

The 14th

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PREPARED BY

CIDB MALAYSIA

COUNTRY REPORT

1.0 EXECUTIVE SUMMARY

The Malaysian Economy continues to be resilient showing encouraging growth due to the Ninth Malaysian Plan (9MP, 2006 – 2010). Projects under the 9MP gave positive impact to the country's main sectors particularly the construction and trade as well as Domestic demand.

Every year, construction activity shows growth in terms of the number as well as value of projects involved. The encouraging amount of activity within the construction industry has increased the number of registration of contractors and construction personnel with the Construction Industry Development Board (CIDB) Malaysia.

The Gross Domestic Product (GDP) value per worker has increased in 2007 due to an increase in production, improvements in technology, skills as well as knowledge of workers and innovative production processes.

The increase in construction cost as a result of material cost increase has to a certain extent impacted the implementation of construction works. The Government has intervened with some proactive measures to reduce the burden on contractors.

2.0 MACRO ECONOMIC REVIEW 2007

2.1 Overview of Malaysian Economy

The Malaysian economy continued to grow and was able to record a growth of 6.3% in 2007 (2006 : 5.9%). The growth of Malaysia's economy exceeded the initial forecast of 6.0%. Part of the growth was supported by the results of the 9MP projects which gave positive impact on construction and trade activities, in spite of the moderate growth of the export environment.

2.2 The Performance of the Economic Sector

Large number of Malaysian key economic sectors showed positive growth in 2007. The growth was led by the construction sector, i.e. at 4.6% (2006 : -0.5%), the mining sector at 3.3% (2006 : -2.7%), and services sector at 9.7% (2006 : 7.3%). Sectors which experienced decline were agriculture at 2.2% (5.4% : 2006), and manufacturing at 3.1% (2006 : 7.1%).

Table 1 The Growth of Gross Domestic Product (GDP) Malaysia from 2003 to 2007 at Fixed Price 2000 (%)

Sector	2003	2004	2005	2006	2007				
					Q1	Q2	Q3	Q4	Average Growth (%)
Agriculture, forestry and fishery	6.0	4.7	2.6	5.4	3.8	-1.5	1.9	4.7	2.2
Mining and quarrying	6.1	4.1	-0.4	-2.7	-0.4	7.8	2.5	3.5	3.3
Manufacturing	9.2	9.6	5.2	7.1	2.0	1.5	3.3	5.6	3.1
Services	4.2	6.4	7.2	7.3	9.4	9.4	10.5	9.3	9.7
Construction	1.8	-0.9	-1.5	-0.5	4.1	4.8	4.7	4.7	4.6
GDP	5.8	6.8	5.3	5.8	5.5	5.8	6.6	7.3	6.3

Source : Monthly Statistical Bulletin, January 2008, Central Bank of Malaysia
Monthly Statistical Bulletin, July 2008, Central Bank of Malaysia
Central Bank of Malaysia Yearly Report 2007

Table 2 The Growth of Gross Domestic Product (GDP) Malaysia from 2003 to 2007 at Constant Price 2000 (RM Million)

Sector	2003	2004	2005	2006	2007				
					Q1	Q2	Q3	Q4	Total
Agriculture	33,369	34,929	35,835	32,769	8,868	9,299	10,512	9,914	38,583
Mining and quarrying	40,959	42,627	42,472	41,315	10,577	10,479	10,468	11,139	42,663
Manufacturing	119,687	131,127	137,940	147,672	36,343	37,547	39,625	38,748	152,262
Services	201,568	214,528	230,043	246,895	64,415	66,193	69,037	71,116	270,761
Construction	15,031	14,903	14,685	14,604	3,524	3,926	3,911	3,918	15,279
GDP	399,414	426,508	449,250	475,192	120,225	123,896	130,070	131,162	505,353
GDP (at current price)	418,769	474,048	522,445	573,736	144,566	154,283	166,306	176,709	641,864

Source : Monthly Statistical Bulletin, January 2008, Central Bank of Malaysia
Monthly Statistical Bulletin, July 2008, Central Bank of Malaysia
Central Bank of Malaysia Yearly Report 2007

2.2.1 Agriculture Sector

The agricultural sector (agriculture, forestry and fishery) grew at a moderate rate of 2.2% in 2007. This sector was supported by food related activities with a value added growth of 4.9% (2006 : 6.8%).

15.8 million tonnes of the industries main crop, i.e., crude palm oil was produced, while the total production of rubber was 1.2 million tonnes, contributing to 36% of the total added value of the agricultural sector. The slow performance of the industry's main crop was due to production's declining cycle, heavy rain which consistently interrupted the cycle, dry spells in a number of areas at the beginning of the year as well as continuous reduction of planting area. Nonetheless, the positive growth in the industry's main crop in 2007 was due to the significant increase in crude palm oil prices of 62.6%, the highest price ever reached, i.e. RM 2,472 per tonne as well as the increase in the price of Malaysian rubber (SMR20) of 3.9% to an average of 837 cent per kilogram. These developments were impelled by the increase of strong demands and the increase in crude oil prices.

In the forestry sub-sector, logging activities declined at 5.3% in response to conservation efforts and the reduction of demand from Japan. The production of cocoa increased to 10.2% (2006 : 14.2%) as a result of increase in productivity.

2.2.2 Mining and Quarrying Sector

In 2007, this sector recorded a growth of 3.3% (2006 : -2.7%). The production of crude oil (including condensates) showed an increase of 4.3% (2006 : -5.2%) with an average production of 695,276 barrels per day. The production of natural gases increased 1.4% (2006 : -0.4%) to 5,854 million standard square cubes per day.

2007 saw a sudden increase in Tapis Blend (Malaysia's benchmark oil grade) which recorded USD 57.44 a barrel earlier in the year to the highest price ever of USD 99.57 a barrel at the end of the year. The increase in prices was a consequence of strong demand from the global economy, the involvement of speculative funds and consistent geopolitical concerns within the region of the main oil producers.

