in approval of Building Plans, Certificates of Fitness of Occupation and Business Licences;
- provision of infrastructure and utility facilities, such as electricity, access roads and supply of natural gas; and
- registration and licensing of rebuilt/commercial vehicles.
- Special Project Officers (SPOs) have been appointed by MIDA, to advise and assist companies in the implementation of projects approved in the manufacturing and related services sectors. To date, 22 SPOs have been assigned to the respective states to ensure that all the necessary approvals are obtained within the stipulated time frame.
- Special Task Forces have been set up to assist the implementation of strategic projects. Between 2005 and 2006, three such task forces were established to assist in the implementation of projects by Flextronics Technology (Malaysia) Sdn. Bhd., Infineon Technologies (Kulim) Sdn. Bhd. and CIBA Vision Johor Sdn. Bhd.
- One-Stop Centres (OSCs) have been established at both the local authority and state levels to expedite the processing and approval of BPs and CFOs. Problems that cannot be resolved by OSCs at the local authority levels are referred to OSCs at the state levels for deliberation. To date, all the State Governments and 144 local authorities have established OSCs. The number of technical agencies involved in granting

CFOs has been reduced from seven agencies to four. MIDA's SPOs are represented at the OSC committee meetings at both the local authority and state levels.

- A number of State Governments have established State Investment Centres (SICs) as a single window to promote and facilitate investments in their respective States. Presently, Selangor, Penang, Negeri Sembilan, Melaka, Johor, Kedah, Perak and Kelantan have set up SICs to provide information and advisory services to existing and potential investors as well as to assist them in the implementation of their projects.
- District Industry Implementation Units (DIIUs) have been established to monitor the implementation of projects at the district level and provide the necessary assistance to expedite the approval process. DIIUs will be chaired by the relevant District Officers/ Council Presidents and MIDA will be the secretariat. To date, Selangor, Johor, Penang, Sabah, Negeri Sembilan and Pahang have agreed to the setting up of DIIUs while the other states are finalising their respective DIIUs.

The handholding activities undertaken by MIDA and the respective State Governments have resulted in higher rate of implementation of approved manufacturing projects. For the period 2001-2006, a total of 5,889 manufacturing projects were approved, of which 4,271 (72.5%) projects have commenced production while 196 (3.3%) are at the stage of machinery installation and factory construction. Of the 4,271 projects in production, 588 projects commenced production in 2006.

Graph 67

Status of Implementation of Manufacturing Projects Approved during 2001-2006, as at 31 December 2006



Total investments in the 4,467 projects implemented (which include projects which have commenced production, constructed factory or installed machinery) amounted to RM92.0 billion. In addition, 118 projects involving investments of RM21.1 billion have acquired their sites, while 972 projects involving investments of RM53.5 billion are in active planning stage. These 1,090 projects when implemented will involve total investments of RM74.5 billion.

Significant projects implemented in 2006 were:

 Infineon Technologies (Kulim) Sdn. Bhd. with an investment of RM3.8 billion and potential employment of 1,700 workers to manufacture power logic wafer fabrication in Kulim Hi-Tech Park, Kedah. With the assistance of the Government task force, the project was implemented in September 2006, five months ahead of schedule;

- Flextronics Technology (Malaysia) Sdn. Bhd., a wholly foreign-owned project from Netherlands with an additional investment of RM1 billion, to undertake design, R&D, component sourcing, PCBA, final assembly (box build), system integration and final testing, and logistic for high-end products such as imaging and printing, communications, hand-held electronics and automotive in Port of Tanjung Pelepas (PTP) Johor. The project will create additional employment for 3,579 persons. With assistance of the special task force, the company managed to complete its factory construction within six months:
- CIBA Vision Johor Sdn. Bhd., a project located in Port of Tanjung Pelepas to produce silicon hydrogel contact lenses with an investment of RM500 million. To date, 80 per cent of the company's factory construction has been completed and it is expected to commence production in April 2007;
- Smart Modular Technologies Sdn Bhd.(RM 249.9 million) from USA, an expansion project to manufacture memory and communications devices in Penang;
- Penang Seagate Industries (M) Sdn. Bhd. (RM790.0 million) from USA, an expansion project to manufacture disk drive parts in Penang; and

• Kobe Precision Technology Sdn. Bhd. (RM 81.0 million) from Japan, an expansion project to manufacture disk blank and disk substrates in Penang.

Of the 4,467 projects implemented, 2,208 projects (49.4%) are export-oriented (more than 50% exports). They were mainly in the following industries:

- E&E 574 projects
- M&E 197 projects
- Fabricated 185 projects metal products
- Furniture & fixtures 180 projects
- Food manufacturing 156 projects
- Plastic products 138 projects
- Wood & wood products 132 projects

In terms of location, 1,425 projects implemented are located in Selangor, followed by Johor (1,017 projects), Penang (640 projects), Kedah (265 projects), Perak (243 projects) and Melaka (207 projects).

According to the Ministry of Human Resources, in 2006, a total of 136 companies had down-sized their operations which resulted in the retrenchment of 5,254 workers. In addition, 74 companies had ceased operations resulting in the retrenchment of 4,629 workers.

However, the 588 projects which came into operation in 2006 were estimated to have created 49,296 job opportunities and would provide alternative employment to the 9,883 workers who were retrenched.

Box Article 2 – Promotion of Cross Border Investments

Introduction

The Malaysian Government is encouraging Malaysian companies to venture overseas to expand markets, tap new investment opportunities and acquire new technologies. Cross border investments in the long-term will enable Malaysian companies to become part of the global production network, which is one of the main thrusts of the IMP3. The IMP3 aims at positioning Malaysia's long-term competitiveness to meet the challenges of a fast changing global economic environment.

Malaysian companies will also need to take advantage of the opportunities arising from regional agreements and the various bilateral agreements, as well as the current global trends in outsourcing.

Trends of Malaysian Investments Overseas

With increasing regionalisation and globalisation, more Malaysian companies are investing overseas. Direct investments abroad by Malaysians increased from RM12.9 billion in 2005 to RM17.1 billion in 2006, reflecting increased interests by Malaysian companies to diversify their operations abroad.

The top destinations for Malaysian investments were ASEAN countries, which accounted for about half of total direct investments abroad. Other major destinations included People's Republic of China, USA and Hong Kong. Some of Malaysia's investments were channelled through international offshore financial centres before being re-directed to their final destinations.

Graph 68





Source: Bank Negara Annual Report 2005 and Department of Statistics

Malaysian investments overseas were in the oil and gas, manufacturing and services sectors. Malaysian SMIs are also investing in countries such as People's Republic of China, Indonesia and Viet Nam.

In the oil and gas sector, PETRONAS continues to forge joint-venture partnerships with several foreign oil companies for exploration and extraction, lending technical expertise and providing working capital for investments. Overseas investments in the manufacturing sector were led by companies in the semiconductor and other electronic component and ship building industries. In the services sector, a large share of overseas investments was undertaken by companies in the transport and communications sub-sector.

The Government will continue to encourage and support Malaysian companies intending to invest overseas as it will result in economic benefits to the country. This will include accessing new and larger markets, maintaining market share and sourcing raw materials inputs and components for the growth of domestic industries as well as diversifying into new businesses. In addition, the repatriation of profits from such investments to Malaysia would also improve the country's balance of payments.

MIDA's Role in Promoting Cross Border Investments

MIDA assumes the role of facilitating and assisting Malaysian companies intending to invest overseas. In this context, MIDA has undertaken a number of initiatives and programmes to encourage and promote cross border investments, which include:

- evaluation of applications for tax incentive to acquire foreign-owned companies;
- evaluation of applications for the Malaysia – Singapore Third Country Business Development Fund;
- organising seminars on business opportunities in selected targeted countries;

- networking with Boards of Investment/ Investment Promotion Agencies in targeted countries;
- maintaining database on investment policies, incentives and procedures for the targeted countries;
- developing a cross border investments section in MIDA's website focusing on cross border investments activities undertaken by Malaysian companies;
- organising business/cross border missions to developing countries; and
- identifying investment opportunities in targeted countries.

MIDA has undertaken a "Study to Identify Investment Opportunities to Promote Cross Border Investments". The study has identified domestic industries in the manufacturing sector which are suitable for cross border investments. The study has also identified new investment opportunities overseas, rules and regulations, administrative procedures and fiscal and non-fiscal incentives provided by selected targeted countries. The identified industries for cross border investments are:

- textile;
- electrical and electronics;
- palm oil;
- wood products;

- rubber products; and
- plastic and paper packaging.

The information is useful in investment planning and formulation of strategies before embarking on investment overseas. As such, this information will be disseminated to Malaysian companies interested to invest overseas.

Programmes Implemented in 2006

1. Seminars on Business Opportunities in Selected Targeted Countries

MIDA, in collaboration with the Malaysia South South Association (MASSA) and supported by the Embassies/High Commissions as well as the Investment Promotion Agencies of the respective countries successfully organised eight seminars in 2006. These seminars were held for the following countries:-

- Myanmar, Uruguay and Cambodia, 16 May 2006;
- Kenya, Morocco and Sudan, 17 May 2006;
- Egypt, Oman and Namibia, 11 July 2006;
- South Africa, 12 July 2006;
- Bangladesh, 23 August 2006;
- Mauritius, 21 September 2006;

- Zambia, 28 November 2006; and
- Mongolia, 28 November 2006.

A total of 652 participants attended the seminars representing companies in the manufacturing, trading, services, banking and finance and construction sectors as well as Government agencies. Most of the participants were from companies located in Selangor and Kuala Lumpur. Business meetings were organised in conjunction with these seminars to explore further business opportunities of mutual interest.

2. Capacity Building Programmes

In 2006, MIDA organised three programmes with the objective to enhance capacity building among the South South Countries, Organisation of Islamic Conference (OIC) member countries and African countries. The programmes were:

- Familiarisation Programme for Officials of Investment Promotion Agencies of the South South Countries, 17–28 July 2006 attended by a total of 41 participants from 23 countries;
- Familiarisation Programme for Officials of Investment Promotion Agencies of the Organisation of Islamic Conference (OIC) Member Countries, 14 – 22 September 2006 attended by a total of 31 participants from 26 countries; and

 High Level Workshop for Officials of SME Development Institutions of African Countries, 5 – 21 November 2006 attended by a total of 22 participants from 9 countries.

An alumni association has been formed for participants who had attended these programmes. The objective of this association is to enhance networking among members for collaborative ventures and synergistic ties through exchange of information.

3. Business Mission to Bangladesh

MIDA and MASSA organised a Business Mission to Bangladesh from 3 –7 June 2006 with the objectives of exploring business opportunities and collaboration and increasing trade and economic co-operation between Malaysia and Bangladesh. A total of eight Malaysian businessmen representing six companies participated in the mission.

4. MIDA Enterprise Connect

A web-based facility, Enterprise Connect or E-Connect, has been established to assist and facilitate business matching services. This web-based facility will help investors to connect with business partners globally.

As at 31 December 2006, a total of 532 companies had registered with E-Connect, comprising 282 Malaysian companies and 250 foreign companies.

5. Database on Investment Policies, Incentives and Procedures

MIDA has compiled a database on selected countries which include information on rules and regulations for doing business, incentives being offered and investment opportunities in these countries. A database of Malaysian companies with investment overseas is being developed and will be up-dated regularly.

6. Networking through Visits and Dialogues

A total of 26 delegations from developing countries visited MIDA with the objectives of strengthening bilateral relationships and forming joint business collaborations with Malaysian companies.

