

## Chapter 2

# An Overview of the Construction Industry

**Abstract** In this chapter the Malaysian construction market is described. This chapter is included because of the interrelationships that existed between the construction industry and quality of education. Their correlation is a positive one. The education sector has strong spill over implications on other sectors of the economy and has contributed directly to productivity enhancement directly, indirectly or both. But as we have illustrated in chapter one, the education sector requires infrastructural facilities including roads, buildings, services, that are produced by the construction industry. Likewise the human capitals needed by the construction industry are supplied by the education sector. Therefore, the learning outcomes the ability to: (1) Be able to describe and discuss the Malaysian construction industry, (2) Be able to explain the extent of maintenance market, (3) Understanding the problems facing the construction industry.

**Keywords** Construction industry • Maintenance • Private sector • Economic development

The construction industry is an economic investment and its relationship with economic development is well posited. Many studies have highlighted the significant contribution of the construction industry to national economic development (Myers 2013). Although, some argue that the extent of its contribution is not always clear. Others have argued that the construction industry can be used to regulate the economy, while others tend to differ. Some have argued that the contribution is limited to the short term. There are also those who argue that it is economic growth that drives the construction industry rather than the industry advancing the economy, i.e. that the construction industry is not a driver of economic prosperity rather it only follows the “path” defined by the total economic growth rate.

In short, there are numerous arguments and counter arguments regarding the true role of the construction industry in advancing economic development. This may be a source of confusion to many, however, we emphasise that irrespective of the position one takes regarding the relationship of the construction industry to economic growth, it does not in any way invalidate the importance of the construction industry in regards to providing the necessary infrastructures that stimulate economic

development. As such, the industry is required for national development. It has been argued that for a country to have meaningful and sustained development, it urgently requires that it indigenize its construction industry, because if the construction industry is inefficient, it will be difficult for such a country to attain meaningful development.

Among the major economic sectors, the importance of the construction industry is unique regardless of whether the country is underdeveloped, developing or developed. For instance, the construction industry is subjected to quarterly and annual statements of national accounts. The construction industry appears more than once in the national accounts: GDP, GNI and GFCF. The outputs are measured by gross output, capital formation and added value. More than half of GFCF consists of construction outputs. The homes, offices, roads, factories, and shopping malls are all part of the outputs of the construction industry, among other capital or investment goods.

The following are some major uses of the construction industry:

- Strategic tool to achieving sustainable development
- Construction output as growth-initiating and growth dependent
- Contributes significantly to the economy; GDP, GNI
- Contributes to Gross Fixed Capital Formation (GFCF)
- Provide outputs to most industries and utilises the outputs of many industries
- Contributes significantly to the informal sector
- Income generation and re-distribution
- Employment generation.

## 2.1 The Malaysian Construction Industry

Malaysia is actively working towards achieving a high-income status by 2020. This involves intensive transformation of the economic structure. The government has outlined an economic road map to transform the country in order to be recognised as a developed nation. Since independence, the Malaysian economy has observed plans with five-year strategic thrusts. The strategic trusts are in line with the goal to become a high-income nation by 2020. Looking towards the 2020 target, the challenge is to sustain the impetus of robust growth. Specifically, this requires average growth of 6.0 % in GDP per annum during the Tenth Plan Period. To achieve this target, the economic sectors are to play significant roles. The construction sector is active and features prominently in terms of policy formulation and implementations. A comparison of the size of the construction industry with other countries suggests that its contribution has been consistent and stable (Table 2.1). As may be seen, among the countries cited, the contribution of the Malaysian construction industry, although not the highest performer, its contribution nevertheless remains modest.

**Table 2.1** Percentage share of GDP for selected countries (production approach) for construction sector

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013
South Korea	5.7	5.5	5.3	5.0	5.1	4.6	4.2	4.1	4.1
Hong Kong	3.4	2.9	2.7	2.9	2.7	2.9	3.3	3.5	3.5
Taiwan	2.8	2.7	2.6	2.4	2.3	2.3	2.3	2.2	2.2
Singapore	n.a	n.a	3.0	3.6	4.2	3.8	3.8	4.0	4.1
Thailand	2.4	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.1
Philippines	4.4	4.6	5.0	5.1	5.4	5.7	5.0	5.4	5.6
Indonesia	5.9	6.1	6.2	6.3	6.4	6.5	6.5	6.5	6.6
Malaysia	3.0	2.9	2.9	2.8	3.1	3.2	3.2	3.5	3.8

Source Department of Statistics Malaysia (2014a)

Table 2.2 is the contribution of the different industries to the GDP. The services industry is the largest in terms of size while construction is the smallest. However, it may be seen that the contributions of the construction industry is consistent and impressive. As Table 2.3 suggests for the period indicated, the construction starts with a moderate contribution but lags until 2008 contributing only 2.7 %. However, from 2009 until 2013, the contributions of the construction industry are on the increase. In fact, while the contributions of other major sectors plummet, that of the construction industry is increasing.

In 2013, Malaysia's economy grew at 4.7 % with the all sectors registering positive growth (Table 2.4). The Services and Manufacturing sectors remained the key engine in terms of supply. Consecutively, the Construction sector continued a double-digit growth by registering 18.6 %. The growth is mainly accountable by the strong growth in the residential sector (Table 2.5) coupled with the underlying strength in infrastructure and civil engineering projects. The Malaysian construction industry is classified into four sectors namely, residential buildings, non-residential buildings, civil engineering and the special trade sectors. The residential sector involves the construction of houses and condominiums. The non-residential construction comprises of all building construction other than residential. These include the construction of commercial and industrial buildings. Civil engineering pertains to the construction of public infrastructure such as bridges and highways.

The contributions of the residential sector have remained consistent from 2008 to 2013 (Table 2.5). However, the share of the non-residential sectors fluctuates through the period and peaked in 2010, at 44.6 %. Similar scenarios play for the other sectors. Value for construction work done includes for new work, conversions and maintenance which were carried out during the reference period. The value of the work completed in the first quarter of 2014 by the types of clients is contained in Table 2.6. In terms of construction activity by project owner, the private sector continued to dominate. The private client dominates in all the four sectors, except in civil engineering in which the private sectors contributed a little less than 50 %.