2.2.3 Manufacturing Sector

The manufacturing sector grew at a moderate rate of 3.1% in 2007 (2006 : 7.1%) supported by domestic oriented industries, namely construction related products (5.0%) in line with construction activities which were more actively undertaken and private sector consumption such as food, drinks, and tobacco. Export oriented industries were a little slower at a rate of 0.7% (2006 : 7.5%).

Electronics and electrical production were a little hampered by the slow production of computers and spare parts in the United States of America (US), lower semi conductor production as well as slow investments in equipment and software by the US corporate sector, particularly at the beginning of 2007. Production in the Off-estate manufacturing industry declined along with upstream crude palm oil and rubber activities. Meanwhile, the transportation sector was also affected by the slowing down of the used car market during the first half of the year.

The growth of rubber production continued due to the improvements in the tyre, tube and glove segments. The petroleum production sector benefited from the improvement in liquid natural gas production. The chemical industry and chemical produce improved moderately supported by the production of industrial gases, pharmaceuticals, medical chemicals and botany produce.

2.2.4 Services Sector

The services sector continued to grow at a rate of 9.7% in 2007 (2006 : 7.3%). The combinations of all sub-sectors recorded encouraging growth and were the main contributors to the GDP. The biggest contributor within the services sector was financial and insurance, property and business services, transportation and storage, wholesale and retail trade as well as accommodations and restaurants.

Firm improvements in income and high commodity prices, review of public servants wages, robust capital markets and tourism activities in the Visit Malaysia Year 2007 as well as the various initiatives put forth by the relevant authorities to encourage Islamic Finance activities as well as ICT services has propelled strong demands for the services sector. Meanwhile, the increase in disposable income led to improvements in private medical services, beauty care, entertainment, private education which in turn led to stable growth in the other services sub-sector.

2.2.5 Construction Sector

The growth of the construction sector recovered after experiencing three consecutive years of decline, recording a growth of 4.6% (2006 : -0.5%). The civil engineering sub-sector was the major contributor as a result of the RMK9 projects executed expediently in 2007. Federal Government development expenditure increased to RM 40.6 billion (2006 : RM 35.8 billion) due to the funding of building and improvements of infrastructure such as, schools, hospitals, and government living quarters.

The growth of non residential segment also increased stimulated by the increase in demand

for office and retail space. Activities in the residential sub-sector continued to remain positive, supported by residential property transactions with foreign citizens which increased by 30% during the first half of 2007. This was due to the Government's efforts in liberalising property purchases, Property Gains Tax exemptions and relaxation of residential property borrowings allowing foreigners to also obtain loans for the purpose.

Future offers for the housing sector in 2007 increased to 1.5%. However, the national house prices measured by the Malaysian House Prices Index increased 3.8% during the first half of 2007 (2006 : 1.9%). This increase was partly due to the constantly increasing building materials prices. The whole ceiling price has been reviewed thrice with a total increase of 45% while the ceiling price for cement was revised at the end of 2006 with a total increase of up to 10%.

2.3 Demographic Indicator

The labour market grew well in 2007, along with improvements in the Malaysian economy. Job availability also improved in many sectors. Unemployment rate remained low due to the increase in the demand for workers and very low termination rates.

Table 3 Labour Market Indicator

	2003	2004	2005	2006	2007
Population (people)	25.3 million	26.0 million	26.1 million	26.6 million	27.2 million
Population Growth Rate	3.3%	2.8%	0.4%	1.9%	2.3%
Labour Force (people)	10.0 million	10.5 million	10.9 million	11.2 million	11.4 million
Labour Force Growth Rate	2.5%	4.1%	4.1%	2.4%	2.1%
Unemployment Rate (% from Labour Force)	3.6%	3.5%	3.5%	3.3%	3.3%

Source : Central Bank of Malaysia Yearly Report 2007

2.4 Financial Indicator

The financial scenario remained encouraging for 2007. The domestic financial markets remained resilient as a result of strong macroeconomic fundamentals. Short Term and Long Term Interest Rates for merchant banks' fixed deposits showed a marginal reduction of 3.17% (2006 : 3.19%) and 3.71% (2006 : 3.73%) respectively. Consumer Price Index (CPI) increased 2.0 points compared to

2006. The value of the Ringgit improved by 6.8% compared to the USD and recorded an exchange rate of RM 3.31 to a Dollar by the end of 2007.

Table 4 Financial Indicator

	2003	2004	2005	2006	2007
Short Term Interest Rate (commercial bank fixed deposit) for 3 months)	3.00%	3.00%	3.02%	3.19%	3.17%
Short Term Interest Rate (fixed deposit for commercial banks for 12 months)	3.70%	3.70%	3.70%	3.73%	3.71%
Change in Consumer Price Index	1.2 ¹	1.4 ¹	3.0 ¹	3.6 ²	2.0 ²
Change Against USD (as of December, 31)	3.80	3.80	3.78	3.53	3.31

Source : Central Bank of Malaysia Yearly Report 2007

Note : ¹ base year 2000

² base year 2005

3.0 OVERVIEW OF THE CONSTRUCTION INDUSTRY

3.1 Construction Demand

The original allocation for 9MP, totaled RM220 billion promised an improved performance for Malaysia's economy. 2007 (third year of 9MP), demonstrated consistent growth as a result of active implementation of projects under the 9MP. The value of construction projects awarded in 2007 exceeding RM500.000.00 increased significantly by RM87.97 billion i.e. an increase of 49.2% as compared to the total awarded in 2006 (RM58.96 billion). This increase was a result of the high increase in Government projects of 117.1% translated into a value of RM46.68 billion (2006 : RM21.50 billion) and 73.4% in terms of number of projects to 2,811 projects (2006 : 1,621). Table 5 shows value of projects awarded according to sector and year of awarded. Infrastructure projects constituted the main development category for the Government (58.7%) followed by the development of social amenities (22.0%). The value of private sector projects also increased by 10.2% compared to the previous year but experienced a decline of 5.1% in terms of the number of projects executed. The private sector focused on the development of business and residential properties comprising 77.2% of total value of private projects. Some of the major projects implemented in 2007 was the Double Tracking Project from Ipoh to Padang Besar worth RM12.49 billion, the Double Tracking

Project between Seremban and Gemas worth RM3.45 billion and the South Klang Valley Expressway Project with a value of RM1.10 billion.