Among the high profile visits were:

- H.E Prime Minister of Lao People's Democratic Republic, 10 November 2006;
- H.E Deputy Prime Minister of Mauritius, 22 September 2006; and
- Commission of People's House of Representatives of East Java, Indonesia, 27 November 2006.

Incentives and Facilities for Cross Border Investments

The Malaysian Government continues to

encourage cross border investments by Malaysian companies by providing various incentives and facilities, which include:

• Tax Incentive to Acquire Foreign-Owned Companies Overseas

Locally-owned companies that acquire foreign-owned companies abroad for the following purpose can be considered for an annual deduction of 20 per cent of the acquisition cost for 5 years:

- (a) acquire high technology for production within the country; or
- (b) acquire new export markets for local products

In 2006, six proposals were approved with tax incentive to acquire foreignowned companies with total acquisition costs amounting to RM401.3 million.

• Malaysia-Singapore Third Country Business Development Fund

The Malaysia-Singapore Third Country Business Development Fund, established on 7 November 1995, allows Malaysian and Singaporean enterprises to cooperate and jointly identify investment and business opportunities in "third countries".

In 2006, one proposal to undertake pro-active searches was approved with total grant of RM51,601.

MIDA's Future Programmes

As part of its continuous efforts in promoting cross border investments, MIDA will initiate new programmes which include:

- i) Organising Business Mission
 - A business mission to Mauritius and Zambia will be organised by MIDA and MASSA in March 2007.
- ii) Developing a website link on cross border investments.
 - The website link will provide information on investing in selected countries and link the websites of Investment Promotion Agencies (IPAs) worldwide.

iii) Establishing the Cross Border Investment Promotion Division in MIDA

- The existing Cross Border Investment Unit will be expanded into a Division to spearhead the promotion and coordination of cross border investments in the manufacturing and services sectors.
- iv) Establishing new MIDA Offices in Targeted Countries.
 - MIDA is planning to establish new overseas offices in targeted countries to focus on the promotion of cross border investments, explore investment opportunities and assist Malaysian companies to invest in these countries and regions.

7 • INVESTMENT PERFORMANCE OF THE SERVICES SECTOR



INVESTMENT PERFORMANCE OF THE SERVICES SECTOR

A. MANUFACTURING-**RELATED SERVICES**

Manufacturing-related services cover regional establishments such as Operational Headquarters (OHQs), International Procurement Centres (IPCs), Regional Distribution Centres (RDCs), regional offices (ROs) and representative offices (REs), and other support services such as R&D, integrated logistics services, integrated market support services, integrated central utility facilities, cold chain facilities for food products and renewable energy.

REGIONAL ESTABLISHMENTS

To date, a total of 2,281 regional establishments have been approved in Malaysia, which include 133 OHQs, 191 IPCs, 17 RDCs, 593 ROs and 1,347 REs.

Graph 69

Number of Regional Establishments Approved as at 31 December 2006



In 2006, a total of 184 (2005: 169) new regional establishments were approved to be set up in Malaysia. Proposed annual business spending by these establishments more than doubled to RM950.3 million (2005: RM440.4 million). Estimated annual sales turnover for IPCs and RDCs increased by 66.7 per cent to RM7.3 billion compared with RM4.8 billion in 2005.

These operations will create a total of 1,968 jobs (2005: 1,901) for Malaysians. Operations such as OHQs, IPCs and RDCs generally create more job opportunities for Malaysians in the managerial, professional and technical levels.

Graph 70

Annual Business Spending by Regional Establishments, 2006 and 2005



Operational Headquarters

Since the introduction of the OHQ incentive scheme in 1990, a total of 133 OHQs have been approved. Of these, 26 were from USA, followed by Japan (14), Germany (12), UK (10), the Netherlands (9) and Australia (9). Total paid-up capital amounted to RM606.3 million with proposed annual business spending of RM1.5 billion. A total of 1,680 expatriates have been approved to be employed in these OHQs and 6,620 job opportunities were created for Malaysians. Most OHQs established in Malaysia are engaged in business process outsourcing (BPO) activities including provision of shared services to their related companies in the Asia Pacific region.

To date, a total of 91 OHQs have started operations. These OHQs are involved mainly in oil and gas, finance, E&E, construction, food and beverages, timber, logistics, healthcare and health informatics, pharmaceutical, chemicals, automotive, power and engineering services.

Some of the world renowned MNCs which have established OHQs in Malaysia include:

USA	 General Electric Du Pont Dow Chemicals PepsiCo Grey Communications Hess Oil & Gas 	 Kellogg's Schlumberger Baker Hughes Intel Transocean Agilent
Japan	 Sharp Electronics Kajima Corporation Japan Tobacco International Bridgestone 	 NEC Infrontia Sumitomo Nippon Electric Glass Nippon Menard
Germany	BASFMuehlbauerEppendorf	• Siemens • Nordenia • Bayer
Australia	 IBA Health IEV Group Leighton Linfox 	 Wagners Paradigm Ansell Dome
UK	 RMC Industries British-American Tobacco Diagonal Consulting Group	Fitness FirstJames R Knowles
Switzerland	MichelinNorvatis Corporation	SBM GroupOmya Group
France	• Lafarge	Thales International
Netherlands	• Flexsys	• Organon
Sweden	• Volvo	UCB Group
PRC	 China Shipping 	
Norway	• Aker Kvaerner	

There is an increasing trend among companies in the oil and gas industry to use Malaysia as an OHQ base for their operations in the Asia Pacific region. To date, 17 oil and gas companies have established their OHQs in Malaysia, including Schlumberger, Westerngeco, Baker Hughes, Hess Oil & Gas, Paradigm Geophysical, Technip, Worley, Transocean, IEV Group, GE O&G Pipeline Solutions, Aker Kvaerner, SBM Group, Consolidated Capital and KNM Group. The OHQs set up by these companies provide services such as planning, coordination and monitoring of bidding of oil and gas projects in the Asia Pacific region; technical support during bidding and implementation stages, including technical designs and drawings as well as certification and standards compliance; management of material and equipment sourcing and logistics; data management and processing; and training and personnel management.

Projects Approved in 2006

The number of OHQs approved increased by 42 per cent from 19 in 2005 to 27 in 2006, with total paid-up capital of RM107.7 million. Total annual business spending increased by 65.8 per cent from RM181.4 million in 2005 to RM300.7 million in 2006. Of these, four OHQs involved upgrading from existing regional offices and two involved relocation of operations from Singapore and Japan, to Malaysia.

Of the OHQs approved, four each were from USA and Japan; three were Malaysian companies, two each from the UK, Australia, Switzerland and British

Virgin Islands; one each from Germany, Norway, Singapore, Sweden and Hong Kong and the remaining four were jointventure projects between Malaysia, Japan, Singapore, Luxembourg and People's Republic of China. A total of 258 expatriate posts were approved for these OHQs and 820 employment opportunities will be provided for Malaysians. Of these, 67.5 per cent of the posts were for senior management and senior executive positions which will be filled by Malaysians. In the technical, skilled and specialist category, 73.5 per cent of the posts will be filled by Malaysians.

Major OHQs approved in 2006 included:

- General Electric Group from USA, to establish a support centre for its oil and gas operations in the Asia Pacific region as well as UK, America, Europe and Middle East. This OHQ provides support services such as technical support and maintenance, pipeline data management and processing, corporate financial advisory and business planning and coordination to its related entities in UK, Germany and USA. A total of 51 employment opportunities, including 36 positions for professional, technical and specialist staff will be created;
- Eppendorf AG, one of the leading companies in the life science industry and a global leader in the manufacture and supply of specialised research tools and devices, has selected Malaysia as the preferred location for the coordination of its Asian activities.

The already existing organisation is expanding its presence in the Malaysian market with an enlarged support and sales organisation. The incorporation of Eppendorf Asia Pacific Sdn. Bhd. in Kuala Lumpur as Regional Headquarters will provide guidance and support for all marketing and sales activities including training and other services for Eppendorf organisations in Australia, India, Hong Kong, People's Republic of China and Japan;

- SBM Group from Switzerland to establish an OHQ in Malaysia to support its oil and gas operations in America, the Netherlands and Switzerland. SBM is a pioneer for Single Point Mooring systems, dynamically positioned drilling vessels, jack-up drilling rigs and heavy offshore cranes. The company upgraded its Regional Office to OHQ and provides common services to support the group's operations in the Netherlands, Switzerland and USA. This OHQ will employ 113 Malaysians, including 103 in the managerial, professional and technical levels;
- Aker Kvaerner Group, which is a Norway-based global provider of engineering and construction services, technology products and integrated solutions, to set up a coordination centre and a "one-stop source of solution" for a wide range of common services to its related entities in Singapore, Thailand, Indonesia, Australia and Malaysia. Services provided include general management and administration, business planning and coordination, technical support

and maintenance, data and information management and processing, treasury and fund management, corporate financial advisory services, training and HR management as well as R&D relating to new technologies associated with oil and gas field development and programmes to enhance productivity;

- Hill Corporate Services Sdn. Bhd. from British Virgin Islands, which is the subsidiary of Leading Enterprise Holding Limited, one of the few companies in the world that provides security and risk consulting services. This OHQ serves its related entities in USA, the Middle East and the Asia Pacific region;
- Diagonal Consulting Group from UK, which provides SAP consulting and solutions. The company relocated its regional headquarters from Singapore to Malaysia. This OHQ provides 178 employment opportunities including 138 jobs for Malaysians. Of these, 98 posts are in the managerial, professional, technical and specialist levels. The OHQ will provide services to its related companies in Singapore, UK and USA;
- Omya Group from Switzerland, which is the world leading producer of calcium carbonate pigments and fillers for various industrial applications, to upgrade its existing regional office in Malaysia to an OHQ. The OHQ will monitor, coordinate, support and provide shared services to its related companies in Australia, New Zealand, Indonesia, Thailand, People's Republic of China, Taiwan, Republic of Korea, India, Viet Nam and Malaysia;

- Nippon Electric Glass, a world leader in the production of high technology specialised glass products, to move up the value chain by relocating its OHQ from Japan to Malaysia to provide value-added services to its related entities in UK, Indonesia and People's Republic of China. The company has expanded its production activities in Malaysia to manufacture glass products such as glass panels, funnels for cathode ray tubes, glass tubing, glass fibre and glassware;
- World Vest Base, a subsidiary of Financial Intelligence Services from Hong Kong, a leading financial service provider, to upgrade its Representative Office to an OHQ with the expansion of its scope of activities. The OHQ employs 44 Malaysians and provides several services to its related companies in Viet Nam, Thailand, Egypt, USA and Mexico;
- Bridgestone Group, a Japanese corporation which is a world leader in the production of tyres and other rubber products, to expand its activity in Malaysia by establishing an OHQ to provide support services to its related companies in Malaysia, Indonesia, Australia, India, Thailand, Singapore, the Philippines and Viet Nam. The OHQ in Malaysia is the regional arm for the Bridgestone Group for engineered /industrial products such as insulation and sealing appliances, hose products and conveyor belts. The Group currently has manufacturing facilities in Malaysia to produce sheet compound, materials for water tanks and urethane products;

- IBA Health (Asia) Sdn. Bhd., a subsidiary of IBA Health Ltd. from Australia, the largest health information technology company in Asia, Middle East and Australasia, to establish an OHQ to serve its related companies in Malaysia, People's Republic of China, Singapore, South Africa, Sudan and Thailand. The OHQ established in Malaysia will provide employment opportunities to 80 people including 66 jobs for Malaysians;
- The Nippon Menard Group, which is a Japanese-based global manufacturer and distributor of cosmetics and skin care products, to set up an OHQ in Malaysia to coordinate its operations in the Asian region including Singapore, Thailand and Hong Kong;
- Volvo Car Malaysia Sdn. Bhd., a subsidiary of Volvo Car Corporation from Sweden, to upgrade its Regional Office in Malaysia to an OHQ as part of its expansion exercise to support its related companies in the Asia Pacific region, covering Thailand, Taiwan, Republic of Korea, People's Republic of China and Singapore. A total of 51 employment opportunities, including 36 positions in professional, technical and specialist fields will be created by this operation;
- The Australian-based Wagners Group which is involved in the field of concrete, quarries, transport and is a world leader in composite fibre technologies, to set up an OHQ to

support the Group's operations in Indonesia, Russia, New Caledonia and Cyprus;

- KNM Group, a public-listed company in Malaysia which manufactures process equipment for the oil and gas and petrochemical industries, to set up an OHQ to monitor the Group's operations in Australia, Indonesia, Italy, UAE and People's Republic of China; and
- Hitachi Data System, a subsidiary of the Japan-based Hitachi Group and a leading global producer of complete information systems and services, to establish a Deal Operations Centre (DOC) in Malaysia to provide services to its related entities in Australia, New Zealand, Singapore, People's Republic of China, Republic of Korea, Thailand, Indonesia, Hong Kong, Taiwan and India. The DOC in Malaysia is the second to be set up within the Group, following the successful implementation of its first DOC in USA. This DOC is responsible for providing support services in the areas of configuration, inventory allocation, pricing strategy, audit and compliance.