The increase in the shares of the private sector in 2013 as compared to 2008 is remarkable (Table 2.6). As is the case in the first quarter of 2014, from 2008 to

**Table 2.2** GDP by kind of economic activity at constant 2005 prices—RM million

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013
Agriculture	44,912	47,533	48,188	50,036	50,063	51,263	54,250	54,963	56,095
Mining and quarrying	72,111	71,276	72,758	70,996	66,386	66,182	62,607	63,243	63,680
Manufacturing	149,754	160,880	165,879	167,148	152,150	170,261	178,237	186,748	193,237
Construction	16,107	16,022	17,391	18,151	19,270	21,459	22,464	26,640	29,554
Services	254,322	272,555	299,933	325,712	335,027	359,829	385,550	410,339	434,460
Plus import duties	6,372	5,671	5,937	7,523	6,898	7,660	8,653	10,001	10,586
GDP at purchasers' prices	543,578	573,936	610,087	639,565	629,885	676,653	711,760	751,934	787,611

Source: Department of Statistics Malaysia (2014a)

**Table 2.3** GDP by kind of economic activity at constant 2005 prices—percentage share to GDP

Country	2005	2006	2007	2008	2009	2010	2011	2012	2013
Agriculture	8.3	8.3	7.9	7.8	7.9	7.6	7.6	7.3	7.1
Mining and quarrying	13.3	12.4	11.9	11.1	10.5	9.8	8.8	8.4	8.1
Manufacturing	27.5	28.0	27.2	26.1	24.2	25.2	25.0	24.8	24.5
Construction	3.0	2.8	2.9	2.7	3.1	3.2	3.2	3.5	3.8
Services	46.8	47.5	49.2	50.9	53.2	53.2	54.2	54.6	55.2
Plus import duties	1.2	1.0	1.0	1.2	1.1	1.1	1.2	1.3	1.3
GDP at purchasers' prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source Department of Statistics Malaysia (2014a)

**Table 2.4** GDP by kind of economic activity at constant 2005 prices—annual percentage change

Year	Agriculture	Manufacturing	Construction	Services	GDP
2006	5.8	−1.2	−0.5	7.2	5.6
2007	1.4	2.1	8.5	10	6.3
2008	3.8	−2.4	4.4	8.6	4.8
2009	0.1	−6.5	6.2	2.9	−1.5
2010	2.4	−0.3	11.4	7.4	7.4
2011	5.8	−5.4	4.7	7.1	5.2
2012	1.3	1	18.6	6.4	5.6
2013	2.1	0.7	10.9	5.9	4.7

Source Department of Statistics Malaysia (2014a)

**Table 2.5** Value of construction work done by type of construction activity and project owner, Q1 2014 (RM ‘000)

Types of construction	Private	Government	Public corporation	Total
Residential buildings	6,709,282	252,330	240,213	7,201,826
Non-residential buildings	6,471,322	1,122,923	458,106	8,052,351
Civil engineering	3,880,379	2,024,227	2,494,848	8,399,455
Special trades	1,057,150	147,728	114,830	1,319,708
Total	18,118,133	3,547,209	3,307,997	24,973,339

Source Department of Statistics Malaysia (2014b)

2013, the industry is led by the private sector. The expansion of private investment from 2008 to 2013 was almost 100 % overall and in all the sectors except in the special trade where expansion was less than 50 %. Whether we consider the sectorial construction individually of the industry as a unit during the period, the private sector is the dominant investor in the industry. This finding is contrary to the normal practice in which the public or government is the major client. In most developing countries, at all levels the government is the major client. The investments of the private sector in the ‘special trade’ are the least, being only 5 % in 2013. However, private investors are making massive investments both in the residential and the non-residential sectors.

For the government and public organisations, their investments tend towards the civil engineering sector. In comparison, both public corporations and government are investing an approximate 5 % in the residential sector, but government investment in non-residential buildings is quite high. The number of projects completed in the year cited is contained in Table 2.7. Except in 2009, the number of projects increased. This scenario will likely remain high as the government has outlined a number of ambitious packages to spur the construction industry, as Malaysia advances towards its 2020 target.

Among the major economic sectors, the contribution of the construction sector as a source of employment is high. For instance, in 2012, the industry directly employed approximately 1,028,000 (Table 2.8) people. This represents an estimated 8 % of the

**Table 2.6** Value of construction work done by type of construction activity and project owners, 2008–2014 (RM ‘000)

Year	Residential buildings	Non-residential buildings	Civil engineering	Special trades	Total
<b>Private</b>					
2013	23,581,037	22,618,949	13,827,222	3,172,017	63,199,226
2012	19,624,697	19,386,220	10,948,244	3,062,682	53,021,843
2011	14,747,483	14,544,468	7,768,191	3,309,319	40,369,461
2010	10,631,163	12,021,759	4,640,156	3,181,929	30,475,007
2009	11,016,286	11,099,674	4,850,657	3,034,121	30,000,738
2008	12,957,437	10,963,133	6,076,449	2,666,011	32,663,030
<b>Public corporation</b>					
2013	520,776	1,525,073	8,873,459	459,460	11,378,768
2012	119,187	757,191	6,416,175	254,724	7,541,277
2011	94,210	552,864	1,123,505	482,609	2,253,187
2010	130,325	333,182	1,182,226	803,099	2,448,833
2009	240,565	270,923	1,264,874	794,811	2,571,173
2008	274,021	245,545	1,027,422	289,651	1,836,639
<b>Government</b>					
2013	861,413	5,159,365	9,600,307	675,825	16,296,910
2012	1,123,984	7,344,173	10,839,606	795,947	20,103,710
2011	1,214,648	10,119,190	9,412,826	889,029	21,635,694
2010	1,546,864	14,736,495	9,921,018	1,664,025	27,868,401
2009	1,840,696	12,949,060	11,090,137	1,562,992	27,442,885
2008	2,228,587	9,091,469	11,068,873	1,431,549	23,820,478

Source Department of Statistics Malaysia (2014b)

**Table 2.7** Number of project completed of various projects

Year	2013	2012	2011	2010	2009	2008
Number of project	37,516	35,589	32,454	31,018	28,814	31,719

Source Department of Statistics Malaysia (2014b)

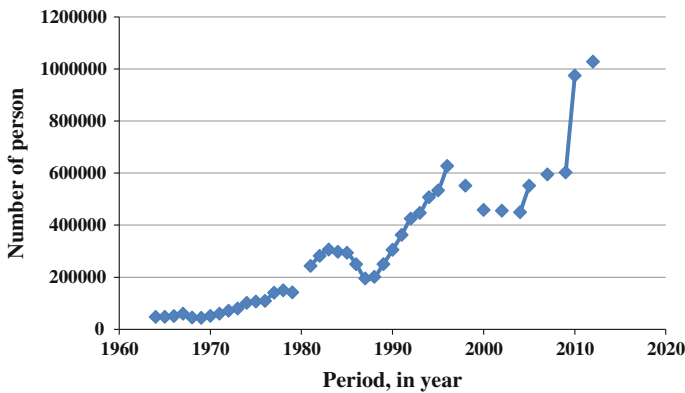
total employed workforce. The construction industry is the fourth employer of labour after agriculture, manufacturing, and services. However, based on estimates by the Department of Statistics, the construction industry was postulated to employ approximately 765,000 people in 2010. In fact, the estimate assumed that until 2015, the construction industry would not employ up to 800,000 people in a year. This remarkable performance was mainly stimulated and sustained by the projects under the second fiscal stimulus package such as the upgrading of roads, maintenance of schools and government quarters and the allocation by the Ninth Malaysia Plan that needed to be accelerated before the end of 2010. The projects under the Ninth Malaysia Plan were double tracking rails, Penang's Second Bridge, KLIA2, Mass