Up to June 2008, the value of projects recorded by CIDB totaled RM27.77 billion. There were no signs that the private sector will increase its investments in the near future due to the unpredictable nature of external factors, the discomfort experienced in local politics and the increase in food prices which impacted household expenditure. There are no indicators which can stimulate the demand in the construction sector as shown in 2007.

New construction in 2008 is forecasted to be around RM69.00 billion. This is a reduction of 21.1% from the contract value in 2007 (RM87.97 billion). The decline in forecast is due to extraordinary Government expenditure in 2007, which are not expected to recur in 2008 up to the final implementation years of the 9MP. The estimated value (RM69.00 billion), approximates the forecast of average construction expenditure for a period of five (5) years, i.e. at RM70.00 billion per annum.

Table 5 Construction Demand by Sector and Year of Awarded

Type of Projects by Sector	2003	2004	2005	2006	2007	2008 (forecast)
RM billion (current rate)						
Private Residential	11.22	14.93	15.39	13.57	12.84	35.95
Private Non-Residential	18.59	24.67	21.94	23.89	28.45	
Public Residential & Non-Residential	19.26	14.73	17.66	21.50	46.68	33.05
Total	49.07	54.33	54.99	58.96	87.97	69.00
Repair & Maintenance (Private & Public)	1.68	1.67	2.39	2.16	2.17	2.00

Source : CIDB Malaysia

3.2 Construction Companies

It is mandatory for all contractors whether local or foreign to register with CIDB before they undertake to execute and complete any construction works in Malaysia. Any person who undertakes to carry out and complete any construction works without being registered as a registered contractor with CIDB shall be guilty of an offence under Construction Industry Development Board Malaysia Act 1994 (Act 520).

Based on contractor registration records with CIDB, the number of contractors registered year by year. In December 2007, a total of 63,610 contractors including 163 foreign contractors registered with the CIDB. 66.2% of this total were small contractors i.e. those in grades G1 and G2 categories, who are qualified to tender for projects valued at less than RM500,000.00 (Table 6). The balance of 21,246 contractors was registered under grades 3 to 7. From this total, 3,948 contractors including 41 foreign contractors succeeded in acquiring contract works as main contractors in 2007.

Table 6 Number of Contractors Registered With CIDB

Grade	Tendering Capacity	2003	2004	2005	2006	2007
G1	Not Exceeding RM 200,000	32,189	36,335	37,067	36,141	34,581
G2	Not Exceeding RM 500,000	6,146	6,901	7,076	6,937	7,300
G3	Not Exceeding RM 1,000,000	8,785	9,426	9,760	10,043	10,572
G4	Not Exceeding RM 3,000,000	1,816	1,975	2,017	2,140	2,340
G5	Not Exceeding RM 5,000,000	2,642	2,829	2,762	2,816	3,078
G6	Not Exceeding RM 10,000,000	977	1,077	1,033	1,003	1,065
G7	No Limit	3,637	3,637	3,472	3,736	4,191
Foreign	No Limit	135	157	156	163	163
Total		56,327	62,337	63,343	62,979	63,290

Source : CIDB Malaysia

Based on the Construction Economic Census 2006, issued by the Department of Statistics Malaysia, a total of 37.3% (205,625 individuals) of the total number of workers are paid wages by organizations which employ between 100 - 499 workers. This is followed by organizations in the category of 100 workers or less, i.e. 33.0% (182,302 workers).

Most organisations, i.e. 88.6% (9,172 organisations) have less than 100 workers but contributed only 31.7% (RM17.1 billion) to the total gross output as compared to 1,175 organisations with more than 100 workers which contributed 68.3% (RM36.9 billion) to the gross output.

Table 7 Number of Organisations and Total Number of Workers According To Worker Size 2005

Worker Size	Number of Organisation	Total Number of Workers
< 100	9,172	182,302
100 - 499	1,013	205,625
500 - 999	116	78,629
≥ 1,000	46	85,199
Total	10,347	551,755

Source : Construction Economic Census 2006, Department of Statistics Malaysia.

3.3 Construction Personnel

CIDB is given the responsibility to register the nation's construction personnel. From this registration, a database created can be used as a basis to outline the directions, policies and facilitates planning of the construction sector's human resource development programs. As at 31st December 2007, the total cumulative number of construction personnel registered with CIDB increased by 17.8% to 826,840 construction personnel in various categories. From this total, 635,717 (76.9%) are local personnel, while the balance are foreign workers.

Table 8 Construction Personnel Registered With CIDB

Category	2003	2004	2005	2006	2007
Construction Worker	193,847	249,389	298,647	356,385	419,951
Semi-skilled Worker	23,893	29,878	34,165	38,161	42,293
Skilled Worker	82,566	94,274	101,242	111,087	123,460
Construction Site Supervisor	49,319	54,806	58,374	62,868	73,017
Construction Manager	34,066	37,705	40,067	43,593	48,503
Administration Personnel	41,431	51,271	65,776	89,587	119,616
Total	425,122	517,323	598,271	701,681	826,840

Note : Data as at 31st December every year.

3.4 Productivity

Table 9 shows Malaysia's GDP and the number of employee for the construction sector each year. The GDP value for 2007 was RM15.28 billion compared to employee for the construction sector which was 757,300 employees. Therefore, the GDP per employee for 2007 was RM 20,176. This

was an improvement of 4.3% compared to 2006 (RM 19,338 per employee).

Table 9 Construction Sector Value-added and Employment

	2003	2004	2005	2006	2007
Construction Sector Value-added (RM million)	15,031	14,903	14,685	14,604	15,279
Construction Sector Employee ('000 worker)	774.6	767.3	759.6	755.2	757.3
Value-added per Employee (RM)	19,405	19,423	19,332	19,338	20,176

Note : Value-added measures the output created through production and services processes and it is distributed to those who have contributed to its creation.

