CRITICAL SUCCESS FACTORS OF MALAYSIAN CONTRACTORS IN INTERNATIONAL CONSTRUCTION PROJECTS USING THE ANALYTIC HIERARCHY PROCESS (AHP)

by

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LIST OF ABBREVIATIONS

AFTA	ASEAN Free Trade Area
AHP	Analytic Hierarchy Process
ASEAN	Association of South-East Asian Nations
BOT	Build, Operate and Transfer
CEO	Chief Executive Officers
CI	Consistency Indices
CIDB	Construction Industry Development Board
CIMP	Construction Industry Master Plan
CR	Consistency Ratio
CSF	Critical Success Factor
DSS	Decision Support System
ENR	Engineering News Record
GATT	General Agreement of Tariffs and Trade
GDP	Gross Domestic Product
ICT	Information and Communication Technologies
IJV	International Joint Ventures
ISO	International Standards Organization
KLIA	Kuala Lumpur International Airport
KPI	Key Performance Indicators
MCDM	Multi-Criteria Decision Making Methodology
MCI	Malaysian Construction Industry
MP	Malaysia Plan
MP3	MPEG Audio Layer III
MSC	Multimedia Super Corridor
OFDI	Outward Direct Foreign Investment
PLC	Public Listed Companies
PM	Project Manager
RI	Random Index
SSF	Selected Success Factor
USD	United States Dollar
WTO	World Trade Organization

LIST OF SYMBOLS

A	The matrix of pair-wise comparisons
n	Eigenvalue of **A**
W	Eigenvector of **A**
n	Number of factors in the set being compared with respect to an element in level $i - 1$
w_x	Relative importance of factor *x*
w_y	Relative importance of factor *y*

FAKTOR-FAKTOR KEJAYAAN KRITIKAL KONTRAKTOR MALAYSIA DALAM PROJEK PEMBINAAN ANTARABANGSA MENGGUNAKAN PROSES HIERARKI ANALITIK (AHP)

ABSTRAK

Industri pembinaan antarabangsa menawarkan peluang yang besar untuk kontraktor Malaysia yang berpotensi untuk mengembangkan perkhidmatan mereka disebabkan globalisasi dan liberalisasi pasaran dunia. Pasaran lain sedang mengembang dan memberi peluang baru. Oleh itu, kontraktor perlu menimbang untuk beroperasi di luar negara pada masa tertentu. Walau bagaimanapun, perbezaan dalam pasaran domestik berbanding dengan pasaran antarabangsa memerlukan keperluan bagi kontraktor untuk meneliti faktor kritikal tertentu yang boleh meningkatkan kemungkinan kejayaan sesuatu projek. Kontraktor perlu menilai keputusan mereka berdasarkan faktor-faktor ini sebelum menceburi pasaran asing. Walaupun terdapat beberapa kontraktor yang telah berjaya untuk mencapai kejayaan dalam pasaran antarabangsa, faktor-faktor kejayaan mereka lazimnya tidak diketahui. Tujuan kajian ini adalah untuk menentukan faktor-faktor kejayaan kritikal kontraktor Malaysia dalam projek pembinaan di peringkat antarabangsa. Pengenalpastian faktor kejayaan utama akan membolehkan kontraktor untuk memperuntukkan sumber-sumber projek yang terhad. Kontraktor Malaysia bertaraf antarabangsa yang telah ke luar negara adalah subjek kajian ini. Proses Hierarki Analisis (AHP) merupakan kaedah yang digunakan untuk membezakan kepentingan relatif faktor-faktor yang berkaitan dengan kejayaan. Satu wawancara soal selidik telah dicipta untuk memudahkan pengumpulan data yang sistematik dalam kajian ini. Dapatan kajian menunjukkan bahawa faktor berkaitan pengurusan organisasi, berdaya saing dan pengurus projek merupakan faktor-faktor yang paling kritikal

dalam kejayaan sesuatu projek. Pada dasarnya, kajian ini menyediakan rujukan yang berharga untuk kontraktor Malaysia yang berhasrat untuk ke luar negara mempertimbangkan faktor-faktor kejayaan agar mereka boleh membuat persediaan yang sesuai sebelum berkembang di peringkat antarabangsa.