**Table 2.8** Total number employed, 1964–2012

<b>Year</b>	1963	1964	1965	1966	1967	1968	1969	1970	1971
Number	–	47,799	48,014	51,056	60,162	45,383	44,231	51,702	60,285
<b>Year</b>	1972	1973	1974	1975	1976	1977	1978	1979	1980
Number	71,614	80,135	101,679	106,812	109,190	140,622	150,004	142,012	–
<b>Year</b>	1981	1982	1983	1984	1985	1986	1987	1988	1989
Number	243,603	282,337	306,412	297,811	294,065	250,172	195,632	201,576	250,481
<b>Year</b>	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	305,547	362,748	425,285	447,177	507,516	533,500	627,369	–	551,866
<b>Year</b>	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number	–	458,580	–	455,663	–	449,944	551,775	–	595,139
<b>Year</b>	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number	–	602,694	974,488	–	1,027,900	–	–	–	–

Source: Department of Statistics Malaysia Construction (2013a) (survey was not carried out for reference years 1980, 1997, 1999, 2001, 2003, 2006 and 2008.)





**Fig. 2.1** Number of person engaged in the construction industry from 1964 to 2012. *Source* Department of Statistics Malaysia 2014b (constructed by the authors)

Railway Train, Iskander Malaysia and construction activities in the five Economic Corridors. The information contained in Table 2.8 is displayed in Fig. 2.1 for a pictorial representation.

The data from the Department of Statistics, indicates, that the distribution of the 1,027,900 people employed in the industry comprises of general workers (2 %), clerical (3.8 %), technical and supervisory (4.1 %), management and professional (3.7 %) and 86.3 % for operative staff. However, the 1,028,000 is not a static as it could increase or decrease due to the peculiar nature of the construction industry. However, it could be argued that the figure underestimates the performance of the industry. These are definition and methodological problems. The activities of the construction industry are considered solely by evaluating the value added to site activities. This would increase if the labour forces from the allied industries that produce, process and transport construction materials, components and services are added. The consultancies that are involved in the construction industry are also not considered. The statistics presented in this report refer to construction work done by registered contractors. Data for reference years 1963–1970 refer to the principal statistics of the construction industries in Peninsular Malaysia while data since reference year 1971 refer to Malaysia. Since reference year 1998, the survey covers establishments with the value of construction work done of RM500,000.00 and above. Therefore, if the workforces of those that are not directly working on sites are added, the contribution of the construction industry could be in the region of 10 % of the total workforce.

Table 2.9 reveals that, individually, the turnover of most (85.9 %) of the business units is less than five million. In other words, 86 % of the businesses delivered a combined output of RM17 billion or 16 % of the investments and employed approximately 240,000 persons. The large company with output size exceeding RM100,000,000 constitutes less than 1 % in terms of establishments, employs nearly 260,000 persons, and produced the combined output of RM32,000,000,000. The interpretation of these statistics is that as an industry, the construction industry is

**Table 2.9** Number of establishments, gross outputs and employment size group 2012

Outputs size group	Establishment	Gross outputs		Employment	
RM million	% share	RM billion	% share	Number	% share
Total	100	110.1	100	1,027,900	100
<5	85.9	17.1	15.5	238,398	23.2
5 to <10	5.4	8.3	7.6	87,651	8.5
10 to <100	8.1	49.5	45.0	446,272	43.4
100 and above	0.6	35.1	31.9	255,609	24.9

Department of Statistics Malaysia (2012a)

fragmented and characterized by small units. Technically, the implication of this finding is that most units are subcontractors or trade contractors. While major contracting organizations employed approximately 200,000, their individual value added is RM235,000,000. This represents approximately 25 % of the total value added.

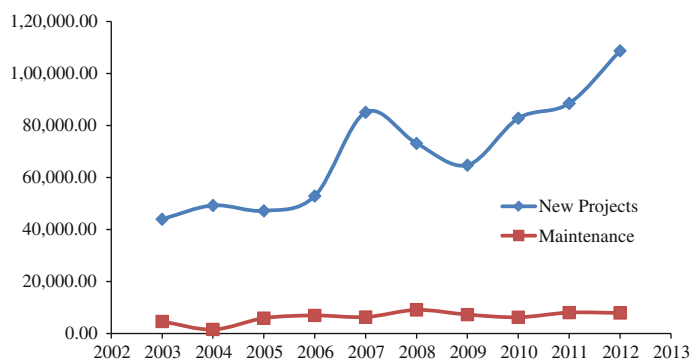
Table 2.10 represents the information of the gross outputs of the construction industry in 2012. The indicators designate that the value added in 2005 and 2012 are RM19 billion and RM327 billion respectively with an annual growth of around 15 %. The salaries and wages of the construction workers have expanded from RM11 billion to RM22 billion. This represents an approximate 100 % increment in five years. More than 85 % of full time employers in the industry are site operative. While less than 4 % are either professionals or managers, and 4 % are clerical staff. When the salary/wages of the professional/manager is considered, they are accountable for nearly 13 % while general operative costs account for 75 %. In 2013, construction industry was the main contributor of employment in the informal sector at 19.6 percent (Department of Statistics 2013b). The construction industry contributed about RM billion to the GFCF in 2012 which is more than 100 % compared to its contribution in 2005.

Figure 2.2 displays the contributions of major construction sectors in real terms. Most of the projects are new projects. However, while the sizes of new projects fluctuate, that of maintenance work (i.e. renovation, repair, and maintenance and upgrading) is uniform. A major implication of these results is that only a small amount of the investment in construction is channelled to maintenance, which could be interpreted to mean that most of the projects are still new. The situation is likely

**Table 2.10** Key Indicators n Construction Sector, 2012

Indicator	2005	2010	2012
Value Of gross outputs (RM billion)	54	91.3	110.1
Value of intermediate inputs (RM billion)	35	59.4	73.1
Value added (RM billion)	19	31.9	37
Total person engaged (number)	551,755	974,488	1,027,900
Salaries and wages (RM billion)	10.9	19.8	22.4
Value of fixed assets (RM billion)	5.5	14.5	14.1

Department of Statistics Malaysia (2012a)



**Fig. 2.2** Value added for construction works (RM million) Constructed based on data obtained from CIDB Malaysia

to remain like this for some time, as massive infrastructural projects have been unveiled to achieve the targeted developed nation status. However, the allocations to the maintenance sector are grossly inadequate, and even if the expenditure for maintenance is under reported, the government needs to invest in this sector as a large number of constructed facilities require maintenance.