Source : Monthly Statistical Bulletin, July 2008, Central Bank of Malaysia
Central Bank of Malaysia Yearly Report 2007

3.5 Construction Cost

Based on reports issued by Public Works Department of Malaysia, the average per square meter cost of Government buildings were affected by the project location (states in the Peninsular of Malaysia). Table 10 shows average per meter cost for Peninsular Malaysia based on building category.

Table 10 Average per Square Meter Cost for Government Buildings in Peninsular Malaysia (1980 – December 2006)

Building Category	Average Per Square Meter Cost (RM)
3 Storey school building	717.61
4 Storey Hospital Ward Block	885.86
Government Offices Tower Block	1,175.63
2 Units of Fire Department	790.65
Police Station	1,277.15
Bungalow Quarters (D Class)	1,258.17
5 Storey Apartment Quarters	1,110.28

Source : Kos Purata Semeter Persegi Kerja-kkerja Pembinaan Bangunan bagi tempoh Julai 2006 hingga Disember 2006, Jabatan Kerja Raya Malaysia
(Average per Square Meter Cost for Construction Building Works from July 2006 to December 2006, Public Works Department Malaysia)

By the end of 2006, prices of building materials increased, particularly for round steel bar, cement, concrete and bitumen. Throughout 2007, most building materials experienced a price hike between 2% to 42% compared to the prices in 2006. The average price of steel bar increased from 29.8% to 31.6% in 2007 due to the rapid increase in raw materials and other side production materials. Other construction materials experiencing price increases included concrete (9.1%), cement (8.5%) and bitumen (6%). The remaining materials only experienced marginal price increases.

Table 11 Average Price of Construction Materials in Peninsular Malaysia (RM / tonne)

Construction Material	2003	2004	2005	2006	2007
Mild Steel Round Bar	1,186.70	1,446.53	1,565.20	1,565.20	2,060.54
High Tensile Deformed Bar	1,225.50	1,485.33	1,604.00	1,604.00	2,082.42
Cement	10.14	10.14	10.14	10.14	11.00
Concrete	126.28	126.61	137.43	144.79	153.86
Sand	23.43	25.42	17.13	13.51	14.14
Aggregate	23.13	23.19	24.00	18.23	18.85
Clay Brick (RM / unit)	0.24	0.25	0.24	0.25	0.26
Cement Brick (RM / unit)	0.15	0.16	0.14	0.15	0.16
Bitumen	816.67	730.83	742.50	1,176.67	1,247.50

Source : CIDB Malaysia

Based on studies conducted by CIDB, the average wage rate in 2007 was RM 70.00 per day for skilled workers and RM 51.00 per day for semi-skilled. The rate deferred from construction equipment operators, which was RM 68.00 per day for skilled workers and RM 49.00 per day for semi-skilled. Building general workers on the other hand, received an average wage of RM 41.00 as compared to RM 44.00 for civil general workers. Wages for skilled electrical wiremen were at the rate of RM 2,140.00 per month.

Table 12 Average Labour Wage Rates 2007 (RM daily)

	Construction Worker	Machine Operator
Skilled Worker	70.00	68.00
Semi-skilled Worker	51.00	49.00
General Construction Worker-Building	41.00	-
General Construction Worker-Civil	44.00	-
Electrical Wireman, Skilled (monthly wages)	2,124.00	-

Source : CIDB Malaysia

3.6 Import and Export of Construction Services

Besides local contractors, foreign contractors were also involved in construction works in Malaysia particularly those works requiring specific specialisation. In 2007, foreign contractors were involved in construction works with projects awarded totaling RM 5.82 billion or 47% increase in term of value from the year before (2006 : RM 3.96 billion). In terms of percentage, foreign contractors contributed to 6.6% of domestic projects (2006 : 6.7% , 2005 : 8.1%). Foreign contractors mainly came from Japan (26.2%), Singapore (17.9%), China (11%) and Germany and Korea (8.3%) respectively. Some of the major projects executed by these contractors in Malaysia in 2007 included the Double Tracking Projects from Seremban to Gemas with a value of RM 3.45 billion, Factory Construction in Bintulu, Sarawak at a value of RM 0.34 billion and Residential Project in Ampang with a value of RM 0.30 billion.

Malaysian contractors' involvement in the global market in 2007 showed that they were successful in acquiring 39 projects of various categories with a value of RM 14.42 billion. This is a reduction by 51.9% compared to the earnings from such projects in 2006 which was RM 30.00 billion. The Middle Eastern Market was the largest market with a value of RM 8.91 billion. This was followed by the markets in Laos (RM 2.09 billion), India (RM 1.57 billion), Pakistan (RM 1.33 billion) and Thailand (RM 1.16 billion). As at June 2008, the number of projects implemented by Malaysian contractors in global market totaled 447 projects with a value of RM 81.23 billion, involving 97 contractors. Most of the Malaysian contractors were involved in public utilities infrastructure as well as building projects including residential buildings. Among the biggest projects for 2007 was the construction of a Turf Club in Dubai, United Arab Emirates with a value of RM 2.30 billion, the construction of a power plant in the Korba District in India worth RM 2.00 billion and the construction of the Abu Dhabi City Centre in United Arab Emirates worth RM 1.50 billion.

Table 13 Import and Export of Construction Services (RM billion)

Type of Contractors	2003	2004	2005	2006	2007
Foreign Contractors in Domestic Market	10.06	8.25	4.43	3.96	5.82
Local Contractors in Global Market	3.73	2.89	9.57	30.00	14.42
Local Contractors in Domestic Market	39.01	44.99	50.33	55.00	82.15

Source : CIDB Malaysia

THEME PAPER

PRODUCTIVITY IMPROVEMENTS IN THE MALAYSIAN CONSTRUCTION INDUSTRY

1.0 EXECUTIVE SUMMARY

The Construction Sector continues to be an essential sector in the Malaysian economy, where it lends strength and capability to a host of economic sectors, whilst supporting the social development of the country through the provision of basic infrastructure.