There is an increasing trend among MNCs to locate their operational headquarters in Malaysia, mainly to support their Asia Pacific operations. MNCs which have chosen Malaysia as their regional headquarters have indicated the following favourable factors that have influenced their decision:

- political stability;
- good connectivity and strategic location within ASEAN;
- lower cost of doing business;
- an educated, productive and multilingual work force;
- good infrastructure;
- resilient business environment;
- liberal policy on expatriate employment and ownership; and
- attractive incentive packages

International Procurement Centres

International corporations, with their strong network of production bases in the Asia Pacific region, have established IPC operations in the country. Their IPCs serve as procurement and distribution centres and undertake supply chain management for their manufacturing operations both in Malaysia and abroad.

As at 31 December 2006, a total of 191 IPCs have been approved. The total annual sales turnover of these IPCs was estimated at RM63.2 billion while their business spending was estimated at RM5 billion per annum. Of the IPCs approved, 85 or 44.5 per cent were by corporations from Japan, followed by Malaysia (31), USA (13), Taiwan (11) and Singapore (9) and the remaining 42 were jointventures mainly with companies from Japan and Singapore.

A total of 109 or 57.1 per cent of these IPCs were servicing the E&E industry, followed by the chemicals/petrochemical (24), machinery and industrial parts (14),

textiles (9) and furniture (7) industries. As at 31 December 2006, a total of 110 IPCs have started operations.

Major MNCs which have located their IPC operations in Malaysia include:



Projects Approved in 2006

A total of 14 projects to establish IPCs were approved in 2006 compared with 15 projects in 2005. Proposed annual business spending of these IPCs increased more than two-fold from RM126.4 million in 2005 to RM422.9 million in 2006. Similarly, sales turnover increased by 37.2 per cent from RM4.3 billion in 2005 to RM5.9 billion in 2006. Of the IPC projects approved, six were by Japanese MNCs, two by Malaysian companies and one by a company from the Netherlands. The remaining projects were joint-ventures

between Malaysia, Japan, Singapore, Taiwan and Hong Kong. These IPCs will provide employment opportunities for 740 Malaysians (2005: 421), mainly in the managerial, technical and skilled categories.

Major IPCs approved included:

- IOI Loaders Croklaan, the IPC established under the IOI Group which is involved in the plantation, processing, production and distribution of palm oil and its related products. This IPC serves as a centralised procurement and distribution centre for crude palm oil and processed palm oil for IOI's refinery and specialty oil processing plants in Malaysia, Europe, USA and Egypt;
- Titan Trading Corp. Sdn. Bhd., a subsidiary of Titan Chemical Corp. Bhd. which is involved in the production of polymer products including ethylene, propylene, benzene, toluene, polyethylene, polypropylene and butadiene in Malaysia. The Group has established an IPC to consolidate its procurement and distribution activities in the region;
- MC Palm IPC (Malaysia) Sdn. Bhd., a new establishment set up by Mitsubishi Corporation, the largest sogo shosha in Japan. It will take over the IPC function from its related entities in Singapore and Japan for the procurement and distribution of palm oil and palm kernel oil;
- Sharp Electronics (Malaysia) Sdn. Bhd., a subsidiary of Sharp Corporation of

Japan, which has production facilities in Malaysia for a wide range of consumer electronic products and information equipment. The company has been selected by its parent company to become the procurement and distribution centre for TVs as well as LCD related materials and components to support 32 related companies globally; and

 Brother Industries Technology Sdn. Bhd., a subsidiary of Brother Industries Ltd., Japan, currently producing various products in Malaysia including facsimile machines, printers, computer keyboards, typewriters, sewing machines, knitting machines and machine tools. The company set up its procurement centre in Malaysia to coordinate the supply chain management of 10 related companies in Japan, USA, People's Republic of China, UK, Ireland, Taiwan and Viet Nam.

These IPCs, when operational will increase the usage of local seaports and airports. A total of RM3.9 billion worth of goods will be exported, of which RM3.7 billion or 94.9 per cent will be exported through seaports and 5.1 per cent through airports. The bulk of the goods (81.1%) will be exported through Pasir Gudang Port and Port Klang. A total of RM2.1 billion will be exported through Pasir Gudang Port, followed by Port Klang (RM914.7 million), Port of Tanjung Pelepas (RM401.2 million), and the balance through Penang Port and other ports in Sabah and Sarawak. Of the goods to be exported through airports, RM220.3

million will be exported via Kuala Lumpur International Airport (KLIA) and the balance via Bayan Lepas International Airport and Senai Airport.

These IPCs proposed to procure a total of RM3.5 billion worth of products from local companies, including SMIs. This will provide Malaysian companies opportunities to integrate into the MNCs' global supply chain network.

Regional Distribution Centres

Since 2003, a total of 17 RDCs have been approved with total annual sales turnover of RM2.9 billion and annual business spending of RM283.6 million. Of these, three were from Germany, two from UK, one each from Switzerland, Malaysia, Belgium, Finland, France, Italy, Ireland, Spain, Denmark, Canada and two were joint-venture projects with Japan and Germany. A total of 437 employment opportunities were created by these RDCs, of which 87.6 per cent will be filled by Malaysians.

To date, eight MNCs have started their RDC operations. These RDCs are:

- Osram Opto Semiconductors from Germany in the optoelectronics industry, distributing Osram brand lighting products;
- BMW from Germany in the automotive industry, utilising Malaysia as its distribution centre for components and spare parts for its major markets in the Asia Pacific region. The RDC

distributes components and spare parts for its BMW and Mini brands;

- UMW Toyota, a joint-venture project with Japan in the automotive industry, distributing parts and components for the Toyota brand. The RDC undertakes distribution of parts and components for Toyota models to nine assembly plants in Thailand, Indonesia, the Philippines, Viet Nam, Australia, India, Pakistan and South Africa;
- Scapa Group from UK in the adhesive film and tapes, generator and motor industry, distributing technical tapes, sealant and megolon under the Scapa and Megolon brands;
- Agfa from Belgium, distributing graphic systems, healthcare and specialty products under the Agfa brand. The RDC undertakes distribution of Agfa products as well as spare parts and accessories for its products in the Asia Pacific region;
- Amer Sport from Finland, distributing sports items under the Wilson, Atomic, Suunto and Precor brands. This RDC distributes and monitors the Group's distribution activities for its markets mainly in the Asia Pacific region;
- Sidel Group from France, the world leader in the manufacture of plastic packaging equipment, which operates a manufacturing plant in Malaysia. It has expanded it's activities by setting up its Asian distribution centre in Malaysia to distribute parts for Sidel

products from Asia to Europe and other markets; and

 Acerinox from Spain, the world's third largest steel producer, distributing its stainless steel products under various brands i.e. Acerinox (ACX), Roldan (RDN), Inoxfil (IF), Columbus (COL) and North American Stainless (NAS). These products are distributed mainly to South East Asia and Australia.

Projects Approved in 2006

Seven projects to establish RDCs were approved in 2006 compared with three in 2005. Estimated annual sales turnover increased by 160 per cent to record RM1.2 billion (2005: RM475.7 million). Total proposed annual business spending of these RDCs amounted to RM153.4 million compared with RM64.7 million in 2005. Of the 129 employment opportunities to be created by these RDCs, 80.6 per cent will be filled by Malaysians.

In terms of distribution of goods, RM502.1 million worth of goods or 94.9 per cent will be distributed by these RDCs to various destinations through the Port of Tanjung Pelepas (51.7%) and Pasir Gudang Port (43.2%). About 86 per cent of the goods will be sourced from various production plants of these RDCs globally.

Some of the RDCs approved in 2006 were:

• Italy-based Trend Group which relocated its procurement and

distribution centre from Hong Kong to Malaysia. Trend Group is involved in the manufacture, trading and installation of glass, granite, marble and other materials for the construction sector. This RDC distributes the Group's mosaic, marble and mineral products under the "Trend" brand name to its distributors/dealers/ customers in Australia, New Zealand, Thailand, Japan, Republic of Korea, Hong Kong, People's Republic of China, the Philippines and Indonesia;

- Kerry Group, which will consolidate and distribute food ingredients, flavours and consumer food produced by its group of companies under various brand names. These products will be distributed to the Group's customers in 17 countries outside Malaysia;
- Acerinox Group, which is the third largest steel producer in the world, will consolidate and distribute its group's stainless steel products to the Asia Pacific region including Australia, Singapore, Viet Nam, Indonesia, Thailand and the Philippines;
- EPCOS AG from Germany, a market leader in Europe and the second largest in the world for passive electronic components, relocated its distribution centre from Singapore to Malaysia. This RDC will coordinate distribution activities for its operations in Germany, Austria, Singapore, Hong Kong, People's Republic of China and USA; and

 Siteco Group from Germany, a market leader in lighting applications for use in office, industry, traffic systems and shopping malls, to establish an RDC to consolidate the distribution of Siteco brand lighting products for its Asian market. The Group has production facilities in Germany, People's Republic of China, Turkey and Malaysia.

Regional/Representative Offices

ROs and REs are also encouraged in Malaysia to provide services to their head offices or principals overseas. These offices usually carry out coordinating activities for the corporations' affiliates, subsidiaries and agents in Malaysia and in the region. Other activities performed include information gathering and feasibility studies pertaining to investments, sourcing and business opportunities in Malaysia and in the region.

To date, a total of 593 ROs and 1,347 REs have been approved. Major ROs and REs approved include Aramco from Saudi Arabia; Rolls Royce, Westland Helicopters and SS8 Networks from UK; Peugeot and Citroen from France; Parsons, Nexus Media, Lifecore Biomedical and WJ Communications from USA; Korea Petroleum, Hyundai, Samsung and Xener System from Republic of Korea; Infrasys, Soft Imaging System and D-Link from Singapore; Pelikan from Switzerland; Tango Telecom and Red Hat from Ireland; Mitra Energy from Bermuda and Clarity from Australia. Most of the ROs use Malaysia as a base to coordinate and support their operations in the Asia Pacific region.