The spill over impact from the projects of the Economic Transformation Programme (ETP), which started in 2010, was reflected in the performance of the construction sector for the year 2012. The year 2012 was remarkable for the industry, as the industry recorded highest growth and output of 18.5 % (Table 2.11) This high growth is the highest since 1995 (21.1 %). Correspondently, the GDP only grew at 5.6 % in 2012. The unprecedented expansion in the growth of the construction industry is explained by the civil engineering and residential sectors and reflects government efforts to expand and improve the roads and rail network, improve electricity generation and increase oil and gas outputs. In 2012, the construction sector recorded a value of gross output of RM110.1 billion with the

**Table 2.11** GDP by kind of economic activity at constant 2005 prices—annual percentage change

Economic activity	2006	2007	2008	2009	2010	2011	2012	2013
Agriculture	5.8	1.4	3.8	0.1	2.4	5.8	1.3	2.1
Mining and quarrying	-1.2	2.1	-2.4	-6.5	-0.3	-5.4	1.0	0.7
Manufacturing	7.4	3.1	0.8	-9.0	11.9	4.7	4.8	3.5
Construction	-0.5	8.5	4.4	6.2	11.4	4.7	18.6	10.9
Services	7.2	10.0	8.6	2.9	7.4	7.1	6.4	5.9
Import duties	-11.0	4.7	26.7	-7.1	9.6	13.0	15.6	5.8
GDP at purchasers' prices	5.6	8.3	4.8	-1.5	7.4	5.2	5.6	4.7

Department of Statistics Malaysia (2014a)

intermediate input of RM73.1 billion. The value added was RM37.0 billion, while the total number of workers involved totalled 1,027,900 persons with the total salaries and wages paid at RM22.4 billion in 2012. Meanwhile, the value of fixed assets owned in 2012 were RM14.1 billion with the largest capital expenditure contributed by the machinery and equipment amounting to 50 % of the total capital expenditure during the reference year (Department of Statistics 2012a).

One of the prime movers of the SME is the construction industry. Construction recorded a strong growth of 15.3 %, while SME grew at 6 % in 2012 (Table 2.12). The construction industry contributed 2.8 % to the share of the SMEs. In 2012, the share of SMEs value added to the construction sector was 25.9 %. The construction industry maintains a consistent contribution to the SMEs (Table 2.13). This contribution is low, but with the nature of the construction industry is not surprising.

The contributions of women in the construction industry are small (Table 2.14). This refers to the establishment wherein at least 51 % of the equity is held by woman/women or the largest shareholder is a woman, or the establishment is run by a woman, or the Managing Director or Chief Executive Officer is a woman who owns at least 10 % of the equity. Women-owned establishments in the construction sector accounted for 6.2 % and generated output of RM4.4 billion (4.8 %) of the total sector in 2010. Approximately 54,000 persons were employed, with salaries

**Table 2.12** Value added of smes by kind of economic activity at constant 2005 prices—annual percentage change

Economic activity	2006	2007	2008	2009	2010	2011	2012
Agriculture	8.3	3.3	2.3	1.2	5.9	6.2	1.9
Mining and Quarrying	4.9	12.7	1.6	1.8	3.5	5.5	14.6
Manufacturing	5.7	7.2	0.7	−7	11.2	7.6	6
Construction	0.3	12.4	2.5	6.9	16	4.6	15.3
Services	6.8	12.6	9.8	2.6	7	6.8	5.9
Import duties	−12.3	23	68.1	11.7	48	33.1	29.6
Total (SMEs expansion)	6.4	10	6.5	0.2	8.3	7	6

Department of Statistics Malaysia (2012b)

**Table 2.13** Value Added of SMEs by Kind of Economic Activity at Constant 2005 Prices—Percentage Share to GDP

Economic activity	2005	2006	2007	2008	2009	2010	2011	2012
Agriculture	3.4	3.5	3.4	3.3	3.4	3.4	3.4	3.3
Mining and quarrying	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Manufacturing	8.1	8.1	8.2	7.8	7.4	7.7	7.9	7.9
Construction	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.9
Services	17	17.2	18.2	19.1	19.9	19.8	20.1	20.2
Import duties	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4
Total	29.4	29.7	30.7	31.2	31.8	32	32.6	32.8

Department of Statistics Malaysia (2012b)

**Table 2.14** Key indicators of women owned establishment, in construction sector, 2010

Key Indicators	Total construction	Women-owned establishment	% share
Establishments (number)	22,140	1,371	6.2
Value of gross outputs (RM billion)	91.3	4.4	4.8
Value of intermediate inputs (RM billion)	59.3	2.8	4.7
Value added (RM billion)	31.9	1.5	4.7
Total person engaged (number)	974,488	53,816	5.5
Salaries and wages (RM billion)	19.8	0.9	4.5
Value of fixed assets (RM billion)	14.5	0.6	4.1

Department of Statistics Malaysia (2011)

and wages paid of RM0.9 billion (4.5 %). The value added to the fixed assets accumulated by this women-lead business was RM0.6 billion (4.1 %) in comparison to the total fixed assets (RM14.5 billion) recorded during the census period. The involvements of foreign contractors in the construction industry are minimal. In 2011 while only six government projects were undertaken by the foreign, 120 of the private projects has foreign involvement. In terms of value, 10 % of the projects awarded to foreign contractors are government while the remaining is from the private sectors (Table 2.15). However, in 2012, the involvement of foreign contractors in has dropped significantly. A similar situation is also experienced in 2013. In fact, the government does not award any contract to the foreign contractors in 2013. Regardless of whether the contracts were awarded to local contractors or foreign contractors, most of the works are awarded based on the traditional procurement method. For the last three years, more than 60 % of the contracts awarded to the foreign contractors were for civil engineering, or electrical engineering or mechanical engineering. The EPCC (engineering procurement construction and commissioning) contracts are normally refers to oil & gas projects only. Under the contract, the contractors designs the installation, procures the necessary materials and build the projects.

## 2.2 The Value of Maintenance Sub-sector

Table 2.16 list the number and value of projects awarded categorised in terms of specialisation. Apart from new projects, other activities are classified into upgrading, renovation, repair, expansion or maintenance. Again, due to methodological issues, data on the construction industry is underreported and maintenance works like repairs, renovation, and upgrading were considered exclusive items. However, both in practice and theory, this is not the case; the lines are not that clear. For this purpose, and in this text, maintenance includes repair, renovation and upgrading.