Various influencing factors, however, have together presented sizeable challenges to the Malaysian Construction Industry's especially in the enhancement of productivity. In order to address these challenges and the needs of the industry, the Construction Industry Master Plan (CIMP) 2006 – 2015 has been developed as a means for charting the future direction of the industry, thus ensuring that it will have the capacity to become a world-class, innovative and knowledgeable global solution.

Outlined within the CIMP are strategic action plans that will develop the Malaysian construction industry productivity through the following decade (2006 – 2015). The strategic action plans take cognisance of the current government of Malaysia's economic development policies.

The CIMP has been developed by the Construction Industry Development Board (CIDB) Malaysia in collaboration with the Industry President Council and the various organizations representing the construction industry.

2.0 PRODUCTIVITY TRENDS IN THE MALAYSIAN CONSTRUCTION SECTOR [2007]

Malaysia has continued to witness an upward trend in the performance of its economy with a GDP growth of 6.3% in 2007, the highest growth rate registered in the last three years. In tandem with this positive scenario, a broad-based productivity growth of 4.2% to a productivity level of RM 48,133 in 2007 (2006 : RM 46,208) was achieved against the backdrop of positive growth in all the other economic sectors.

The Malaysian Construction Sector, on the other hand, had registered the strongest productivity growth at 1.5% since 2004, on account of the implementation of projects under the Ninth Malaysia Plan (9MP).

In terms of 'added value per employee', the Construction Sector registered a growth of 2.3% in 2007, while its total output per employee grew at 3.8%, the result of the ongoing implementation of

major infrastructure projects that contributed to the growth in productivity.

In the light of sustained labour cost competitiveness, the Sector reflected a lower unit labour cost of 2.3%. Commensurate with the higher productivity growth of 1.5% as indicated earlier, a 1.3% growth in the Sector's enhanced labor cost competitiveness [reflected as labour cost per employee] was also achieved.

Given the modernisation of the Sector through the purchase of new equipment for infrastructure projects to be implemented during the 9MP, capital productivity showed a marginal decline by 0.03%, while capacity intensity registered a 2.6% growth.

Table 1 : Productivity Indicators for the Construction Sector

	Growth 2006 (%)	Growth 2007 (%)
Added Value per Employee	0.42	2.34
Total Output per Employee	0.61	3.76
Added Value per Labour Cost	0.99	1.26
Labour Cost per Employee	0.30	1.33
Unit Labour Cost	-0.97	-2.32
Added Value per Fixed Assets	-0.28	-0.03
Fixed Asset per Employee	1.94	2.64

Note : Added value measures the wealth created through production and services processes and it is distributed to those who have contributed to its creation.

Source : Malaysia Productivity Corporation (MPC)

3.0 PRODUCTIVITY-RELATED CHALLENGES FACED BY THE MALAYSIAN CONSTRUCTION INDUSTRY

Much like many other countries around the world, the Malaysian Construction Industry continues to face a myriad of problems that threaten to impair its development and hamper its sustainability if not addressed and managed effectively.

The Construction Sector will continue to play its role as an important element in the national economy, through the strengthening and enabling of the other sectors, while supporting social development and meeting the needs of basic infrastructure requirements. There are a few influential factors, in particular, productivity and quality-related factors that have posed significant challenges to the development of the Construction Industry.

Fragmentation and Disintegration of the Construction Industry

The construction industry has remained a very fragmented industry where different activities in the entire value chain of the construction processes are being undertaken by different parties, often undertaken in isolation, thus resulting in inefficiencies. In particular, the segregation of design and construction activities which is widely practiced does not encourage consideration for factors like savings in labour utilisation, ease of maintenance, construction safety and the practicality of construction methods.

As a result of the lack of such integration considerations in the industry, traditional construction processes tend to incur additional costs from rework that normally arise from quality issues, disputes and longer buildings times. It is obvious that such a scenario does not promote efficiency and high standards of quality in construction works.

Labour-Intensive Construction Methods

Labour-intensive conventional methods of construction that are still prevalent in Malaysia. The adoption of such methods are encouraged by the cheaper cost of employment of foreign workers with lower wages and the availability of such workers for short-term periods of work.. Another reason for the heavy dependency on foreign labour involves the fact that the local workforce is reluctant to be employed as construction workers in the wet trades, where the image of the construction industry has always been one that is 'Dirty, Dangerous and Difficult'. In addition to these issues, these foreign workers, most of whom are from Indonesia and the Association of Southeast Asian Nations (ASEAN) are unskilled and this situation has had a further impact on the productivity and quality of the construction industry.

Besides labour issues, there is the low adoption of industrialised building systems that allow site fabricated components to be installed for construction projects, hence reducing dependency on foreign workers.

Industry Image

The industry's image has always been in need of significant improvements and has been further tarnished by a small number of non-performing contractors. The appreciation for the need to enhance the image and professionalism of the industry is in line with the National Integrity Plan (NIP) which was launched by the Government on 23 April 2004.

Besides issues related to the image of the industry, payment issues in the construction industry have also become prevalent, where occurrences of non-payment, slow payment and under payment continue to rise. This is a growing concern as it often leads cash flow problems experienced by construction companies, which ultimately will impact construction quality and productivity. The

resolution of non-payment issues in the construction industry needs to be expedited in order to reduce financial difficulties to those involved.

Some developed countries, such as the United Kingdom, Australia, New Zealand and more recently Singapore, have decided to enact statutory provisions for adjudication to avoid such payment issues. Overall, the popularity of adjudication has gained tremendous support from key stakeholders in the construction industry. Parties concerned have benefited from the strict time limits, which have resulted in prompt decisions and reduced costs. Arbitration, by contrast, is often considered, within the domestic area, as slow, cumbersome and expensive and the number of institutional appointments have decreased markedly.