Projects Approved in 2006

In 2006, a total of 41 ROs and 95 REs were approved compared with 43 ROs and 89 REs approved in 2005. Total business spending of these offices was estimated at RM73.3 million per annum (2005: RM68 million). The major sources of investment were Singapore (27), USA (19), UK (14), Germany (12) and Hong Kong (8).

REs of foreign banks and financial institutions have also been established in Malaysia. Currently, there are 21 such offices in operation. Japan and India are the leading countries with four offices each, followed by USA (3), France (3) and Switzerland (2).

As Malaysia continues to move up the value chain in attracting and promoting more high-end manufacturing activities, there is a need to concentrate efforts on promoting more MNCs to establish regional establishments such as OHQs, IPCs and RDCs in Malaysia. These establishments, besides providing knowledge-based and high value technical managerial and iob opportunities for Malaysians, also enhance international connectivity and linkages with the global economy.

The presence of these regional establishments enhances the country's image as a profitable and viable

investment destination. As these types of establishments involve managing and coordinating the functions of multiple operations within the region and globally, the setting up of such operations in the country, will be testimony to Malaysia's favourable and conducive investment environment in terms of manpower, infrastructure, banking and financial facilities as well as its strategic location.

SUPPORT SERVICES

Research and Development

Research and Development (R&D) includes industrial design (product and process development including designing and prototyping) and research services provided by design houses, contract R&D companies, R&D companies and approved R&D institutes/and research companies.

To date, a total of 91 R&D projects involving investments of RM1.3 billion have been granted PS/ITA incentives. Foreign investments in these R&D projects amounted to RM918.3 million while domestic investments totalled RM416.7 million. R&D investments were mainly in the E&E (32 projects/RM683.8 million), chemicals and chemical products (13 projects/RM212.2 million), M&E (6 projects/RM111.3 million) and transport equipment (18 projects/RM81 million) industries. A total of 2,957 employment opportunities were created by these projects. In 2006, seven R&D projects were granted PS or ITA incentives, involving investments of RM30.8 million (2005: 6 projects/RM15.6 million). Three projects were approved for the agro-based industry with investments of RM21.7 million. Two R&D projects were approved for the transport equipment industry with investments totalling RM2 million, while one project each was approved for the E&E and miscellaneous industries. Domestic investments increased from RM10.2 million (65.3%) in 2005 to RM25.4 million (82.5%) in 2006.

In addition, a total of 14 R&D projects with total investments of RM82.1 million were approved financial assistance. These comprised:

- nine projects approved under the Commercialisation of R&D Fund (CRDF) with investments of RM56.2 million;
- three projects with investments of RM11.4 million under the MSC R&D Grant Scheme (MGS);
- one project with an investment of RM13.8 million approved under the MSC Strategic Thrust Areas in Research (STAR) Grant; and
- one project with an investment of RM0.7 million approved under the Demonstrator Applications Grant Scheme (DAGS).

The importance of R&D is recognised in the Ninth Malaysia Plan where the

R&D and commercialisation funding mechanism has been realigned to provide end-to-end financing. Resources will be redirected towards more demand-driven R&D. In addition to CRDF, MGS, STAR, and DAGS, new funds namely Science Fund and Techno Fund have been introduced. The Science Fund provides funding from basic research to the development of laboratory-scale prototype, while the Techno Fund is a grant scheme to develop technologies for commercialisation.

Integrated Logistics Services

Integrated logistics services (ILS) cover freight forwarding, warehousing, transportation and other related valueadded services such as distribution, procurement and supply chain management on an integrated basis.

The logistics industry serves as an important link for Malaysia's industrialisation and international trade. The performance of the industry will have an impact on the pace of the nation's industrialisation and its competitiveness in international trade. An increasing number of MNCs are outsourcing their logistics activities to logistics providers. This trend towards outsourcing encourages logistics service providers to engage in supply chain management directly with their customers on a global basis. An effective logistics system integrates both the supply chain within the country and the networks at the international level.

Currently, the Malaysian logistics industry comprises largely single specialised service providers such as freight forwarders, transport companies and warehousing companies. In view of the need to encourage local logistics service providers to assume a bigger role in providing integrated logistics services, the Government has introduced the ILS incentive in 2002 to encourage logistics service providers to consolidate or integrate their activities and become Third Party Logistics Service Providers. To date, a total of 12 companies have been granted the ILS incentive. Total investments proposed by these companies amounted to RM744.7 million. Of these, three were new projects and nine were expansion projects.

In addition, the Government also encourages local logistics companies to venture abroad in order to participate in the global supply chain. In 2006, a local logistics company was granted incentive to undertake international integrated logistics activities, with an additional investment of RM44.5 million. The project involved expansion of the company's integrated logistics services in Malaysia, People's Republic of China, Viet Nam and Thailand. Among the services provided are vendor managed inventory, on-site and off-site logistics management and management of outsourcing of transportation and distribution.

Renewable Energy

The demand for energy in Malaysia is expected to increase at an average rate of

6.3 per cent per annum due to positive outlook of the Malaysian economy in the next five years. To reduce the dependency on conventional energy sources, namely gas, oil, coal and water, the Government is encouraging the use of renewable energy. This includes generation of energy by utilizing biomass, solar and minihydro. Three programmes have been introduced to encourage the utilisation of renewable energy, namely:

- Small Renewable Energy Program (SREP);
- Biomass Power Generation & Cogeneration Project (Bio-Gen); and
- Malaysia Building Integrated Photovoltaic Program (MBIPV).

In the Ninth Malaysia Plan, the Government will continue to develop and promote greater use of renewable energy. Generating energy by utilising municipal waste will also be promoted during the Plan period. The Government has targeted that by 2010, about 350 MW of electricity will be generated from renewable sources of energy.

To promote the utilisation of renewable energy, the Government grants a wide range of incentives, including PS with full tax exemption for 10 years and ITA of 100 per cent for five years. The application period for these tax incentives has been extended until 31 December 2010.

Projects Approved in 2006

In 2006, a total of eight projects with

investments of RM194.4 million were granted incentives compared with seven projects with investments of RM56.7 million in 2005. The energy generation capacities of these projects are estimated at 27.8 MW of electricity and 117 tonnes of steam utilising 1.5 million tonnes of biomass per annum. Of the projects approved, five were for electricity and steam generation and one each for the generation of electricity and steam.

Among the major approved projects were:

- a new project by a wholly Malaysianowned company, with an investment of RM90.7 million. The company proposes to generate 11.87 MW of electricity utilising 270,000 tonnes of palm oil biomass per annum;
- an expansion/diversification project by a wholly Malaysian-owned company, involving an investment of RM31.9 million. The company is currently producing 10.6 giga joules (GJ)/hour of heat using sawmill wastes. With this expansion/diversification project, the company will produce 35 tonnes of steam and one MW of electricity using palm oil biomass; and
- a new project by a Malaysian-owned company, located in Tawau, Sabah with an investment of RM20 million. The company proposes to generate electricity and steam, utilising 71,136 tonnes of wood wastes per annum.

Together with the projects approved in 2006, a total of 41 projects with investments

of RM877.8 million, all of which are Malaysian-owned, have been granted incentives to generate energy from biomass. These projects are capable of generating 176.7 MW of electricity, 1,043.4 tonnes of steam, 150.7 GJ of heat and 1,000 refrigerant tonnes (RT) of chilled water, utilising 7.2 million tonnes of biomass per annum. The biomass resources which will be used for energy generation are oil palm, wood, rice, sugarcane and municipal wastes. Of the 41 projects approved, 15 are in operation. Of these, nine are located in Peninsular Malaysia and six in Sabah.

The oil palm industry is estimated to generate 65.5 million tonnes of wastes every year in the form of empty fruit bunches, fibres, shells and oil palm mill effluent. According to Pusat Tenaga Malaysia (PTM), if all the wastes can be processed to produce energy, it is estimated that 2,400 MW of electricity can be generated.

With the present incentives provided by the Government, combined with the abundant supply of biomass, Malaysian companies should invest in energy generating projects utilising renewable energy resources. To reduce operation cost and promote environmental preservation, the Government provides incentives to companies providing energy conservation services. These incentives are in the form of PS with tax exemption of 70 per cent of statutory income for five years or ITA of 60 per cent of qualifying capital expenditive for 5 years. In 2006, two projects were approved incentives for providing energy conservation activities with investments of RM104.5 million.

B. ICT SERVICES

MSC STATUS COMPANIES

As at 31 December 2006, a total of 1,728 companies were granted MSC Status by the Multimedia Development Corporation Sdn Bhd. Of these, 1,285 were majority Malaysian-owned, 401 majority foreign-owned and 42 with equal ownership. The 1,728 companies are grouped into six main technology clusters namely creative multimedia, hardware design, internet-based businesses, shared services and outsourcing, software development and support services. Of the 1,728 companies, 1,358 or 78.6 per cent are in operation.

Graph 71

Approved MSC Status Companies by Technology Cluster as at 31 December, 2006



The MSC Malaysia Annual Impact Survey 2006 indicates that total expenditure of companies which participated in the survey amounted to RM 6.5 billion. This is an increase of 27 per cent compared RM5.1 billion reported in the 2005 MSC Malaysia Annual Impact Survey. Total sales of these companies were reported at RM 9.8 billion. A total of 33,851 jobs were also created.

In 2006, a total of 307 companies were granted the MSC Status with approved investments amounting to RM 2.9 billion. Foreign investments amounted to RM932.3 million or 32.0 per cent of total investments, while domestic investments totalled RM2 billion (68%).

Of the 307 companies awarded MSC status in 2006, a total of 228 (74.3%) were wholly Malaysian-owned, 38 (12.4%) were whollyforeign owned, while the remaining 41 (13.4%) were joint- venture projects.

C. OTHER SERVICES

Other services cover real estate (housing), transport, financial services, energy, telecommunications, distributive trade, hotels and tourism, health services, and education services.

Statistics on investments are based on projects approved by the respective Government Ministries/agencies, and are for the period January to September 2006.
A total of 1,385 projects with investments of RM33.1 billion and potential employment of 23,099 were approved for the period January to September 2006 in these services sub-sectors. Of the total investments, domestic investments amounted to RM29.9 billion (89.7%) and foreign investments amounted to RM3.2 billion (10.3%).

In comparison, 1,977 projects were approved for the whole of 2005 with total investments of RM54.2 billion, and potential employment of 11,484 persons. Domestic investments amounted to RM51.5 billion (95.0%), and foreign investments RM2.7 billion (5.0%).

Real estate accounted for the largest share of investments, with RM13.8 billion. This was followed by transport, with investments of RM4.8 billion. Other services with substantial investments were financial services (RM3.3 billion), energy (RM3.6 billion), telecommunications (RM2.98 billion), distributive trade (RM2.5 billion) and hotels and tourism (RM2.1 billion).

Real Estate

Investments in real estate cover the housing industry (excluding commercial buildings) in Peninsular Malaysia.