**Table 2.15** Number and Value of Projects Awarded By Status of Contractors and Type of Contract as of December 2013

Type of Contract	Total Number of Projects	Total Project Value (RM M)	Local Contractors				Foreign Contractors			
			Government Projects		Private Project		Government Projects		Private Project	
			Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)
2011	7,605	99,461.61	1,905	21,408.19	5,574	59,451.14	6	1,610.74	120	16,991.54
Conventional	7,324	91,442.74	1,805	19,429.96	5,412	57,822.53	5	627.49	102	13,562.76
Design and build	159	4,251.60	64	1,670.79	86	954.18	1	983.25	8	643.38
Turnkey	99	3,502.31	34	300.84	57	419.65	–	–	8	2,781.82
Built, operate and transfer	5	41.11	–	–	5	41.11	–	–	–	–
Engineering, procurement, construction and commissioning	18	223.85	2	6.60	14	213.67	–	–	2	3.58
2012	7,650	123,600.42	1,940	18,116.04	5,567	91,216.52	1	144.86	142	14,123.00
Conventional	7,217	113,004.77	1,785	14,373.44	5,319	87,422.16	1	144.86	112	11,064.31
Design and build	247	6,778.39	103	2,767.27	124	1,731.33	–	–	20	2,279.79
Turnkey	114	3,052.90	38	867.67	67	1,429.36	–	–	9	755.87
Built, operate and transfer	42	505.71	8	32.80	34	472.91	–	–	–	–
Engineering, procurement, construction and commissioning	30	258.65	6	74.86	23	160.76	–	–	1	23.03
2013	5,985	92,304.06	1,481	19,915.09	4,423	62,451.30	0	0.00	81	9,937.67
Conventional	5,717	76,063.25	1,377	14,466.88	4,269	57,777.11	–	–	71	3,819.26

(continued)

**Table 2.15** (continued)

Type of Contract	Total Number of Projects	Total Project Value (RM M)	Local Contractors				Foreign Contractors			
			Government Projects		Private Project		Government Projects		Private Project	
			Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)
Design and build	156	4,248.63	77	2,807.54	74	1,105.20	–	–	5	335.89
Turnkey	69	11,434.28	18	2,615.88	47	3,053.77	–	–	4	5,764.63
Built, operate and transfer	21	87.00	6	10.43	15	76.57	–	–	–	–
Engineering, procurement, construction and commissioning	22	470.90	3	14.36	18	438.65	–	–	1	17.89

Source CIDB Malaysia (2013a)

**Table 2.16** Number and value of projects awarded by type of work and work specialization as of December 2006<sup>a</sup>, 2010<sup>b</sup>, 2013<sup>c</sup>

Work specialization	Total projects	Total value	New projects		Upgrading		Expansion		Maintenance		Repair		Renovation	
<b>2003</b>	<b>4,541</b>	<b>49,559.88</b>	<b>3,649</b>	<b>43,980.75</b>	<b>281</b>	<b>2,528.34</b>	<b>178</b>	<b>920.25</b>	<b>172</b>	<b>881.52</b>	<b>152</b>	<b>796.91</b>	<b>109</b>	<b>452.11</b>
Building	2,909	25,213.82	2,534	23,680.07	66	317.14	151	483.78	17	138.85	40	167.44	101	426.54
Civil engineering	1,404	16,899.50	960	13,416.21	193	2,158.71	23	53.47	121	653.68	10	596.44	4	20.99
Electrical	116	7,054.58	78	6,608.39	11	23.96	2	369.95	21	48.18	1	0.59	3	3.51
Mechanical	112	391.98	77	276.08	11	28.53	2	13.05	13	40.81	8	32.44	1	1.047
<b>2004</b>	<b>4,881</b>	<b>52,694.36</b>	<b>4,117</b>	<b>49,257.87</b>	<b>214</b>	<b>1,280.05</b>	<b>147</b>	<b>565.86</b>	<b>125</b>	<b>708.85</b>	<b>155</b>	<b>666.07</b>	<b>123</b>	<b>215.66</b>
Building	3,325	29,221.00	2,964	28,112.21	66	162.58	118	434.81	20	224.80	45	82.98	112	204.17
Civil engineering	1,312	16,722.17	978	14,685.61	133	964.73	19	94.96	73	406.01	102	562.96	7	7.88
Electrical	132	6,303.91	95	6,066.09	9	139.41	6	24.99	19	36.02	5	3.04	1	1.36
Mechanical	112	447.28	80	360.96	6	13.33	4	11.10	13	42.05	6	17.62	3	2.25
<b>2005</b>	<b>5,565</b>	<b>54,277.08</b>	<b>4,686</b>	<b>47,183.64</b>	<b>289</b>	<b>3,066.34</b>	<b>107</b>	<b>1,162.68</b>	<b>89</b>	<b>865.90</b>	<b>216</b>	<b>1,416.06</b>	<b>178</b>	<b>582.46</b>
Building	3,691	35,896.84	3,279	33,643.65	80	372.07	86	989.11	20	147.11	66	218.79	160	525.26
Civil engineering	1,562	15,748.62	1,165	11,491.22	180	2,580.58	15	71.43	50	374.11	142	1,182.78	10	48.50
Electrical	179	1,311.48	144	1,128.80	18	86.72	2	80.90	9	8.74	3	3.80	3	2.52
Mechanical	133	1,320.14	98	919.97	11	26.97	4	21.24	10	335.09	5	10.69	5	6.18
<b>2006</b>	<b>5,854</b>	<b>60,926.99</b>	<b>4,888</b>	<b>52,896.23</b>	<b>3,160</b>	<b>4,145.83</b>	<b>137</b>	<b>1,055.48</b>	<b>125</b>	<b>972.90</b>	<b>188</b>	<b>1,219.67</b>	<b>200</b>	<b>636.88</b>
Building	3,736	36,374.37	3,284	34,005.92	77	470.72	108	490.26	20	576.30	61	203.57	186	583.48
Civil engineering	1,712	21,050.78	1,282	15,605.92	226	3,650.85	21	542.28	57	226.42	114	978.83	12	46.61
Electrical	236	1,893.66	188	1,720.05	6	10.82	4	7.36	33	114.54	4	9.33	1	1.57
Mechanical	170	1,608	134	1,520.22	7	13.77	4	15.59	15	25.64	9	27.94		5.02
<b>2007</b>	<b>7,358</b>	<b>93,294.20</b>	<b>5,845</b>	<b>85,081.63</b>	<b>448</b>	<b>3,124.03</b>	<b>351</b>	<b>1,848.03</b>	<b>183</b>	<b>1,138</b>	<b>268</b>	<b>1,303.99</b>	<b>263</b>	<b>798.23</b>
Building	4,719	51,658.31	4,009	47,813.18	99	605.24	305	1,693.38	27	272.87	60	566.77	219	706.54