CRITICAL SUCCESS FACTORS OF MALAYSIAN CONTRACTORS IN INTERNATIONAL CONSTRUCTION PROJECTS USING THE ANALYTIC HIERARCHY PROCESS (AHP)

ABSTRACT

The international construction industry offers huge opportunities for potential Malaysian contractors to expand their services due to the globalization and liberalization of world markets. Other markets are growing and provide new opportunities. Hence, contractors have to consider operating overseas at some time or another. However, differences in the domestic market compared to the international market necessitate the need for contractors to examine certain critical factors that can increase the likelihood of project success. Contractors will have to evaluate their decisions based on these factors before venturing into foreign markets. Although there are some contractors who have managed to achieve success in the international market, their success factors are largely unknown. The purpose of this study is to determine the critical success factors of Malaysian contractors in international construction projects. The identification of the key success factors will enable contractors to allocate limited project resources. Malaysian international contractors which have gone overseas were the subject matter of this study. The Analytic Hierarchy Process (AHP) method is adopted to distinguish the relative importance of success-related factors. A questionnaire interview was developed to facilitate systematic data collection in this study. The findings indicate that organizational, competitive and project manager related factors were the most critical project success factors. In essence, this study provides a valuable reference of factors for interested Malaysian contractors to consider in order for them to make appropriate preparations before expanding internationally.

CHAPTER 1

INTRODUCTION

1.1 Research Background

The construction industry is considered one of the most important contributors to the Malaysian economy. Although it accounts for less than 5% of Gross Domestic Product (GDP), the industry generates one of the highest multiplier effects because of its extensive backward and forward linkages with other sectors of the economy. Backward linkages, or derived demand, are measures of the demands created by one economic sector for the products of other sectors while forward linkages is the consumption encouraged by the production of intermediate goods and are more difficult to establish for construction than backward linkages (Ofori, 1990).

The construction industry is also a major indicator and determinant of domestic economic performance because it enables the growth of other industries and serves as a fundamental building block of the nation's socio economic development. As Malaysia is in the process of industrialization, the construction industry is important because it provides the economic and social infrastructure for industrial production and reproduction. Basic amenities and infrastructure such as residential space, roads, airports, railways, ports and power are some of the basic developments required for society to improve in social living standards and for other sectors to develop and grow (CIDB, 2007).

The Malaysian Government has realised the importance of developing the construction industry to benefit other sectors along the way and initiated several mega projects in the past to propel the Malaysian economy. The construction boom began in the early 1990s in conjunction with the development of these mammoth

projects. The government launched Vision 2020 which envisioned that Malaysia will be a fully industrialised nation by the year 2020. Moving towards this goal, the government invested heavily in infrastructure projects around the Kuala Lumpur metropolitan area. The modernisation of infrastructure was designed to drive Malaysia into the digital age and position it as a hub for high technology businesses in Southeast Asia (Abdullah, 2004).

Over the past several years however, economic woes have reduced the pace of construction and dampened demand in the domestic construction market. Additionally, the Malaysian government's investments in construction jobs have decreased substantially in the last few years (Abdul-Rahman *et al.*, 2005). The Malaysian construction industry (MCI) has largely been (Abdul-Rahman et al., 2005) spurred by government spending in major infrastructure projects and a decline in the number of large-scale infrastructure projects is one of the major causes for the construction industry slowdown in recent years. The MCI was sustained by mega projects initiated by the government in the early and mid-1990s for example the Kuala Lumpur International Airport (KLIA), the Multimedia Super Corridor (MSC), the Petronas Twin Towers, and the new capital Putrajaya. Since the completion of these mega projects however, new large-scale projects have been cut down due to reduction in government spending (Ibrahim *et al.*, 2010).

Another reason for the slowdown of the construction industry is the cyclical downturn in the economic cycle which affects domestic project opportunities. The growth of the Malaysian construction industry came to a halt during the Asian financial crises of 1997 and the more recent Global economic crises in 2008. As a result of these crises, investment activities in the sector halted because of excess capacity and deferment of major construction projects in the country. Overcapacity

and fierce competition among local firms for domestic projects have caused oversaturation of the construction market (Flanagan, 2012). Therefore, many Malaysian construction firms have started to look abroad to further their growth aspirations.