A summary of the projects approved is as follows:

	Jan- Sept 2006	2005
No. of Projects Approved	1,385	1,977
Total Investments (RM billion)	33.1	54.2
- Domestic	29.9	51.5
- Foreign	3.2	2.7
Potential Employment	23,099	11,484

The number of projects approved and investments by sub-sector are as follows:

Sub-Sector	Jan – Sept 2006		2005	
	No.	RM mil.	No.	RM mil.
Real Estate (Housing)	714	13,782.0	1,209	21,846.6
Transport	41	4,824.2	71	10,959.1
Financial Services	47	3,307.6	79	3,306.0
Energy	-	3,568.3	-	9,347.7
Telecommunications				
including Post	8	2,981.0	34	4,803.0
Distributive Trade	351	2,459.3	510	1,726.2
Hotels & Tourism	59	2,054.7	29	2,166.1
Health Services	11	114.1	9	18.1
Education Services	154	57.3	36	18.0
Total	1,385	33,148.6	1,977	54,190.8

Real estate was the largest services subsector in terms of investments approved for the period January to September 2006. A total of 714 projects were approved with total investments amounting to RM13.8 billion.

Transport

Investments in transport cover:

- maritime transport;
- aviation; and
- highway construction and maintenance.

For the period January to September 2006, a total of 41 projects were approved with investments of RM4.8 billion. Domestic investments amounted to RM4.4 billion (90.9%) and foreign investments totalled RM436.9 million (9.1%).

In comparison, 71 projects with investments of RM10.9 billion were approved in the transport sub-sector in 2005. The high level of investments in this sub-sector in 2005 was due to investments in construction and maintenance of highways which amounted to RM8.0 billion in 2005.

The number of projects approved and investments in the financial services subsector for the period January to September 2006 and 2005 are as follows:

Activity	Jan – S	ept 2006	2005	
	No.	RM mil.	No.	RM mil.
Banking	12	1,548	20	2,848.1
Insurance	14	817.5	16	204.1
Capital Markets	21	942	43	253.8
Total	47	3,307.6	79	3,306.0

Companies granted approval in 2003 included SMART Sdn Bhd, NPE Sdn. Bhd., KASEH Lebuhraya Sdn. Bhd., Konsortium Lebuhraya Utara-Timur Sdn. Bhd., Senai Desaru Expressway Sdn. Bhd. and Guthrie Corridor Expressway Sdn. Bhd.

Investments in the transport sub-sector in 2006 were mainly in maritime and aviation. Investments in maritime (RM2.3 billion) were for the purchase of ships and upgrading of port facilities, while investments in aviation (RM1.5 billion) were for the purchase of aircraft and upgrading and expansion of airportrelated infrastructure.

Financial Services

Investments in financial services cover:

- banking;
- insurance; and
- capital markets (brokerage, fund

management, investment advisory, and venture capital).

During the period January to September 2006, investments in the financial sector totalled RM3.3 billion. Domestic investments amounted to RM2.5 billion (77.0%) while foreign investments totalled RM760.8 million (23%).

Banking attracted the largest share of investments in the financial services subsector (RM1.5 billion or 46.8%), followed by capital markets (RM942.0 million), and insurance (RM817.5 million).

Investments in banking included capital expansion exercises and the establishment of new Islamic banks. Investments in insurance comprised expansion in capital of onshore insurance (RM344.2 million or 42.1%) and offshore insurance (RM473.3 million or 57.9%). Investments in capital markets were mainly in brokerage (RM310.0 million or 36.9%) and fund management (RM626.5 million or 66.5%).

Energy

Investments in energy cover independent power proclucers; and generation, transmission and distribution of electricity by Tenaga Nasional Bhd, SESCO Bhd. and Sabah Electricity Sdn. Bhd.

For the period January to September 2006, investments in generation, transmission and distribution of electricity amounted to RM3.6 billion, all of which were domestic investments. In 2005, investments amounted to RM9.4 billion.

The high level of investments in utilities in 2005 was due to the approval of two independent power projects (IPPs) with investments of RM6.5 billion.

Telecommunications including Post

Investments in the telecommunications sub-sector cover network facilities, network services, application services and content application services, including post.

For the period January to September 2006, a total of 8 projects were approved in this sub-sector, with total investments of RM2.9 billion, all of which were domestic investments.

Investments were in network facilities, network services and application services (RM2.9 billion or 96%), broadcasting (RM78 million) and post (RM36 million). In comparison, a total of 34 projects were approved in 2005, with investments of RM4.8 billion (all domestic investments).

Distributive Trade

Investments in the distributive trade subsector cover:

- projects with foreign participation in wholesale and retail trade;
- hypermarkets/supermarkets, department stores and direct selling;
- projects approved under the Petroleum Development Act, 1974; and
- franchising.

A total of 351 projects were approved with investments of RM2.4 billion for the period January to September 2006. Domestic investments amounted to RM976.5 million (39.4%) while foreign investment totalled RM1.5 billion (60.6%).

Investments approved for the period January to September 2006 exceeded investments for the whole of 2005 of RM1.7 billion. The high level of investments in 2006 was due mainly to increase in investments in hypermarkets and supermarkets of RM2.1 billion for the period January to September 2006 compared with RM1.2 billion in 2005.

Investments in distributive trade in 2006 were in:

- nineteen (19) new and expansion hypermarket and supermarket projects, with investments of RM2.1 billion or 86.8 per cent of total investments in distributive trade. Domestic investments amounted to RM774.0 million (36.4%) while foreign investments amounted to RM1.3 billion (63.6%). Companies which were granted approvals included Tesco, Carrefour, Giant, Mydin, and Jusco;
- seventy-nine (79) projects in wholesale and retail trade with foreign participation with investments of RM183.9 million (7.5%). Domestic investments amounted to RM78.8 million (42.8%) while foreign investments amounted to RM105.1 million (57.2%);

- one departmental store with investments of RM54.4 million, of which domestic investments accounted for 49.1 per cent;
- one hundred and seventy (170) projects approved under the Petroleum Development Act 1974 with investments of RM46.8 billion (all of which were domestic investments), involving the establishment of petrol stations, wholesale of LPG, and transportation of petroleum products;
- forty-six (46) projects in direct selling with investments of RM38.4 million, all of which were domestic investments; and
- thirty-six (36) projects in franchising with investments of RM11.8 million, all of which were domestic investments.

Hotels and Tourism

A total of 59 projects were approved in the hotels and tourism sub-sector for the period January to September 2006, with investments of RM2.1 billion. Domestic investments amounted to RM2.0 billion (97.2%) while foreign investments totalled RM58.1 million.

The number of projects and total investments were:

Activity	Jan – S	ept 2006	2005	
	No.	RM mil.	No.	RM mil.
Hotel projects:				
- with incentives	35	820.6	10	211.2
- others	7	455.5	14	542.8
Tourism projects:				
- with incentives	3	190.0	5	1,412.1
- others	14	588.9	-	-
Total	59	2,054.7	29	2,166.1

Of the 42 hotel projects approved, 35 projects were granted investment incentives, while 7 projects were approved without incentives. Domestic investments amounted to RM1.2 billion (96.4%) while foreign investments amounted to RM45.3 million. Currently, investment incentives for new hotels are granted only to budget hotels.

The approved projects were for new and expansion of hotel projects, holiday resorts, theme parks, and convention centres.

Hotel and tourism projects granted approval in 2006 included Bandar Utama City, Impiana KLCC, Puteri Pan Pacific Hotel and Persada Johor, Pantai Dalit Beach Resort, and Cinta Sayang Gold and Country Resort.

Health Services

Investments in health services cover approvals for private healthcare institutions.

For the period January to September 2006, approvals were granted to 11 private healthcare institutions (comprising hospitals, maternity homes, nursing care centres, and medical specialist centres) involving investments of RM114.1 million, all of which were domestic investments.

Investments in health services for the period January to September 2006 exceeded the investments for the whole of 2005 of RM18.1 million (9 projects).

Education Services

Investments in education services cover investments in private colleges/universities; private education institutions; and skills centres.

For the period January to September 2006, a total of 154 projects were granted approval for the establishment of educational institutions, involving investments of RM57.5 million. Domestic investments amounted to RM53.8 million (93.6%).

For the period January to September 2006, investments in education services exceeded the investments for the whole of 2005 of RM18.0 million (36 projects).

These investments were in private colleges/universities (RM35.0 million or 60.9%), followed by private education institutions (RM15.7 million or 27.3%) and skills centres (RM6.8 million or 11.8%).

Institutions granted approval in 2006 included upgrading from college to university college status by Limkokwing University College of Creative Technology, INTI International University College and Cosmopoint International University College.

Box Article 3 - An Overview of the Logistics Industry in Malaysia

Introduction

Globally, the logistics industry is becoming increasingly more important as it is a sizeable growth market. The industry is valued at around US\$320 billion a year and is growing at an annual rate of 3-10 per cent. Over the years, the industry has evolved in sophistication, with service offerings ranging from individual transport and storage solutions to customised, integrated supply chain management services.

In Malaysia, logistics covers four modes, namely sea, air, road and rail. The industry serves as an important link to enhance Malaysia's industrialisation and international trade. Logistics is now treated as a strategic industry by itself rather than viewed as a supportive industry. Its significant contribution to GDP and its impact on the country's balance of payments (BOP) necessitates a comprehensive approach to the development of the logistics industry.

Status of the Logistics Industry in Malaysia

The contribution of the industry is partly reflected under transportation, storage and communications services, which grew at an annual rate of 6.5 per cent during the Second Industrial Master Plan (IMP2) period. In 2005, transport, storage and communications services contributed RM23.2 billion or 8.8 per cent to GDP. The sector is projected to grow to RM79.6 billion by 2020, contributing 12.1 per cent to GDP.

Based on the latest Census on Transport and Communications, 2004 by DOS, there were 3,816 establishments with total fixed assets of RM77.9 billion and employing 217,671 workers.

The overall volume of freight transport in Malaysia by sea, rail and air for the period 1990-2005 and the projections for 2020 in the IMP3 are as shown below:

Table 9

Freight Traffic by Port, Airport and Rail for the period 1990-2005 and Projections for 2020.

	Port ¹	Airport	Rail
1990	99,897	241.6	4,631
1995	147,378	482.0	5,249
2000	190,417	775.1	5,481
2005	252,620	1,006.8	4,031
2020	751,000	2,357.0	18,600

Source: Ninth Malaysia Plan and Ministry of Transport

Note: ¹ Include Port Klang, Penang, Pasir Gudang, Kuantan, Bintulu, Tanjung Bruas, Kuching, Miri, Rajang, Kota Kinabalu, Lahad Datu, Sandakan, Tawau, Port Dickson, Kemaman, Teluk Ewa and Tanjung Pelepas. Data refers to only 17 main ports, which differ from the data contained in the Ninth Malaysia Plan, that covers all 24 ports. The port component handled the largest portion of freight traffic in Malaysia. It is estimated that 95 per cent of Malaysia's trade is seaborne and the remaining volume by air, rail and road. It is projected that the volume of seaborne freight will more than triple from 252,620,000 tonnes in 2005 to 751,000,000 tonnes in the year 2020.

Challenges

Currently there are about 22,000 companies in the logistics industry. The main challenges facing the industry are:

- the industry is highly fragmented;
- regulatory requirements cut across many ministries and agencies;
- over dependence on foreign logistics service providers resulting in the widening of deficit in the services account in the country's BOP, from RM6.5 billion in 1996 to RM15.7 billion in 2005;
- the need for the industry to move from low cost logistics to efficient and higher value-added logistics by benchmarking with international standards; and
- the need for logistics service providers, users and regulators to work in an harmonious and consultative manner.

The Importance of Logistics to the Manufacturing Sector

Manufacturing is taking place on a global scale with freer flow of foreign direct investments and this development has an impact on the nature and demand of manufacturers for transport and logistics services. More and more manufacturing companies are outsourcing their transport needs as part of a total logistics requirement and are focussing on their core manufacturing activities in order to operate more competitively in the global environment.