(continued)



Table 2.16 (continued)

Work specialization	Total projects	Total value	New projects		Upgrading		Expansion		Maintenance		Repair		Renovation	
Civil engineering	2,150	37,057.53	1,463	33,108.88	321	2,429.77	33	143.08	108	606.03	192	694.24	38	75.54
Electrical	269	1,807.08	210	1,637.34	11	20.98	9	5.91	28	110.33	9	28.32	4	4.21
Mechanical	220	2,771.27	163	2,522.24	17	68.03	4	5.67	22	149.05	7	14.67	7	11.61
<b>2008</b>	<b>6,522</b>	<b>85,837.08</b>	<b>4,875</b>	<b>73,124.48</b>	<b>565</b>	<b>5,410.41</b>	<b>287</b>	<b>3,628.76</b>	<b>259</b>	<b>1,313.48</b>	<b>254</b>	<b>1,229.51</b>	<b>282</b>	<b>1,130.44</b>
Building	4,081	55,137.55	3,277	48,432.11	195	2,344.49	237	2,606.83	44	373.17	79	345.62	249	1,033.32
Civil engineering	1,947	24,770.75	1,284	19,448.75	311	2,720.80	35	960.73	134	726.68	163	847.23	20	1,033.32
Electrical	299	3,003.60	201	2,634.45	36	225.72	10	34.09	42	79.90	7	27.12	3	2.32
Mechanical	195	2,925.18	113	2,609.18	23	119.40	5	25.11	39	133.73	5	9.530	10	28.24
<b>2009</b>	<b>7,039</b>	<b>74,913.63</b>	<b>4,990</b>	<b>64,757.29</b>	<b>726</b>	<b>4,055.88</b>	<b>563</b>	<b>2,859.23</b>	<b>174</b>	<b>916.07</b>	<b>322</b>	<b>1,379.13</b>	<b>264</b>	<b>946.02</b>
Building	4,558	48,457.95	3,381	42,618.48	307	1,865.07	516	2,465.83	22	199.47	107	464.36	225	844.74
Civil engineering	1,926	18,358.93	1,213	14,604.18	379	1,995.32	35	347.34	82	500.23	193	843.30	24	68.56
Electrical	342	2,865.24	243	2,604.55	21	56.00	8	33.07	46	108.01	17	45.19	7	18.42
Mechanical	213	5,231.52	153	4,930.08	19	139.50	4	13.00	24	108.36	5	26.28	8	14.30
<b>2010</b>	<b>7,302</b>	<b>91,008.49</b>	<b>5,830</b>	<b>82,793.62</b>	<b>499</b>	<b>3,064.61</b>	<b>271</b>	<b>1,932.47</b>	<b>245</b>	<b>1,181.46</b>	<b>217</b>	<b>1,101.01</b>	<b>240</b>	<b>935.33</b>
Building	4,679	61,105.35	4,044	57,034.82	107	778.62	232	1,772.04	22	90.12	64	590.11	210	839.64
Civil engineering	1,926	16,652.15	1,294	13,402.49	336	2,070.61	27	95.01	110	542.07	136	467.42	23	70.55
Electrical	335	6,971.15	240	6,556.80	23	68.09	4	13.89	55	294.57	8	18.62	5	19.19
Mechanical	362	6,279.84	252	5,799.51	33	147.29	8	47.54	58	254.71	9	24.86	2	5.95
<b>2011</b>	<b>7,605</b>	<b>99,461.30</b>	<b>6,160</b>	<b>88,888.50</b>	<b>515</b>	<b>4,706.21</b>	<b>177</b>	<b>2,394.39</b>	<b>192</b>	<b>1,191.59</b>	<b>253</b>	<b>1,236.43</b>	<b>308</b>	<b>1,044.49</b>
Building	4,797	60,621.39	4,169	57,412.56	139	747.59	139	970.39	33	124.65	80	476.67	237	889.54
Civil Engineering	2,162	24,224.89	1,513	17,662.78	335	3,528.84	19	1,375.03	93	848.79	147	690.65	55	118.79

(continued)

Table 2.16 (continued)

Work specialization	Total projects	Total value	New projects		Upgrading		Expansion		Maintenance		Repair		Renovation	
Electrical	314	8,522.79	230	8,268.73	25	121.27	11	34.11	28	68.44	16	20.59	4	9.65
Mechanical	332	6,092.53	248	5,544.43	16	308.51	8	14.87	38	149.71	10	48.52	12	26.51
<b>2012</b>	<b>7,650</b>	<b>123,600.41</b>	<b>6,044</b>	<b>112,778.68</b>	<b>516</b>	<b>3,131.75</b>	<b>179</b>	<b>2,373.62</b>	<b>327</b>	<b>2,283.55</b>	<b>247</b>	<b>1,625.84</b>	<b>337</b>	<b>1,406.96</b>
Building	4,885	70,391.20	4,135	66,308.41	178	1,193.06	133	1,108.21	90	431.99	72	324.85	277	1,024.68
Civil Engineering	2,149	38,020.56	1,510	33,064.14	280	1,697.95	28	1,167.33	152	1,204.11	139	697.45	40	189.60
Electrical	327	8,950.20	215	8,301.67	35	137.65	15	94.17	44	372.91	11	23.15	7	20.65
Mechanical	289	6,238.45	184	5,104.47	23	103.09	3	3.91	41	274.54	25	580.39	13	172.04
<b>2013</b>	<b>5,985</b>	<b>92,304.04</b>	<b>4,648</b>	<b>84,086.64</b>	<b>486</b>	<b>3,306.12</b>	<b>114</b>	<b>1,021.99</b>	<b>189</b>	<b>1,070.62</b>	<b>317</b>	<b>1,349.21</b>	<b>231</b>	<b>1,469.45</b>
Building	3,548	60,916.69	3,069	57,976.48	113	602.43	81	604.01	12	56.79	86	466.92	187	1,210.06
Civil Engineering	2,003	19,108.00	1,287	14,334.01	328	2,572.93	22	312.90	118	848.08	213	805.75	35	234.35
Electrical	223	5,357.65	156	5,105.66	27	81.44	8	83.81	18	40.48	9	33.31	5	12.95
Mechanical	211	6,921.70	136	6,670.49	18	49.33	3	21.28	41	125.27	9	43.23	4	12.10

<sup>a</sup> Source CIDB Malaysia (2006)<sup>b</sup> Source CIDB Malaysia (2009 and 2010)<sup>c</sup> Source CIDB Malaysia (2013b)

You may wish to see the definition we provided for maintenance (see Sect. 3.2.4 page 43). But if for the purpose of argument and understanding, maintenance includes the activities we just considered in the last sentence; ‘maintenance’ is only accountable to 8.5 % of the total expenditure. But if we are conservative, the maintenance and repair are only considered, the amount is contribution is reduced to 2.96 % of the total investment in the construction industry. If we are more categorical, as the table indicates, the contribution of maintenance is reduced to a mere 1.44 % of the total investment. In effect, the argument here is that there is insufficient allocation or investment for maintenance. Whether one considers maintenance as 1.44 %, 2.96 % or even the 8.5 %, the amount is inadequate in many respects. The issue is that proper attention is not accorded to maintenance. In reality, the required amount for maintenance should be more than 10 % of the total expenditure considering the annual contribution of new buildings to the exiting stocks.