Difficulty in Securing Timely and Adequate Financing

At the present moment, there is still a mismatch of needs and wants between the financial services and construction sectors. The percentage of loans disbursed to the construction sector is one of the lowest compared to other sectors such as manufacturing. Industry participants believe that construction remains a misunderstood industry and hence, is still being deemed risky by financial institutions. The ability to obtain funding, however, is a critical component to the success of the contractors, even more so when they intend to bid for and operate overseas projects.

In particular, contractors have been facing long-drawn problems in acquiring funding and financial guarantees for tender bonds, performance bonds, bridging loans and working capital, whilst being imposed with high insurance charges. Additionally, Contractors who are keen on project proposals as total-solution providers for overseas projects, are often plagued with problems of financing feasibility studies that need huge financial investments.

Other problems related to project expenses, especially tender bonds, performance bonds, bridging loans and working capital include the following:

- i. In general, local banks are less prepared to fund construction projects, especially overseas projects where such projects are categorized as high risk ventures which demand a lot of considerations due to potential negative impact and complexities such as political risks, national risks, payment risks, project management risks and others;
- ii. As a result of the problems highlighted in Item (i) above, local banks have been imposing strict conditions for funding. At times, contractors have been requested to deposit or offer collaterals that are of equal value to the loan amount;
- iii. The evaluation and approval process of banks have been known to be lengthy. Such situations have manifested themselves as significant hindrances to

contractors in their efforts to participate in tenders since the deadlines for such tenders are often tight, thus resulting in the failure of contractors to secure tender bonds.

The smooth implementation of projects have also been marred by the delay in getting approvals for bridging loans. Without working capital, it would be close to impossible for contractors to start work; and

- iv. Charges incurred by banks are often high. This is mainly due to the fact that local banks do not have branches in the countries or locations where the construction project will be undertaken. Contractors are then forced to bear charges twice, ie. charges imposed by local banks and those imposed by banks overseas which include the expenses of correspondence relationship with the local bank involved in the project.

Occupational Safety and Health

Over the past five years, the lacklustre performance of the construction sector coupled with the rise in the number of fatalities within the sector has received considerable attention. The number of fatalities has reached an alarming level. The provision number of reported accident in 2007 was 3,395 of which 2.8% and 0.3% resulted in death and permanent disabilities respectively in construction industry. In comparison, the manufacturing industry and the agricultural, forestry and fisheries industry recorded 1.6% and 0.9% fatalities respectively.

Accidents that occur at the construction site hamper productivity when construction projects are served with 'stop work orders' from the authorities. Besides this, such accidents contribute to the tarnished image of the construction industry as being 'Dirty, Dangerous and Difficult'.

Lack of R&D for Innovation and Automation

As mentioned, the local construction industry is characterised as one that is labour-intensive, which has resulted in numerous challenges as highlighted previously. There is a need for the construction industry to progress towards one that is more focused on innovation and automation. However, the pace of innovation through R&D and automation through the adoption of new construction methods are relatively low due to the abundance of cheap foreign labour.

Despite the lack of R&D initiatives in the Malaysian construction industry, there has been progress on the local front to encourage and stimulate R&D activities in the construction industry. For example, in 2007 CIDB established the CIDB's Construction Industry Research Institute of Malaysia (CREAM) and since then CREAM has funded 30 research projects to the tune of RM 19.37 million.

Addressing the Challenges

To address the challenges and fulfill the needs of the industry, the development of a strategic plan has lent itself as a key initiative to determine the direction of the future of the construction industry, especially in the areas of the ability to compete in the global market, capabilities as global solution providers, innovative, knowledgeable and moreover, increasing the levels of productivity and quality. To continuously enhance the level of productivity and quality, the development of a Construction Industry Master Plan (CIMP) has become an imperative.

4.0 CONSTRUCTION INDUSTRY MASTER PLAN (CIMP) 2006 – 2015

About CIMP

The Construction Industry Master Plan [CIMP] was officiated by YB. Dato' Sri Mohd. Najib Tun Abdul Razak, Deputy Prime Minister of Malaysia on 10 December 2007. The CIMP was developed in conjunction with other long-term plans such as the Industry Master Plan (IMP3), Vision 2020, National Integrity Plan (NIP), The 5 Years Malaysia Plan, Outline Prospective Plan (OPP3) and other plan and policies which outlines the objectives and strategies of the government to more competitive and sustainable and to increase the quality of life of the people.

CIDB, in collaboration with industry stakeholders through joint efforts, have developed a CIMP that is designed to help the Malaysian Construction Industry to face the challenges that lie ahead. In particular, the CIMP is aimed at transforming the construction industry in Malaysia to higher levels in terms of productivity, image, performance, capacity to become a world-class, innovative, knowledgeable human capital and efficiency. The master plan is a 10-year road map, covering the period of 2006 – 2015.

Some key considerations in the CIMP include the fact that the construction industry and the private sector have always assumed an important role in generating wealth and improving the quality of life for Malaysians through the translation of the government's socio-economic policies into social and economic infrastructure building. The construction industry also creates a multiplier effects to other industries, including manufacturing, financial, services and professional services.

Construction industry involves multiple stakeholders at different stages that could position them to leverage construction industry opportunities such as building and construction materials, tooling, heavy equipment and machinery and financial services.

A vision for the construction industry has also been formulated in tandem with the objectives and goals of Malaysia in the light of its aspiration to be developed nation by 2020. The vision is set out as follows : 'The Malaysian construction industry shall be a world-class, innovate and knowledgeable global solution provider'.

The mission of the CIMP can be translated into an ambition to support and coordinate all the initiatives that will lead to realization on vision for the construction industry. The mission is set out as follows : ' To be a dynamic, productive and resilient enabling sector, supporting sustainable wealth generation and value creation, driven by a technologically-pervasive, creative and cohesive construction community'.

Structure of CIMP

The CIMP has identified eight (8) critical success factor (productivity, quality, human resource, knowledge, innovation, environment-friendly practices, industry sustainability and professionalism) which are imperative to the success of the achievement of the strategic thrust and strategies and ultimately to the vision of the Construction Industry.