International trade generated by these manufacturing activities is moved largely by sea, and maritime transport assumes a key role in meeting the needs of manufacturing companies worldwide for the supply of a network of global logistics services. Manufacturing companies, in outsourcing their international transport requirements, are increasingly looking towards suppliers of logistic services as an integrated service which would take care of their needs on a door-to-door basis.

Incentives for the Logistics Industry

To encourage consolidation within the logistics industry in Malaysia, the Government introduced an incentive scheme i.e. Integrated Logistics Services (ILS) in the 2002 Budget, to encourage companies in the land mode sub-sector to consolidate and to provide logistics services in an integrated manner. The incentives currently being offered to logistics companies to undertake integrated operations are as follows:

Pioneer Status

- Income tax exemption of 70 per cent of statutory income for a period of five years; or
- Income tax exemption of 100 per cent of statutory income for a period of five years for projects located in the Eastern Corridor of Peninsular Malaysia, Perlis, Sabah and Sarawak.

or

Investment Tax Allowance

- Investment Tax Allowance of 60 per cent of qualifying capital expenditure incurred within five years from the date on which the first qualifying capital expenditure is incurred. The allowance can be offset against 70 per cent of statutory income; or
- Investment Tax Allowance of 100 per cent of qualifying capital expenditure incurred within five years from the date the first qualifying capital expenditure is incurred for projects located in the Eastern Corridor of Peninsular Malaysia, Perlis, Sabah and Sarawak. The allowance can be offset against 100 per cent of statutory income.

To date, a total of 12 companies have been granted incentives to undertake integrated logistics services activities. In addition, several measures are already in place to develop the shipping sector. These measures include:

- granting of blanket tax exemption to Malaysian shipping companies on shipping incomes earned from operating national flag vessels. Any dividend paid out of such an exempt account is also tax exempt;
- accelerated depreciation allowance on ships is allowed with an initial first year capital allowance of 20 per cent and a further 6-10 per cent annually;
- exemption from income tax for Malaysian crew serving onboard Malaysian flag vessels;
- exemption of import duty on vessels above 4,000 Gross Registered Tonnage; and
- creation of a Shipping Fund to finance acquisition of ships as well as venture capital for equity participation in local companies.

Role of MIDA in the Logistics Industry

MIDA has been mandated by government in March 2004 to promote and coordinate the activities of the services sector in Malaysia (excluding financial services and utilities). MIDA will assume a more pro-active role in developing the logistics industry in the following areas:

• MIDA will be the first point of contact for information on logistics industry in

Malaysia, similar to its role for the manufacturing sector;

- Identification and promotion of specific logistics activities in collaboration with relevant Ministries and agencies;
- Coordination with other Government agencies in the promotion of logistics activities under their purview and to provide assistance to investors in matters relevant to the activities;
- Collation of statistics on investments in the logistics industry in Malaysia; and
- Recommendation of appropriate policies and incentives on identified logistics activities in collaboration with relevant Ministries and agencies.

Third Industrial Master Plan (IMP3)

The role of the logistics industry has been recognised by Government. In this context, the IMP3 has identified the logistics industry as a new engine of growth to sustain the development of the country. The industry is viewed as a strategic industry by itself rather than as a supportive industry.

In the IMP3, six strategic thrusts have been identified to promote the development of the logistics industry. They are:

• Creating an efficient and competitive logistics industry to support Malaysia's industrialisation efforts;

- Developing the industry, in particular transport modes, to operate in a competitive international environment;
- Improving the capacity and capability of the industry to enhance its participation in the global supply chain;
- Intensifying the application of new information and communications technology;
- Ensuring an adequate supply of competent workforce; and
- Strengthening the institutional support through inter-ministry and agency coordination in the planning, implementation and monitoring of policies and measures affecting the industry.

In addition, various measures have been outlined in the IMP3 to enhance the development of the logistics industry in Malaysia. These include:

- Strengthening the capacities and capabilities of the service providers and adopting new practices by the Malaysian international trading community;
- Support by Government-linked companies;
- Assistance programmes for shipping operators;
- Increasing the national shipping capacity;

- Establishing an accreditation body;
- Enhancing the international logistics links to and from Sabah and Sarawak;
- Developing multi-modal transport modes;
- Developing national transport corridors;
- Adopting a suitable info-structure and promoting interactive solutions that can effectively reduce face-to-face transactions;
- Streamlining rules and regulations; and

• Establishing the Malaysian Logistics Council (MLC)

As recommended by the IMP3, the MLC with representation from logistics service providers, users, regulators and academia will be established with the objective to serve as a focal point for the overall coordination on strategies, policies, rules and regulations governing the logistics industry in Malaysia. The role of the MLC will be critical to ensure the future growth of the logistics industry in Malaysia. MIDA will serve as secretariat to the MLC.

8 • INVESTMENT OUTLOOK



8 investment outlook

Global foreign direct investment inflows increased by 29 per cent to US\$916 billion in 2005. FDI inflows increased for both developed and developing countries. Among developing countries, East Asia remained the most important regional destination, accounting for US\$118.2 billion or 43 per cent of total FDI inflows to these countries. FDI inflows to East Asia were concentrated in the People's Republic of China, with US\$72.4 billion in 2005. FDI inflows to South East Asia expanded by 44 per cent to US\$37.1 billion in 2005.

Malaysia achieved its best ever performance in attracting investments in the manufacturing sector in 2006. A record level of investments amounting to RM46 billion were approved in 2006 compared with RM31 billion in 2005. This surpassed the average annual investment target of RM27.5 billion set in the Third Industrial Master Plan (IMP3), 2006-2020.

Foreign investments in manufacturing projects approved in 2006 amounted to RM20.2 billion, which was the highest recorded to date. This indicates that Malaysia continues to remain an attractive destination for FDI.

Domestic investments in manufacturing projects approved in 2006 were the highest level approved to date. Domestic investments totalled RM25.8 billion, almost double the RM13.1 billion approved in 2005, indicating the growing capacity and capabilities of Malaysian companies to compete in the regional and global markets. Many Malaysian companies which are supporting the MNCs have also been able to integrate into the MNCs' regional and global supply chains. This is particularly evident in the electronics industry in Malaysia. This trend is expected to continue as MNCs in Malaysia expand and diversify their operations.

Existing companies in Malaysia including MNCs will be encouraged to diversify into high value-added activities including D&D and R&D. There were a number of such projects approved in 2006 and this trend is expected to continue. Appropriate incentives will be offered to encourage this development.

Malaysia will have to compete with other emerging economies to get a share of global FDI inflows. While FDI inflows to Asia are expected to continue to increase, Malaysia's ability to attract these inflows will, to a large extent, depend on Malaysia's investment environment as well as competitiveness.

The Third Industrial Master Plan, 2006-2020, with its theme of 'Malaysia – Towards Global Competitiveness', has outlined the strategies and targets for the development of the manufacturing and services sector up to 2020. While the manufacturing sector will continue to remain an important source of growth, the services sector has been identified to assume a greater role in generating growth. Efforts will be made to promote investments in targeted growth areas in the services sector as identified in the IMP3. The establishment of the Malaysian Services Development Council and the Malaysian Logistics Council will help to coordinate the promotion of development of these sectors.

TABLES



Industry	2006	2005	Change (%)
Overall Manufacturing	138.8	129.3	7.3
Chemicals & Petroleum Products	156.2	145.2	7.6
Rubber Products	142.9	134.3	6.4
Electrical & Electronics	140.4	129.1	8.8
Food Manufacturing	138.2	128.5	7.5
Motor Vehicle Assembly (Transport Equipment)	136.0	147.5	-7.8
Wood and Wood Products	120.9	113.2	6.8
Iron and Steel	109.1	104.9	4.0
Textiles & Apparel	89.7	83.6	7.3

TABLE 1: PRODUCTION INDICES OF SELECTED INDUSTRIES, 2006 AND 2005

Note: Base Year 2000 = 100

Note : All figures refer to the period January - November Source: Department of Statistics

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Note : All figures refer to the period January - November Source: Department of Statistics

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PRODUCTS		2006		200	5
	Value (RM million)	Share* (%)	Change (%)	Value (RM million)	Share* (%)
MANUFACTURED GOODS	451,747.2	76.7	9.3	413,132.6	77.4
Electrical & Electronic Products	281,006.4	47.7	6.2	264,698.9	49.6
Chemicals & Chemical Products	29,091.2	4.9	10.6	26,301.3	4.9
Machinery, Appliances & Parts	19,842.5	3.4	9.5	18,120.6	3.4
Wood Products	16,685.2	2.8	14.0	14,638.9	2.7
Manufactures of Metal	14,149.5	2.4	30.4	10,847.9	2.0
Optical & Scientific Equipment	13,558.0	2.3	10.1	12,317.7	2.3
Textiles & Clothings	10,601.9	1.8	3.0	10,289.1	1.9
Iron & Steel Products	9,358.6	1.6	33.6	7,002.8	1.3
Rubber Products	9,332.7	1.6	33.6	6,985.5	1.3
Transport Equipment	8,691.0	1.5	24.2	6,997.9	1.3
Manufactures of Plastics	7,852.8	1.3	17.3	6,696.3	1.3
Processed Food	7,254.9	1.2	11.1	6,529.9	1.2
Jewellery	3,873.4	0.7	7.2	3,613.6	0.7
Non-Metallic Mineral Products	3,505.2	0.6	19.5	2,934.3	0.5
Petroleum Products	2,487.8	0.4	12.3	2,214.4	0.4
Paper & Pulp Products	2,168.2	0.4	4.6	2,073.4	0.4
Beverages & Tobacco	1,922.2	0.3	13.0	1,701.1	0.3
Other Manufactures	10,365.7	1.8	13.1	9,169.1	1.7
AGRICULTURAL GOODS	46,410.9	7.9	12.7	41,178.1	7.7
WINING GOODS	79,284.4	13.5	12.9	70,212.1	13.2
OTHERS	11,506.5	2.0	24.2	9,265.1	1.7
TOTAL EXPORTS	588,949.0	100.0	10.3	533,787.8	100.0

Note: * % share to total exports

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To	2006	1,077
versification	2005	455
Expansion/Di	2006	424
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		Ne	Ņ	Expansion/D	iversification	To	tal
		2006	2005	2006	2005	2006	2005
Number		653	572	424	455	1,077	1,027
Potential Employment		53,306	49,773	35,646	65,183	88,952	114,956
Proposed Called-up Capital ((RM million)	3,744.6	2,712.4	729.1	980.6	4,473.7	3,693.1
Malaysian Equity ((RM million)	2,075.2	1,438.3	155.8	186.5	2,231.0	1,624.7
- Bumiputera ((RM million)	780.8	522.0	41.6	20.2	822.4	542.2
- Public Corporation ((RM million)	I	3.8	ı	1.8	I	5.6
- Non-Bumiputera	(RM million)	1,294.4	912.6	114.2	164.4	1,408.6	1,077.0
Foreign Equity ((RM million)	1,669.4	1,274.1	573.3	794.2	2,242.7	2,068.3
Loan ((RM million)	11,899.3	6,660.3	4,686.0	3,219.1	16,585.3	9,879.4
Other Sources ** ((RM million)	13,706.5	4,470.4	11,227.6	13,013.6	24,934.1	17,484.1
Total Proposed Capital Investment - Local - Foreisn	(RM million) (RM million) (RM million)	29,350.4 20,153.3 9,197,1	13,843.2 9,156.5 4.686.7	16,642.6 5,611.8 11.030.8	17,213.4 4,017.2 13.196.2	45,993.0 25,765.1 20.227.9	31,056.6 13,173.7 17.882.9
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** Includes retained earnings & other sources of financing not yet determined at time of approval