Traditionally the domain of contractors from developed countries, construction companies from developing countries have slowly been making inroads into the international construction market and includes countries such as China (Lu *et al.,* 2008), Singapore (Ling *et al.,* 2007) and Malaysia (Abdul‐Aziz and Wong, 2010b). According to (Ariff, 2008), Malaysian companies have been investing abroad since the mid-1970s. However, Malaysian outward direct foreign investment (OFDI) only became significant in the early 1990s with changes in the global economy. The formation of the ASEAN Free Trade Area (AFTA) in 1992 has encouraged many Malaysian companies to invest abroad, particularly but not limited to the ASEAN (Association of South-East Asian Nations) region namely in countries such as Brunei, Cambodia, Indonesia, Singapore, Thailand and Vietnam. Investment abroad in the construction sector remained significant following the success of Malaysian companies in bidding and carrying out works for several large infrastructure, roads and highway projects abroad especially in the Middle East, South Asia and ASEAN (Ahmad and Kitchen, 2008; Ramayah *et al.*, 2010).

Although the economies of most countries are affected by the state of the industrialized economies, the demand for construction services in certain international markets can be high when it is low at home (Kangari and Lucas, 1997). Different parts of the world experience economic prosperity and recession at various times and at different stages of development. The global construction industry is

changing constantly and markets that do not show any potential now may not always stay so and may become promising markets in the future. Thus, all companies should plan for survival and growth in a world of increasing global competition (Root, 1994).

While international construction is not a new phenomenon, globalization has opened up many new opportunities for construction firms. However, the international market for construction related services can be described as complex, uncertain and risky. The complex variables that affect the success of construction companies in overseas construction markets need to be considered in their international expansion decision. There are prospects for sizeable growth and profits for organizations that enter the global arena just as there is a great potential for failure (Mc Conville, 1995).

Achieving projects success is the ultimate goal of every organization. The investigation on project success has courted the interest of many researchers. There have been many studies on critical success factors most notably in the area of project management (Belassi and Tukel, 1996; Lim and Mohamed, 1999; Hyvari, 2006). The traditional definition of success is the ability to plan and execute projects (Abraham, 2003) while critical success factors can be defined as those factors predicting success on projects (Sanvido *et al.,* 1992). Previous work only identified CSFs for construction projects in general (Ashley *et al.,* 1987; Chua *et al.,* 1999; Nguyen *et al.,* 2004). This study seeks to identify CSFs for international construction projects. It is highly important for projects to be successfully undertaken in order for firms to survive in competitive business environments such as international construction.

As international construction is a risky business and the possibility of failure always exists, companies have to consider the parameters that can have a direct

impact to their success. In this study, the critical success factors leading to construction firm's success in international project have been investigated. Malaysian construction companies which have gone overseas are the subject matter of this study. Within this context, a questionnaire survey followed by face-to-face interviews was carried out among construction experts from these companies.

The Analytic Hierarchy Process (AHP) is used to determine the ranking of the critical success factors. The study seeks to contribute to the current body of knowledge of international construction as well as the local construction industry especially for those future contractors interested in venturing overseas.

1.2 Problem Statement

International construction is much riskier than domestic construction. The complexity of international projects is affected by diverse variables that are not part of the domestic market and brings together risks never encountered in domestic conditions. The risks and problems normally encountered on construction projects are exacerbated by the international dimension (Yates *et al.*, 1991). The global economy has created business environments that differ radically from those of the past. Agreements such as the Uruguay Round in the General Agreement on Tariffs and Trade (GATT) have fundamentally changed the structure of the construction industry and the globalization of construction markets now allows local construction companies to compete internationally (Han and Diekmann, 2001).

Malaysian construction firms are also facing the need to internationalize further as they outgrow their domestic market or are faced by growing overseas competition within their home market (Flanagan, 2012). Some Malaysian construction firms have currently managed to penetrate successfully into

international construction markets but their critical success factors are purely unknown. A variety of factors can determine the success or failure of construction firms in international projects. Multiple studies conducted by local researchers have looked into various aspects of Malaysian international contractors (Isa *et al.,* 2012; Abdul-Aziz and Wong, 2010a, Abdul-Aziz and Wong, 2010b; Abu Bakar, 2008; Hamdan and Adnan, 2008; Juan, 2008) but not on their critical success factors. This research seeks to fill the gap of knowledge in this area.

Hence, the present study seeks to investigate the critical success factors (CSFs) of Malaysian contractors in international construction projects and to evaluate their relative importance based on the perceptions and judgement of experts from the construction industry. The Analytic Hierarchy Process (AHP) is adopted whereby the CSFs are evaluated and organized in a priority-ranking model. The establishment of this kind of priority-ranking model enables one to identify the more important factors from the less important ones. Moreover, the AHP's systematic approach in soliciting an expert's judgement and a consistency check has also made it a reliable way to determine the priorities of a set of factors.