In order to achieve the vision and mission, seven (7) strategic thrusts have been identified and which were subsequently formed the basis for the CIMP's main recommendations. The seven (7) strategic thrusts are :

- i. Integrate the construction industry value chain to enhance productivity and efficiency;
- ii. Strengthen the construction industry image;
- iii. Strive for the highest standard of quality, occupational safety and health and environment practices;
- iv. Develop human resource capabilities and capacities in the construction industry;
- v. Innovate through research and develop and adopt new construction methods;
- vi. Leverage on information and communication technology (ICT) in the construction industry; and
- vii. Benefit from globalization including the export of construction products and services.

21 specific recommendations, 77 action plans and 384 activities have also been developed and to be undertaken in order to achieve these Strategic Thrusts.

5.0 ENHANCING THE CONSTRUCTION INDUSTRY PRODUCTIVITY IN IMPLEMENTING THE STRATEGIC THRUSTS OF CONSTRUCTION INDUSTRY MASTER PLAN (CIMP)

The CIMP has mapped out the action plans to address all issues arising and guided the construction industry to enhance the industry's productivity. Some of the action plans and strategies include:

5.1 Integrate the Construction Industry Value Chain

Encourage Partnering Approach

Productivity in the construction industry will have to encompass more than the contractors alone. Architects and engineers will need to get involved, since there are three (3) contributing factors to productivity and quality failure: 10% due to material faults, 40% due to construction faults and 50% due to design faults).

The CIMP recommends a partnering approach by to be implemented by way of three (3) action plans which include creating awareness / educating, creating framework / guidelines mechanism of partnering and creating policy.

Partnering involves collaboration not just between the client and contractor, more importantly, along the entire construction industry value chain. Encouraging a collaboration attitude would bring construction players together to achieve shared goals and resources and to encourage free flow of communication. This would help to integrate the construction industry and bring about improvement in cost and quality control. It would also better enable the construction industry players to provide total solutions to their clients.

Integrate Administrative Practice and Procedures

The lack of coordination in the bureaucracy means that the entire approval processes often takes an excessively long period of time. Construction players have pointed out that it takes over 18 months to obtain approval for the building plans. This issue predominantly affects building rather than infrastructure projects, although they also facing similar delays with Local Authorities and Technical Agencies.

Under the CIMP, the key action steps that are being develop and reviewed, with an aim to be pursued in the context of integrating administrative practices and procedures are as follows :

- i. Standardise policies and procedures at all Local Authority through One-Stop Centre (OSC) initiatives;
- ii. Digitise planning submission and building plan approval process;
- iii. Introduce online submission for consultant; and
- iv. Develop standardized data exchange to digitally link with Technical Agencies.

5.2 Strengthen The Construction Industry Image

Enhance the Professionalism of the Construction Industry

There are various methods aimed at enhancing the image and professionalism of the industry. A key requisite for the industry is to be characterised by contractors who bring value to the industry.

There is need to tighten the registration of contractors and to introduce new registration requirement for contractors going overseas and those involved in facility management.

Professionalism can also be enhanced through adoption of a code of ethics (except for members of professional bodies) and adherence to these guidelines will be enforced by the associations. At present, there is no code of ethics for contractors. Continuous improvement efforts among contractors and professionals are also necessary for the industry to move forward. In encouraging contractors to improve their performance, a holistic performance assessment system that covers key areas – quality, occupational safety and health, environment, financial, etc. – needs to be in place. With all these efforts, the industry will be characterised by a higher level of professionalism and progress towards an image that is more trusted and respected by its stakeholders both locally and globally.

Resolve Non-payment Issues

The resolution of non-payment issues in the construction industry needs to be speedy to reduce financial difficulties to those involved.

As such, the Construction Industry Payment and Adjudication Act (CIPPA) need to be enacted in Malaysia. This Act will incorporate the five (5) criteria for a successful dispute resolution mechanism. The key criteria are economical, contemporaneous, timely, networking (good relationships must be maintained) and contractually correct.

Currently, CIDB is working together with the industry to develop the Construction Industry Payment and Adjudication Act (CIPPA).

Other Initiatives to Strengthen Construction Industry Image

Other initiatives would include a performance scorecard on Quality Assessment System in Construction (QLASSIC), enhancing the Procure to Pay (P2P) strategy and raising the knowledge level of the construction community. These initiatives, when implemented effectively, should lead to a change in its current image to one that is more attractive and reputable.

5.3 Strive For The Highest Standard Of Occupational Safety And Health

Occupational Safety and Health Practices

The long term development of the industry requires stakeholders to be accountable to achieve the highest standard of occupational safety and health practices to be upheld to ensure that a proper balance is achieved. The achievement of these standards requires raising the awareness of its importance among relevant stakeholders and the implementation of an Occupational Safety and Health Management System (OSHMS), developing occupational safety and health programme which include awareness, education and training, enforcement and legislation, guidelines and codes of practices.

5.4 Develop Human Resource Capabilities And Capacities

Develop Human Resource Capabilities

The construction industry in Malaysia can promote the use of skilled labour by adopting a five-stage approach to human resource development which encompass the assessment of human capital needs, development of training and education, and encouragement of Continuous Competency Development (CCD).

5.5 Innovate Through Research And Development

Continuously Innovate Construction Processes and Techniques

The overall focus on costs has an impact on adoption of technology in the construction industry. Cost and budget constrain have encourage the construction industry to favour labour-intensive construction methods over the use of more expensive technology. In turn, makes it more difficult for the industry to increase its level of productivity in quality in

the long run. The use of Industrialised Building System (IBS) is still not widespread in the industry. The main reasons for the low adoption of IBS in Malaysia are lack of integration at the design stage and poor knowledge of IBS. The industry had established IBS Road Map 2003 – 2010. The road map target is to achieve Open Building System and industrialization of Malaysia construction industry by 2010.

For the past few years, there is a definite upward trend in IBS usage which would help to ease the pressures of labour requirements and boost productivity and quality. Manufacturers of IBS products are registered with CIDB and evaluated via the IBS product registration form.