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TABLE 5 : NEW MANUFACTURING PROJECTS APPROV

			2006				2005	
Size of Capital Investment	No.	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)	No.	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)
Less Than RM 2.5 million	142	132,207,220	16,955,122	149,162,342	122	132,920,976	13,756,444	146,677,420
RM 2.5 million - < RM 5.0 million	100	275,075,600	74,500,661	349,576,261	108	292,287,526	116,997,806	409,285,332
RM 5.0 million - < RM 10.0 million	149	780,581,453	278,624,267	1,059,205,720	135	678,900,212	287,995,331	966,895,543
RM 10.0 million - < RM 50.0 million	159	2,270,803,815	919,029,799	3,189,833,614	171	3,076,614,981	743,204,018	3,819,818,999
RM 50.0 million - < RM 100.0 million	56	3,091,711,334	1,069,630,820	4,161,342,154	16	797,048,355	346,248,469	1,143,296,824
RM 100.0 million - < RM 500.0 million	40	3,828,929,314	3,501,396,237	7,330,325,551	16	1,850,307,911	1,934,909,400	3,785,217,311
RM 500.0 million - < RM 1.0 billion	4	1,030,000,000	1,255,391,898	2,285,391,898	ĉ	656,450,000	1,243,550,100	1,900,000,100
RM 1.0 billion & Above	Э	8,744,000,000	2,081,534,000	10,825,534,000		1,672,000,000	I	1,672,000,000
Total	653	20,153,308,736	9,197,062,804	29,350,371,540	572	9,156,529,961	4,686,661,568	13,843,191,529

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Industry	No.	Employment	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)	No.		Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)
Petroleum Products (Incl.Petrochemicals)	10	1,395	10,832,590,833	604,973,745	11,437,564,578	15	276	601,709,116	133,022,064	734,731,180
Electronics & Electrical Products	170	24,239	1,422,217,371	8,601,472,584	10,023,689,955	227	47,317	2,474,847,979	11,318,934,400	13,793,782,379
Chemical & Chemical Products	149	5,897	6,112,415,169	3,031,525,349	9,143,940,518	64	2,762	851,563,270	869,480,191	1,721,043,461
Basic Metal Products	30	1,502	436,051,594	2,288,126,615	2,724,178,209	47	3,034	2,774,474,713	430,496,467	3,204,971,180
Food Manufacturing	76	4,744	725,022,039	895,363,741	1,620,385,780	75	4,260	925,602,119	531,882,899	1,457,485,018
Transport Equipment	99	5,180	1,231,689,419	216,622,960	1,448,312,379	62	5,623	912,277,585	503,818,486	1,416,096,071
Fabricated Metal Products	123	6,614	709,361,650	616,338,995	1,325,700,645	115	8,467	508,158,742	250,609,321	758,768,063
Machinery & Equipment	102	4,129	610,256,470	656,946,564	1,267,203,035	85	4,742	457,380,331	569,989,432	1,027,369,763
Non-Metallic Mineral Products	29	2,344	204,354,067	962,206,159	1,166,560,226	30	1,480	325,429,886	596,097,653	921,527,539
Plastic Products	85	7,607	378,260,780	757,208,211	1,135,468,991	81	6,242	585,266,851	594,778,638	1,180,045,489
Wood & Wood Products	41	6,063	696,682,537	286,416,581	983,099,118	36	3,288	283,263,348	77,206,597	360,469,945
Textiles & Textile Products	30	2,863	669,096,004	152,170,446	821,266,450	35	12,800	227,757,670	146,180,396	373,938,066
Scientific & Measuring Equipment	20	1,099	116,465,033	664,617,145	781,082,178	15	3,276	62,477,846	1,364,480,829	1,426,958,675
Rubber Products	37	4,967	456,832,791	257,741,515	714,574,306	27	2,049	557,839,745	215,159,320	772,999,065
Paper, Printing & Publishing	26	1,900	594,590,353	93,409,809	688,000,162	23	1,295	829,748,255	123,756,144	953,504,399
Furniture & Fixtures	62	6,982	355,837,433	55,039,269	410,876,702	55	6,587	448,227,351	63,473,398	511,700,749
Beverages & Tobacco	9	232	61,688,229	1,011,584	62,699,813	6	393	16,830,590	77,600,293	94,430,883
Leather & Leather Products	, -	15	I	1,000,000	1 ,000,000		150	5,379,672	3,586,448	8,966,120
Miscellaneous	14	1,180	151,711,422	85,692,760	237,404,182	25	915	325,482,321	12,378,116	337,860,437
Total	1.077	88.952	25.765.123.194	20.227.884.033	45.993.007.227	1.027	114.956	13.173.717.391	17.882.931.091	31.056.648.482

TABLE 6 : APPROVED PROJECTS BY INDUSTRY, 2006 AND 2005

PERFORMANCE OF THE MANUFACTURING AND SERVICES SECTORS 2006

	PERFORMANCE OF THE MANUFACTURING AND SERVICES SECTORS 2006
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			New			Expansio	n/Diversificati	no			Total	
Industry	No.	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)	No.	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)	No.	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)
Petroleum Products Incl. Petrochemicals	2	8,744,000,000	I	8,744,000,000	ε	2,062,960,000	600,000,000	2,662,960,000	5	10,806,960,000	600,000,000	11,406,960,000
Electronics & Electrical Products	9	643,240,000	865,938,980	1,509,178,980	12	270,000,000	7,042,549,351	7,312,549,351	18	913,240,000	7,908,488,331	8,821,728,331
Chemical & Chemical Products	26	2,671,696,283	1,705,216,515	4,376,912,798	-	111,000,000	1	111,000,000	27	2,782,696,283	1,705,216,515	4,487,912,798
Basic Metal Products	-	I	2,081,534,000	2,081,534,000	-	138,470,975	9,911,982	148,382,957	2	138,470,975	2,091,445,982	2,229,916,957
Non-Metallic Mineral Products	-	I	693,100,000	693,100,000	-	ı	108,280,944	108,280,944	2	1	801,380,944	801,380,944
Food Manufacturing	3	122,784,000	543,216,000	666,000,000	-	1	106,841,140	106,841,140	4	122,784,000	650,057,140	772,841,140
Transport Equipment	2	636,389,271	ı	636,389,271	-	ı	113,200,000	113,200,000	ŝ	636,389,271	113,200,000	749,589,271
Textiles & Textile Products	-	530,000,000	1	530,000,000	-		100,375,000	100,375,000	2	530,000,000	100,375,000	630,375,000
Scientific & Measuring Equipment	2	26,102,760	581,420,640	607,523,400	1	ı	1	I	2	26,102,760	581,420,640	607,523,400
Fabricated Metal Products	-	172,725,000	179,775,000	352,500,000	-	ı	178,000,000	178,000,000	2	172,725,000	357,775,000	530,500,000
Wood & Wood Products	-	55,992,000	64,008,000	120,000,000	2	212,380,000	150,220,000	362,600,000	ŝ	268,372,000	214,228,000	482,600,000
Machinery & Equipment	1	I	1	0	ŝ	1	364,150,000	364,150,000	ŝ	1	364,150,000	364,150,000
Paper, Printing & Publishing	'	I	I	0	7	213,042,700	I	213,042,700	2	213,042,700	I	213,042,700
Rubber Products	'	I	I	0		69,690,000	81,810,000	151,500,000		69,690,000	81,810,000	151,500,000
Plastic Products	-	I	124,113,000	124,113,000		1		1	-		124,113,000	124,113,000
Total	47	13,602,929,314	6,838,322,135	20,441,251,449	30	3,077,543,675	8,855,338,417	11,932,882,092	4	16,680,472,989	15,693,660,552	32,374,133,541

TABLE 7 : APPROVED MANIJEACTTIRING PROJECTS WITH INVESTMENTS OF RM100 MILLION AND ABOVE 2006

A-7 ----- TABLE 8: APPROVED NEW AND EXPANSION/DIVERSIFICATION MANUFACTURING PROJECTS BY INDUSTRY, 2006 AND 2005

				2006						2005		
		New	Expan	sion/Diversification		Total		New	Expar	sion/Diversification		Total
Industry	Š.	Total Capital Investment (RM)	Š	Total Capital Investment (RM)	No.	Total Capital Investment (RM)	No.	Total Capital Investment (RM)	No.	Total Capital Investment (RM)	No.	Total Capital Investment (RM)
Petroleum Products (Incl.Petrochemicals)	9	8,771,604,578	4	2,665,960,000	10	11,437,564,578	8	659,463,920		75,267,260	15	734,731,180
Electronics & Electrical Products	59	1,999,422,103	111	8,024,267,852	170	10,023,689,955	85	2,651,509,870	142	11,142,272,509	227	13,793,782,379
Chemical & Chemical Products	108	7,895,153,391	41	1,248,787,127	149	9,143,940,518	45	954,543,806	19	766,499,655	64	1,721,043,461
Basic Metal Products	20	2,458,871,785	10	265,306,424	30	2,724,178,209	28	2,152,699,013	19	1,052,272,167	47	3,204,971,180
Food Manufacturing	51	1,214,479,044	25	405,906,736	76	1,620,385,780	48	863,921,780	27	593,563,238	75	1,457,485,018
Transport Equipment	47	1,224,919,739	19	223,392,640	66	1,448,312,379	36	1,133,944,664	26	282,151,407	62	1,416,096,071
Fabricated Metal Products	88	849,029,291	35	476,671,354	123	1,325,700,645	74	440,725,277	41	318,042,786	115	758,768,063
Machinery & Equipment	78	706,851,864	24	560,351,171	102	1,267,203,035	63	817,484,205	22	209,885,558	85	1,027,369,763
Non-Metallic Mineral Products	18	928,615,790	1	237,944,436	29	1,166,560,226	11	166,519,088	19	755,008,451	30	921,527,539
Plastic Products	48	548,658,273	37	586,810,718	85	1,135,468,991	44	520,078,150	37	659,967,339	81	1,180,045,489
Wood & Wood Products	26	463,956,986	15	519,142,132	41	983,099,118	25	232,097,145	11	128,372,800	36	360,469,945
Textiles & Textile Products		614,699,022	23	206,567,428	30	821,266,450	9	68,555,860	29	305,382,206	35	373,938,066
Scientific & Measuring Equipment	14	753,766,300	9	27,315,878	20	781,082,178	10	1,263,908,675	ß	163,050,000	15	1,426,958,675
Rubber Products	15	169,728,528	22	544,845,778	37	714,574,306	14	334,407,720	13	438,591,345	27	772,999,065
Paper, Printing & Publishing	6	236,434,329	17	451,565,833	26	688,000,162	12	913,051,830	11	40,452,569	23	953,504,399
Furniture & Fixtures	44	288,118,098	18	122,758,604	62	410,876,702	36	268,700,236	19	243,000,513	55	511,700,749
Beverages & Tobacco	2	62,699,813	-	0**	9	62,699,813	9	79,830,883	3	14,600,000	6	94,430,883
Leather & Leather Products	I	I	-	1,000,000	-	1,000,000	. 	8,966,120	T	I	-	8,966,120
Miscellaneous	10	163,362,606	4	74,041,576	14	237,404,182	20	312,783,287	J	25,077,150	25	337,860,437
Total	653	29,350,371,540	424	16,642,635,687	1,077	45,993,007,227	572	13,843,191,529	455	17,213,456,953	1,027	31,056,648,482