The identification of the more important CSFs will enable contractors to concentrate on these factors and allocate limited resources such as time, money and manpower accordingly. The findings may also serve as a helpful guideline for contractors who are currently undertaking overseas projects and those who are interested in entering the international construction market in future.

1.3 Aims and Objectives

The primary goal of this research is to determine and rank the critical success factors required by Malaysian construction firms to successfully undertake an international construction project. To achieve this aim, the following objectives are set out as follows:

i) To identify the reasons that trigger the internationalization of Malaysian contractors

ii) To analyze and rank the critical success factors for Malaysian contractors in international construction projects

1.4 Scope of Study

This study encompasses established Malaysian international contractors that have engaged or are currently engaging in international construction projects all over the world. Only G7 contractors registered under the CIDB International Contractor category were approached for the study. The contractors identified have successfully completed a wide variety of international construction projects ranging from buildings, bridges, highways, airports and civil works. They are active in various regions around the world such as the Middle East, South Asia and ASEAN. Top management professionals from these firms with extensive knowledge and wide experience in international construction projects were targeted to participate in this study. Only those with about 5 years of overseas experience would be approached to maintain the quality of the data gathered for the study.

1.5 Significance of Study

The primary aim of this study is to utilize the CSF approach to identify a few manageable but vital factors contributing to the success of an overseas construction project. By investigating the CSFs, contractors and researchers can gain new insights for achieving successful projects in the international construction market. The findings would be very helpful and instrumental for construction firms that intend to expand overseas. With the identification and knowledge of CSFs gained from this research, construction firms which are keen in exploring overseas markets in future may use the findings of this research as a guideline.

They will be able to improve their operations by allocating and aligning their limited resources in a more effective and efficient way based on the CSFs identified. The findings of this study will also be useful in assisting future researchers and policy makers in considering certain important information when formulating policies and regulations. Thus, this study intends to bear pragmatic as well as academic value.

1.6 Operational Definitions

Several important operational definitions that will be used throughout the thesis are included in this chapter. The operational terms and their respective definitions are as follows:

Internationalization: Internationalization can be defined as "the process through which a firm moves from operating in its domestic market place to international markets by adapting the firms' operations such as strategy, structure, and resources to the international environment" (Javalgi *et. al*, 2003).

International Construction Project: International construction project can be defined as construction projects where one company, resident in one country, performs construction works in another country (Mawhinney, 2001).

Critical Success Factors: In essence, critical success factors are defined as those factors predicting success on projects (Sanvido *et al.*, 1992).

Malaysian International Contractor: The practiced definition for Malaysian international contractors in this study refer to those construction firms that are registered as class G7 international contractors with CIDB and have a tendering capacity exceeding 10 million ringgit. An international construction firm is characterized as: 1) actively managed by its owners 2) currently engaged in international operations 3) registered as an international contractor under CIDB.

Top management: An executive from the top or senior management of the Malaysian based contractor who has the authority to provide information on the firms internationalization process such as the firm's owner or founder, chief executive officers (CEO), executive directors, senior managers, project managers or other key managers such as regional director, international division director etc.

1.7 Structure of Dissertation

This dissertation is divided into six chapters. Chapter 1 introduces the research background, problem statement, aims and objectives and the scope and limitations of the research as well as the significant contributions of the study.

Chapter 2 presents an overview of the Malaysian construction industry, overview of the international construction industry and the internationalization of Malaysian construction firms.

Chapter 3 highlights the critical success factors required for project success and the theory and principles behind the analytic hierarchy process.

Chapter 4 presents the methodologies used for this research, discussing the choice of research strategy, research design, and the selection of data collection methods.

Chapter 5 presents the analysis and discussion of the data collected from the study. The analysis is organized according to the framework outlined in the research methodology.

Chapter 6 presents the conclusions and implications of this study as well as recommendations for future research.

CHAPTER 2

A REVIEW ON THE MALAYSIAN AND INTERNATIONAL CONSTRUCTION INDUSTRY

2.1 Introduction

This chapter provides a review on the Malaysian and international construction industries. It is divided into three parts: the first is an overview of the Malaysian construction industry from past, current and future perspectives; the second is the expansion of Malaysian contractors into overseas markets and the role of CIDB in the Malaysian construction industry while the third and final part gives an overview of the international construction industry and the various processes needed for a construction firm to internationalize.