Until December 2007, as many as 119 IBS manufacturers and 326 IBS products have been registered with CIDB (Table 2). An estimated 1,933 contractors have registered with CIDB under IBS related specialization categories and 895 out of this group of contractors have remained active since (Table 3).

To continue and maximizing the usage of the IBS, the CIMP has been encouraging industry participants in the adoption of new techniques, technological methods suitable for Malaysia construction, development of manpower, development of components and machineries, enhancement of management processes and methods, provision of monetary (economic and financial) support for the adoption of IBS as well as the marketing and promotion of IBS.

Table 2 : List of IBS Product Manufacturers and IBS Products as at December 2007

No.	Description	Total No. of Manufacturers	Total No. of Products
1	PC Frames / Panel / Box Components	50	245
2	Steel Frames / Panel Components	29	45
3	Systems Formwork	24	29
4	Timber Frames	25	28
Jumlah Total		119	326

Source : Companies Commission of Malaysia

Table 3 : List of Contractors Registered with CIDB by IBS Specialisation, as at December 2007

Registration Grade	IBS-related Registered Specialisation				
	Prefabricated Buildings and Industrial Plant	Steel Framed Buildings and Industrial Plant	Aluminium / Metal and Glass Works	Roof Installation and Metal Cladding	Formwork System Specialisation
G7	5	11	44	10	1
G6	0	15	46	17	0
G5	7	66	90	39	2
G4	0	23	15	3	1
G3	1	55	16	13	2
G3	0	40	7	7	1
G1	15	306	14	19	4
Total	28	516	232	108	11

Notes : 1,933 registered contractors [895 active contractors] under IBS specialisation

Source : CIDB Malaysia

Stimulate R&D Activities

Given the significance of R&D activities in the construction industry, the government, together with the academia (local and international) and industry players is recommended to collectively take the lead in pledging support for the introduction and continuation of a R&D vehicle to encourage and stimulate practical R&D activities through various resources-pooling initiatives. Some of the areas of focus in R&D activities that could be pursued are as follows :

- i. New construction methods and technology development;
- ii. Innovative occupational safety and health solutions;
- iii. Software applications; and
- iv. Building and construction material such as reusable building materials.

The CIMP also recommends that the industry stimulate research through CIDB's Construction Industry Research Institute of Malaysia (CREAM) in specific core themes within the construction industry. Through the annual workshops, dialogues and

questionnaire surveys, CREAM has identified priority areas of research and giving R&D grants to universities, government agencies and the private sectors to do the research. CREAM would also act as a facilitator between the industry, academia and the government in developing R&D culture.

Another essential consideration is the ability of the industry players involved to maintain control of the result of the R&D programmes so that they are the sole beneficiaries. Therefore, the task of identifying methods of protection is critical to the venture. As such, it is recommended that the government continuously review and revise the intellectual property rights (IPR) framework to strengthen IPR for R&D.

In addition, it is proposed that CIDB's Legal Department should work with relevant Ministries and Government agencies (e.g. the Ministry of Domestic Trade and Consumer Affairs) to develop a coherent framework of protection.

5.6 Leverage on Information and Communication Technology (ICT)

Encourage Knowledge Sharing and Develop New Software

The construction industry needs to have in place a mechanism that allows for and encourages knowledge sharing and develop local construction software industry among its diverse stakeholders.

The construction industry also needs a single point of access to all information relevant to the industry. Creating user-friendly construction knowledge and information portal for stake holders will enhance the construction productivity. The industry will also implement online planning submission and building plan approval, develop online tendering system, review Multimedia Super Corridor (MSC) incentives and infrastructures and develop software that could be relevant for the development of ICT in construction.

5.7 Benefit From Globalisation

Promote and Facilitate Export Of Construction Products And Services

Globalisation has created numerous opportunities as well as challenges for the local construction industry. Due to the slow down in the construction sector, some contractors have begun to tap into overseas markets, particularly India and the Middle East. A cohesive global marketing and brand building efforts will be required. The government will also play a more significant role in helping to secure overseas projects through its good bilateral relationship with South Asia (India and Sri Lanka) and as former chairman of the 57-member grouping of Islamic countries (i.e. The Organisation of the Islamic Conference

(OIC)). Locally, the government will play an important role in developing and maintaining social and economic infrastructure which, in turn, will ensure sustainability for the construction community.

The role of financial institutions, including the capital market, will be further enhanced to support the financial requirements of the contractors. Further, complementary industries (such as tooling, heavy equipment and machinery, building and construction materials and professionals and designers) will be developed to enable contractors to provide total solutions and deepen the value-added of foreign projects. Malaysian capabilities in the oil and gas sector and construction cranes would propel Malaysia to be a leading and respected player in the global construction market.

6.0 CIMP IMPLEMENTATION PLAN

The implementation of the CIMP will be undertaken using a phased approach and covering the 10 year period from 2006 to 2015. This approach has been adopted to take into account the growth in capabilities the construction industry will experience throughout this implementation period.

Phase one of the implementation plan will cover the initial three-year period (2006 – 2008) and primarily seek to resolve the existing challenges of the construction industry that restraining the industry from realizing its full potential.

Phase two of the implementation will cover the second four-year period (2009 – 2012) with a focus on developing new capabilities and building a strong foundation for the industry to venture overseas. Acquiring this set of skills and abilities will prepare the construction industry to increase its presence and stature in the global arena.

Phase three of the implementation plan will cover the final three-year period (2013 – 2015) and address the industry needs in competing in a global environment.

7.0 CONCLUSION

With the CIMP in place, it is envisaged that the Malaysian construction industry will be further developed in a more structured and holistic approach, to realize its full potential.

Having addressed its challenges and constraints, the Malaysian construction industry is poised to achieve greater efficiency and productivity and would have acquired new strengths and capabilities.

It will fulfill the industry's vision to be a world-class, innovation and knowledgeable global solution provider and would have established a secure footprint for the construction industry in the global construction marketplace.