^{**} Expansion of capacities or manufacture of additional products not involving additional capital

TABLE 9: APPROVED MANUFACTURING PROJECTS WITH MALAYSIAN MAJORITY* OWNERSHIP BY INDUSTRY, 2006 AND 2005

				2006						2005		
		New	Expar	sion/Diversification		Total		New	Expan	sion/Diversification		Total
Industry	No.	Total Capital Investment (RM)	Ś	Total Capital Investment (RM)	ŏZ	Total Capital Investment (RM)	őź	Total Capital Investment (RM)	No	Total Capital Investment (RM)	°Z	Total Capital Investment (RM)
Petroleum Products (Incl.Petrochemicals)	9	8,771,604,578		2,062,960,000		10,834,564,578	4	442,161,315	9	68,267,260	10	510,428,575
Chemical & Chemical Products	85	5,387,751,240	20	639,361,562	105	6,027,112,802	36	630,776,804		178,134,755	43	808,911,559
Electronics & Electrical Products	43	1,120,856,000	28	577,356,630	71	1,698,212,630	64	1,679,967,816	35	939,456,259	66	2,619,424,075
Transport Equipment	43	1,155,091,239	13	86,539,600	56	1,241,630,839	27	853,785,664	17	191,812,457	44	1,045,598,121
Food Manufacturing	41	553,795,838	13	221,158,032	54	774,953,870	35	494,539,528	21	442,083,540	56	936,623,068
Textiles & Textile Products	4	594,309,522	14	74,826,322	18	669,135,844	4	18,052,500	18	194,975,390	22	213,027,890
Machinery & Equipment	54	460,483,671	15	170,166,216	69	630,649,887	43	338,051,157	13	119,671,000	56	457,722,157
Wood & Wood Products	23	307,017,849	11	287,523,827	34	594,541,676	20	186,384,545	ω	107,622,800	28	294,007,345
Paper, Printing & Publishing	2	204,161,162	1	388,983,624	16	593,144,786		861,042,960	ŝ	8,028,569	10	869,071,529
Fabricated Metal Products	99	362,543,751	15	205,490,987	81	568,034,738	63	385,148,068	18	149,257,831	81	534,405,899
Basic Metal Products	13	198,923,750	9	211,299,904	19	410,223,654	21	2,045,001,075	14	813,247,090	35	2,858,248,165
Plastic Products	37	303,547,610	14	101,435,924	51	404,983,534	33	433,135,962	18	174,780,596	51	607,916,558
Rubber Products	11	81,991,012	14	319,608,616	25	401,599,628	13	320,107,720	Ŋ	124,821,681	18	444,929,401
Furniture & Fixtures	42	269,498,098	15	108,006,490	57	377,504,588	35	259,420,136	12	190,411,562	47	449,831,698
Non-Metallic Mineral Products	15	123,298,210	ŋ	89,060,778	20	212,358,988	6	149,079,086	11	173,530,251	20	322,609,337
Scientific & Measuring Equipment	8	82,985,900	2	7,555,100	10	90,541,000	ъ	24,337,575	ĉ	47,540,000	8	71,877,575
Beverages & Tobacco	5	62,699,813		0**	9	62,699,813	ŋ	17,142,883	-	I	9	17,142,883
Leather & Leather Products	I	I	ı	I	ī	I	-	8,966,120	ı	ı	-	8,966,120
Miscellaneous	8	154,942,606	I	I	8	154,942,606	18	312,423,287	3	18,892,070	21	331,315,357
Total	509	20,195,501,849	198	5,551,333,612	707	25,746,835,461	443	9,459,524,201	213	3,942,533,111	656	13,402,057,312

* Projects with Malaysian equity ownership of more than 50 percent.
** Expansion of capacities or manufacture of additional products not involving additional capital.

TABLE 10 : APPROVED MANUFACTURING PROJECTS IN THE ELECTRICAL & ELECTRONIC PRODUCTS BY SUB-SECTOR, 2006

			New			Expansic	on/Diversificati	u			Total	
Sub-sector	No	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)	vo	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)	No.	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)
Consumer Electronics	ε	42,140,000	77,060,000	119,200,000	20	56,532,600	102,878,661	159,411,261	23	98,672,600	179,938,661	278,611,261
Electronic Components	22	611,296,379	828,906,461	1,440,202,840	35	309,041,773	5,853,116,350	6,162,158,123	57	920,338,152	6,682,022,811	7,602,360,963
Industrial Electronics	12	140,019,760	181,734,362	321,754,122	37	93,206,318	1,024,075,234	1,117,281,552	49	233,226,078	1,205,809,596	1,439,035,674
Electrical Products	22	92,192,541	26,072,600	118,265,141	19	77,788,000	507,628,916	585,416,916	41	169,980,541	533,701,516	703,682,057
Total	59	885,648,680	1,113,773,423	1,999,422,103	111	536,568,691	7,487,699,161	8,024,267,852	170	1,422,217,371	8,601,472,584	10,023,689,955
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TABLE 11 : APPROVED MANUFACTURING PROJECTS IN THE ENGINEERING SUPPORTING INDUSTRY BY SUB-SECTOR, 2006

			New			Expansio	on/Diversificati	uo			Total	
Sub-sector	No.	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)	No.	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)	No.	Domestic Investment (RM)	Foreign Investment (RM)	Total Capital Investment (RM)
Moulds, Tools & Dies	29	268,883,390	194,357,497	463,240,887	13	13,930,735	45,272,687	59,203,422	42	282,814,125	239,630,184	522,444,309
Machining	20	26,397,777	30,025,592	56,423,369	e	26,100,250	5,066,750	31,167,000	23	52,498,027	35,092,342	87,590,369
Metal Stamping	12	42,159,393	42,642,895	84,802,288	9	7,643,184	23,107,816	30,751,000	18	49,802,577	65,750,711	115,553,288
Casting	ĉ	115,481,700	26,968,302	142,450,002	Ŀ	5,086,320	17,153,680	22,240,000	ω	120,568,020	44,121,982	164,690,002
Metal Surface Treatment/Finishing	6	10,222,249	21,817,567	32,039,816	e	35,850,000	179,350,000	215,200,000	12	46,072,249	201,167,567	247,239,816
Heat Treatment	2	4,525,000	2,725,000	7,250,000		1	I	ı	2	4,525,000	2,725,000	7,250,000
Total	75	467,669,509	318,536,853	786,206,362	30	88,610,489	269,950,933	358,561,422	105	556,279,998	588,487,786	1,144,767,784

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Country	No.	Foreign Investment (RM)	No.	Foreign Investment (RM)
lapan	81	4.411,582,988	84	3,671,721,963
Netherlands	13	3,284,184,701	26	1,673,996,910
Australia	20	2,560,053,181	12	155,914,520
USA	29 29	2,476,649,294	43	5,154,990,909
Singapore	021	1,884,693,6/5	130	2,919,868,545
Cayman Islands	7	860,000,000	7	154,086,000
British Virgin Islands Libited Kingdom	9 [647,665,369 641 083 444	τı τ	13,445,250 aa 208 205
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Korea.Rep.	- ~	437.825.114	24	673.592.257
Taiwan	202	405,451,042	17	430,694,747
Germany	15	232,287,597	1	387,722,999
Italy	6	218,628,203	2	41,268,480
Indonesia	= •	214,889,222	Υ	52,476,594
Portugal	, – ;	179,775,000	• 3	
China	<u>6</u> -	134,052,932	Ξ 4	39,584,890
Norway	- L	114,000,000	ΩL	303,1/8,4/6
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Sweden	~ ~	43.734.760	~ ~	35.860.000
United Arab Emirates) 	40,000,000	1 1	-
Turkey		37,000,000		0**
Bahamas		34,000,000	ı	I
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Panama	2	20,907,500	-	174,947,077
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Denmark	-, -	7,419,060) ო	30,613,000
Canada	4	6,804,184	ſ	70,804,450
Cyprus	7	5,000,000	ī	•
Austria	, ,	1,835,400	7	12,354,000
Philippines Brozil	_	1,000,000	۰ .	- 74 457 600
Didzli Livemboura				24,437,000
Spain			- , -	9.832.105
Bangladesh	ı	1	ŝ	9,150,950
Russian Federation	ı	ı	2	7,300,000
Peru	ı	ı	, ,	6,114,400
Nigeria Finish				4,864,661
New Zealand				304,000
Others	97	294,543,269	89	288,754,329
Total	***	20,227,884,033	***	17,882,931,091

TABLE 13 : APPROVED PROJECTS BY STATE, 2006 AND 2005

				2006						2005		
		New	Expan	sion/Diversification		Total		New	Expan	sion/Diversification		Total
State	No.	Total Capital Investment (RM)	ŏZ	Total Capital Investment (RM)	No.	Total Capital Investment (RM)	vo Z	Total Capital Investment (RM)	No.	Total Capital Investment (RM)	No.	Total Capital Investment (RM)
Kedah D.A.	32	8,046,632,644	27	1,833,607,540	59	9,880,240,184	22	175,274,179	22	1 ,588,149,096	44	1,763,423,275
Johor D.T.	120	2,824,684,286	101	4,813,638,575	221	7,638,322,861	112	2,922,187,877	122	5,185,740,482	234	8,107,928,359
Pulau Pinang	84	2,111,554,924	72	3,239,099,423	156	5,350,654,347	73	1,180,017,331	75	3,444,829,657	148	4,624,846,988
Selangor D.E.	209	2,970,664,793	102	2,282,919,525	311	5,253,584,318	202	3,911,389,807	135	4,590,180,442	337	8,501,570,249
Sabah	62	4,702,049,489	13	366,749,218	75	5,068,798,707	31	1,012,534,103	10	191,958,611	41	1,204,492,714
Terengganu D.I.	9	2,887,755,498		46,000,000		2,933,755,498	9	300,930,000	2	26,810,464	8	327,740,464
F.T Labuan		136,389,271	2	2,086,460,000	ĉ	2,222,849,271	2	20,302,658	ı	I	2	20,302,658
Negeri Sembilan D.K.	20	1,540,783,234	17	259,080,082	37	1,799,863,316	17	209,146,330	ω	128,308,050	25	337,454,380
Pahang D.M.	18	1,193,683,630	15	598,880,587	33	1,792,564,217	10	1,950,728,298	ω	252,440,389	18	2,203,168,687
Melaka	22	884,845,250	33	516,277,298	55	1,401,122,548	21	243,364,363	31	795,678,673	52	1,039,043,036
Perak D.R.	39	854,080,301	23	327,229,930	62	1,181,310,231	33	1,079,966,001	18	297,387,362	51	1,377,353,363
Sarawak	19	706,105,126	12	151,714,691	31	857,819,817	20	551,997,310	15	674,318,727	35	1,226,316,037
F.T Kuala Lumpur	14	447,689,139	4	56,178,818	18	503,867,957	14	113,650,328	9	35,890,000	20	149,540,328
Perlis I.K.	2	1,380,115		59,800,000	c	61,180,115	2	31,412,120	1	I	2	31,412,120
Kelantan D.N.	5	42,073,840	-	5,000,000	9	47,073,840	2	123,132,324	ĉ	1,765,000	8	124,897,324
Undecided	I	I	ı	I	ı	I	2	17,158,500	ı	I	2	17,158,500
Total	653	29,350,371,540	424	16,642,635,687	1,077	45,993,007,227	572	13,843,191,529	455	17,213,456,953	1,027	31,056,648,482