2.2 Background of the Malaysian Construction Industry

Malaysia has experienced a period of high economic growth over the last few decades, propelling the nation from an agricultural and commodity-based economy to a prosperous and thriving middle-income nation. Malaysia's real Gross Domestic Product (GDP) has grown by an average of 5.8% per annum from 1991 to 2010 (EPU, 2010). This growth rate has helped improved the quality of life for Malaysians and supported advances in education, health, infrastructure, housing and public amenities. Needless to say, these would not be possible without the contribution of the construction industry.

The construction industry as an important sector of the economy makes a significant contribution to GDP, capital formation and employment (Hillebrandt, 2000). The Malaysian construction industry (MCI) is no different and plays 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 infrastructures and buildings. As a developing country, the construction industry also plays an important role in national advancement. It acts as a fundamental building block of the nation's socio-economic development. All the essential ingredients of a healthy, functioning economy are built and maintained by the construction industry. Furthermore, the construction industry creates a multiplier effect for other industries including manufacturing, financial services and professional services (CIDB, 2007).

The industry is a strong growth push factor because of its extensive backward and forward linkages with the rest of the economy (Ofori, 1996). Backward linkages, or derived demand, are measures of the demands created by one economic sector for the products of other sectors. It has widespread impact because much of the raw, semi-processed, and processed materials can be provided by relatively unsophisticated labour-intensive domestic sources and by basic industries such as cement and steel manufacturing. The backward linkages are quite strong in the case of construction and represent a value, which in most circumstances exceeds the value added by the construction industry itself.

The construction industry does not create its own demand. Rather the demand is a derived demand whereby demand is derived from other sectors of the economy and from both public as well as private sectors. This demand can generally be classified as wealth creation demand from economic needs for infrastructure and commercial buildings and quality of life demand such as needs for housing. Demand can also come from foreign markets for the same reasons although it does not bring

with it the multiplier effect to the economy as much as domestic demand (CIDB, 2007).

As Malaysia is currently in the process of industrialization, the construction industry is important because it continues to provide the economic and social infrastructure needed for industrial production and development. All the essential elements of a vibrant and functioning economy is built and maintained by the industry. Basic amenities and infrastructure for example residential space, roads, airports, railways, ports, power cables, communication systems, educational and public institutions are some of the basic requirements for society to improve in terms of social living standards and also for other sectors to develop and grow. Construction activities create numerous spill-over opportunities as a consumer of manufactured goods (building materials, steel, etc.), specialized trade works, heavy machinery and financial services besides playing an important role in national employment (Ofori, 2003).

The Malaysian Government has realized the importance of building up the construction sector to benefit other sectors along the way. Therefore, the government has initiated some mega projects in the hope of propelling the economy to a better level. Since 1991, Malaysia has spent well over US $15 billion on infrastructure projects such as the Kuala Lumpur International Airport (KLIA), the $2.9 billion Petronas Twin Towers in Kuala Lumpur and the new capital, Putrajaya which was built at a cost of $5.3 billion (EPU, 2007).

In order to achieve developed nation status by 2020, Malaysia will also need to develop a construction industry that is internationally competitive. 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 a developed nation by 2020.

The vision is set out as follows: 'The Malaysian construction industry shall be a world-class, innovative and knowledgeable global solution provider'. To achieve the above vision, the Construction Industry Development Board (CIDB) in 2007 launched the Construction Industry Master Plan (CIMP) covering the period from 2006-2015 (CIDB, 2007).

The CIDB represents a statutory board under the Ministry of Works. The CIMP was crafted to inject greater dynamism into the construction industry and enable it to be globally competitive. It outlines the vision, mission and strategic thrusts as well as specific recommendations for the construction industry in order to further develop and enhance its role in the economy. One of the strategic thrusts is to globalise the construction industry by the export of construction products and services. This strategic thrust will facilitate the expansion of the construction market as well as its overall contribution to the nation's economy (CIDB, 2007).