We considered that the government is not doing enough in terms of allocation to the maintenance sector. Most developed countries and some ambitious developing countries have observed the roles of maintenance and now allocate roughly 50 % of annual expenditure to the industry to the maintenance sector. It was also suggested that about 5 % of the replacement values of the built assets is also applicable. Table 2.17 presents the sectoral expenditure for maintenance. In terms of methods of procurement or types of contract, the traditional method is the dominant in the period selected for the different categories of works (Table 2.18).

## 2.3 Conclusion and Future Outlook of the Construction Industry

The outlook of the Malaysian construction industry is quite impressive though the global economic climate is volatile. The economy is postulated to remain on steady growth, with an expansion of around 6 % towards 2020 and beyond. Government spending is expected to reduce as the role of the private sector increases. Meanwhile, in line with a private sector led economy, government has outlined various measures to spur private participation to enable the private sector to be the engine of growth. Advancing towards the 2020 target, the government will adopt new privatizations policies. Furthermore, there will be equitable risk sharing and more collaboration particularly in high growth and strategies between the public and private sectors. Tendering processes will be more competitive particularly for engineering projects, and PPP system will dominate procurements and the construction industry will be dominated by the local contractors.

While the services and manufacturing sectors will dominate economic growth, the growth of the construction industry is postulated to increase and remain resilient mainly because of the implementation of major projects. Though many projects including the KLIA 2, Second Penang Bridge, The Iskandar Development Region (IDR), Northern Corridor Economic Region (NCER), East Coast Economic Region

**Table 2.17** Number and value of projects awarded by type of work and project category, 2011–2013

Project category/ Year	Total number of projects	Total project value (RM M)	New project		Upgrading		Expansion		Maintenance		Repair		Renovation	
			Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)
<b>2011</b>	<b>7605</b>	<b>99,461.60</b>	<b>6,160</b>	<b>88,888.51</b>	<b>515</b>	<b>4,706.21</b>	<b>177</b>	<b>2,394.39</b>	<b>192</b>	<b>1,191.58</b>	<b>253</b>	<b>1,236.43</b>	<b>308</b>	<b>1,044.48</b>
Residential	2,257	24,642.92	2,141	24,229.97	21	30.19	12	53.09	22	60.61	30	106.74	31	162.32
Non residential	2,566	35,806.83	2,033	33,522.73	90	732.24	96	410.72	62	177.30	50	185.69	235	778.15
Social amenities	832	6,808.50	625	5,644.25	77	358.05	44	419.49	33	104.11	23	216.64	30	65.96
Infrastructure	1,950	32,203.35	1,361	25,491.56	327	3,585.73	25	1,511.09	75	849.56	150	727.36	12	38.05
<b>2012</b>	<b>7,650</b>	<b>123,600.40</b>	<b>6,044</b>	<b>112,778.68</b>	<b>516</b>	<b>3,131.75</b>	<b>179</b>	<b>2,373.61</b>	<b>327</b>	<b>2,283.55</b>	<b>247</b>	<b>1,625.85</b>	<b>337</b>	<b>1,406.96</b>
Residential	2,206	32,375.11	2,072	31,991.25	25	33.64	11	75.05	66	132.91	19	103.85	13	38.41
Non residential	2,636	39,263.42	2,055	35,075.87	115	842.10	98	834.13	78	675.69	43	700.43	247	1,135.20
Social amenities	894	7,492.19	608	6,409.13	102	407.52	39	186.53	42	160.66	46	178.69	57	149.66
Infrastructure	1,914	44,469.68	1,309	39,302.43	274	1,848.49	31	1,277.90	141	1,314.29	139	642.88	20	83.69
<b>2013</b>	<b>5,985</b>	<b>92,304.05</b>	<b>4,648</b>	<b>84,086.64</b>	<b>486</b>	<b>3,306.13</b>	<b>114</b>	<b>1,021.99</b>	<b>189</b>	<b>1,070.62</b>	<b>317</b>	<b>1,349.21</b>	<b>231</b>	<b>1,469.46</b>
Residential	1,636	27,693.99	1,566	27,322.58	11	19.45	13	39.37	10	108.79	22	159.32	14	44.48
Non residential	2,266	38,741.75	1,818	35,893.42	103	379.31	56	597.85	59	308.05	48	265.41	182	1,297.71
Social amenities	540	7,050.97	372	6,212.26	60	383.80	18	116.88	20	44.10	47	225.69	23	68.24
Infrastructure	1,543	18,817.34	892	14,658.38	312	2,523.57	27	267.89	100	609.68	200	698.79	12	59.03

Source CIDB Malaysia (2013c)