2.2.1 Current Development in the Malaysian Construction Industry (MCI)

Malaysia began to develop its construction industry since gaining independence. The primary concern for a young nation then was to develop its infrastructure. This can be seen in the initial economic plan (1956-1960) which was basically a development expenditure plan. Hence, for the economy to prosper, the construction industry has to be developed first in order for other sectors of the economy to develop. The Malaysian construction industry (MCI) is essential towards

the development of the nation as it is among the top three contributors to the Malaysian economy, the other two being manufacturing and agriculture. The MCI is generally separated into two areas. One area is general construction, which comprises of residential construction, non-residential construction and civil engineering construction. The second is special trade works which comprises of metal works, electrical works, plumbing, sewerage and sanitary works, air-conditioning works, painting works, carpentry, tiling, flooring and glass works (CIDB, 2007).

The construction boom in Malaysia which started in the early 1990s was due to the development of mammoth projects. The Government then launched Vision 2020 which envisioned that Malaysia will be a fully industrialized nation by the year 2020. Working towards this goal, the Government has invested heavily in modernizing the country's infrastructure through various projects designed to propel Malaysia into the digital age and position as a hub for high technology businesses in Southeast Asia. As mentioned before, the construction industry constitutes an important element of the Malaysian economy. Although it accounts for less than 5% of GDP, the industry is critical to other parts of the economy as it acts as a catalyst and has multiplier effects to the economy particularly industries that have extensive linkages with construction related manufacturing industries such as basic metal products and heavy machinery (EPU, 2010).

Figure 2.1 shows the changes in the annual growth rates of construction in relation to GDP between the years of 1980 to 2009. Construction growth rates have fluctuated between high and low extremities. The construction industry reached its peak in 1995 where the GDP of construction industry hit an amazing 21.1 percent. That rate of development was equivalent to that of developed countries. During the period from 1994 to 1997, the construction industry GDP averaged at 14 percent.

Consequently, the MCI dropped to an alarming position in 1998, when Malaysia and the Asian region were facing the Asian Financial Crisis.