**Table 2.18** Number and value of projects awarded by type of work and type of contract as of December 2013

Type of contract	Total number of projects	Total project value (RM M)	New project		Upgrading		Expansion		Maintenance		Repair		Renovation	
			Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)	Number	Value (RM M)
<b>2011</b>	<b>7,605</b>	<b>99,461.61</b>	<b>6,160</b>	<b>88,888.50</b>	<b>515</b>	<b>4,706.21</b>	<b>177</b>	<b>2,394.38</b>	<b>192</b>	<b>1,191.60</b>	<b>253</b>	<b>1,236.43</b>	<b>308</b>	<b>1,044.49</b>
Conventional	7,324	91,442.74	5,953	82,531.20	491	4,265.97	165	1,424.81	187	1,170.39	240	1,057.03	288	993.34
Design and build	139	4,251.59	114	3,543.54	15	327.03	9	294.07	1	14.45	6	42.69	14	29.81
Turnkey	99	3,502.31	80	2,672.24	7	27.09	3	675.50	1	4.60	5	119.93	3	2.95
Built, operate and transfer	5	41.12	3	29.04	1	0.68	–	–	–	–	–	–	1	11.40
Engineering, procurement, construction and commissioning	18	223.85	10	112.48	1	85.44	–	–	3	2.16	2	16.78	2	6.99
<b>2012</b>	<b>7,650</b>	<b>123,600.41</b>	<b>6,044</b>	<b>112,778.68</b>	<b>516</b>	<b>3,132</b>	<b>179</b>	<b>2,373.62</b>	<b>327</b>	<b>2,283.55</b>	<b>247</b>	<b>1,625.83</b>	<b>337</b>	<b>1,406.97</b>
Conventional	7,217	113,004.76	5,718	102,957.99	476	2,839.73	158	2,224.90	320	2,200.97	234	1,490.55	311	1,290.62
Design and build	247	6,778.38	180	6,318.54	25	194.88	14	41.68	–	–	6	110.22	22	113.06
Turnkey	114	3,052.90	94	2,868.67	10	85.10	4	85.34	–	–	5	12.64	1	1.15
Built, operate and transfer	42	505.71	31	459.04	2	1.99	3	21.70	3	9.92	2	12.42	1	0.64
Engineering, procurement, construction and commissioning	30	258.66	21	174.44	3	10.06	–	–	4	72.66	–	–	2	1.50
<b>2013</b>	<b>5,985</b>	<b>92,304.04</b>	<b>4,648</b>	<b>84,086.64</b>	<b>486</b>	<b>3,306.12</b>	<b>114</b>	<b>1,021.99</b>	<b>189</b>	<b>1,070.62</b>	<b>317</b>	<b>1,349.21</b>	<b>231</b>	<b>1,469.46</b>
Conventional	5,717	76,063.24	4,452	68,415.73	463	3,099.55	103	907.82	183	1,044.45	296	1,165.04	220	1,430.65
Design and build	156	4,248.62	109	3,825.58	16	126.46	6	88.07	3	10.17	17	170.85	5	27.49
Turnkey	69	11,434.28	54	11,314.74	4	76.03	5	26.10	–	–	2	8.66	4	8.75
Built, operate and transfer	21	87.00	14	75.19	2	3.32	–	–	1	1.26	2	4.66	2	2.57
Engineering, procurement, construction and commissioning	22	470.90	19	455.40	1	0.76	–	–	2	14.74	–	–	–	–

Source CIDB Malaysia (2013d)

(ECER), Sabah Development Corridor (SDC) and Sarawak Corridor of Renewable Energy (SCORE), that spur economic previous expansion in the industry have been completed or already at advanced stages, there remains many mega projects that are expected to stimulate growth in the industry in the years to come. These projects include the MRT, the HSR (the High Speed Rail connecting Malaysia with Singapore), expansion of the KTM rails, LRT extension, Pahang-Selangor Raw Water Transfer, Melaka LNG Regasification, and the Pengerang projects. As at the end of 2009, a total of RM 245.49 billion was secured for Iskandar Malaysia, Northern Corridor Economic Region, Eastern Corridor Economic Region, Sabah Development Corridor and Sarawak Corridor of Renewal Energy (Government of Malaysia 2010)

The HSR, which is expected to commence next year is worth an approximate RM40 billion. The MRT and HSR apart of the cost of construction will spur development in the major cities in which the trains have a stopover. The Pengerang integrated projects is worth more several billion. Another development that sustains growth in the industry is the Greater KL project. The Greater KL programme will impinge highly on the demand for both residential and non-residential buildings.

The industry will continue to be dominated by the private sector. There will also be a reduction on the dependency on foreign labour in the industry. The applications of the Industrialised Building System (IBS) will increase as the government has granted accelerated capital allowance for up to 3 years for companies with purchase on mould for the production of IBS components. Similarly, government emphasis on the consideration of sustainable development will be intensified. To this end, government has introduced the Green Building Index (GBI) and tax exemption of close to 100 % for expenditure incurred in obtaining the first GBI certificate. Chapter 10 of this book contains some of the government's efforts towards sustainable development (see Table 10.1 on page 300). Based on our observation, while the demand for new projects will increase, we expect a surge in maintenance expenditure. Maintenance expenditure will more than double its current value. Initiatives like The National Asset and Facility Management (NAFAM) convention need to be revived. The previous convention in our opinion offered awareness and constituted a platform for the maintenance of built assets in Malaysia.

In summary, there are many opportunities for local contractors and professionals to export their services abroad. However, while the future of the Malaysian construction industry is optimistic, the industry is also facing a number of challenges. For instance, there are problems of instabilities of supply and prices of construction materials and components. Prices of construction materials and components are one of the highest in the region. These problems are leading to the poor performance of the construction deliveries. Another problem facing the players pertains to the Stamp Duty. According to the Master Builders Association Malaysia, a payment default is considered a consistent problem facing the industry. For instance, RM5 is to be paid for every RM1000 or part therefore effective 2009 for loan agreement and service agreement instruments except for education loans. This will affect the profit and productivity of the industry. The number of litigations due to claims and

disputes are also on the rise. There are also problems relating to labour. There is a lack of competent labour to meet the demands of the industry. While we are of the understanding that for a country to have meaningful and sustained development, it must indigenize its construction industry, but to increase healthy competition in the construction, foreign involvement is encouraged. Local contractors should form alliance or joint venture with some foreign construction companies to deliver some the projects. There are some advantages with the involvement of foreign collaborations like project financing and knowledge transfer. In addition, more investment is required from both the private and public sector for research and development (R&D), and more funds and required from banks and other financial institutions. The contributions of the industry to the GDP and GNI at around 3 % are comparatively low. A significant improvement is required to increase the contributions of the industry. Proactive methods are required in disposal of waste. The Malaysian construction industry is synonymous to waste generator and the situation is further worsening and complex due to lack of suitable landfills. The waste that the industry produces create avenue to the some stakeholders (NGO, environment etc.) to see the industry as major cause of pollution. While the large construction business has good waste disposal programme the small and medium classes do not. However, dumping the waste into dump sites is not an adequate way to waste management. We suggest change in attitudes of the stakeholders. Emphasis should be given to waste minimisation and where possible waste avoidance over waste disposal no matter how effective this could be. The attitudes of the industry toward waste management are mainly to meet regulatory requirements. The industry should educate the clients on reuse and recycle of 'waste' materials and components. The government efforts towards climate change and green technology also pose greater challenges to the construction industry as the have significant impacts on how the construction industry designs and constructs constructed facilities. To address the problems pose by the climate change /global warming, Malaysia as adopted the Low Carbon Cities Concept (LCCC). Earlier on, a Low Carbon Cities Framework (LCCF) was formulated through governments collaborations to serve as guide for stakeholders including developers, contractors, designers local councils and town planners to reduce the levels of carbon emission in cities.

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