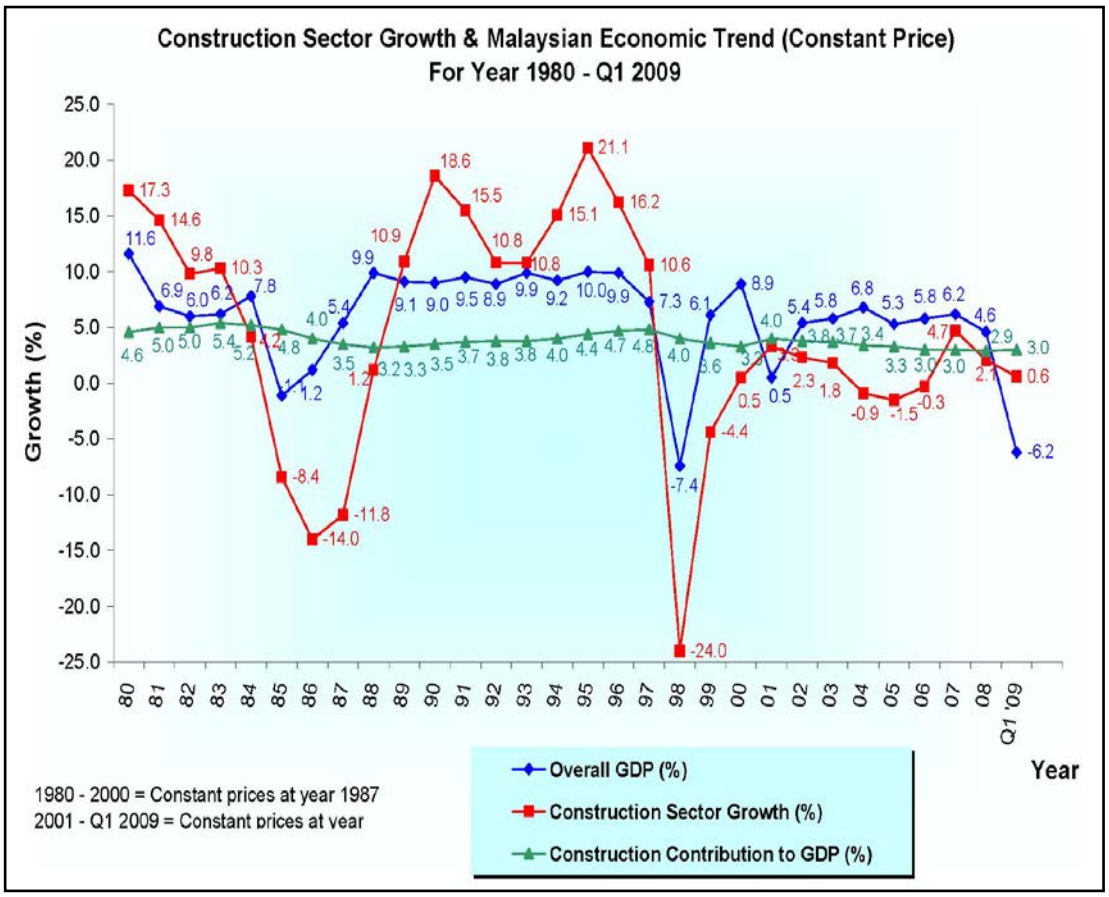

Figure 2.1 Construction Sector Growth and Malaysian Economic Trend (Constant Price) for Year 1980 – Q1 2009 (*Source: CIDB, 2010*)

During the regional economic crisis in 1997-1998, output of the industry experienced a bust cycle with a sharp drop in output. In 1998, output of the industry contracted by 24%, after a robust and double-digit growth rate (BNM, 2007). This was the worst slump for the construction industry. While GDP grew at an average rate of 5.2 percent from 1999 to 2004, the construction industry stagnated, recording an average growth of 0.4 percent over the same period.

Since the financial crisis in 1998 and the more recent global economic crisis, the construction industry growth rates have not reached anywhere near pre-1998 growth rates only managing 4.7% at its highest in 2007. It recorded negative growth

in 2004, 2005 and 2006 although GDP growth remained high. Contribution of the construction industry towards the country's GDP also fluctuated albeit at a more stable rate from as high as 4.8% in 1997 to a low of 2.9% in 2008 hovering around an average of 3%. The contribution of the Malaysian construction industry towards the country's GDP is much lower compared to other developing countries as can be seen in Table 2.1 (Bank Negara Malaysia, 2007).

Table 2.1 Construction Contribution to GDP by country - at constant 1990 prices

Country	2000 (%)	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)
Malaysia	3.6	3.7	3.6	3.5	2.9	3.0
Singapore	7.0	7.0	6.0	5.3	4.6	4.0
China	5.2	5.1	5.2	5.3	5.4	5.0
Korea	7.2	7.3	7.0	7.4	7.2	N/A
India	4.9	4.8	4.9	5.3	N/A	7.0
Australia	5.3	5.7	6.4	6.5	6.0	6.0
New Zealand	3.7	3.7	3.9	4.1	4.3	4.0

(*Source: Malaysian Economic Report 2000-2005*)

The growth of construction output generally follows the economic trend but the peaks and troughs are more extreme. The output increases when economic growth strengthens and falls even lower when the economy weakens. The figure shows that the construction industry grows at a faster rate than the economy during periods of rapid economic growth. However, during periods of economic downturns the industry experiences greater decline and remains in recession longer than the economy. This reflects the cumulative interaction of the multiplier and accelerated effects on demand for construction as a result of the changes in the economy. Thus, the construction industry's annual growth rates generally follow the growth trend of the economy reflecting a positive correlation between construction output and GDP (Abdulllah *et al.*, 2004).

In spite of that, the spill-over effects generated by construction activities cannot be undermined. The industry continues to contribute to the growth of many other industries especially manufactured goods (building and construction materials, iron and steel, etc.), specialized tooling and machinery operations and financial services. The multiplier effects of this have not been quantified due to limited data.

Construction demand is highly sensitive to developments in other areas of the economy. The construction industry can be an overall indicator of the country's economic health since it involves long term investment and risks and will be the first to be affected at the first sign of an economic downturn and the last to be revived during an economic upturn leading to long periods of recession for the construction industry whenever an economic cycle is experienced. Thus, the construction industry plays a crucial role as a major indicator and determinant of domestic performance in the economy.

It is obvious that the construction industry has not been performing well for quite some time. That being the case, why does the construction industry not perform well when other sectors of the economy are performing reasonably well in recent years? The answer lies in the fact that a large part of demand for construction came from the public sector in terms of infrastructure projects. A decline in the number of large infrastructure projects is one of the major causes for the construction industry slowdown of recent years.

The Malaysian construction industry has largely been spurred by Government spending to build the nation's infrastructure. From 1981 to 2010, the total development expenditure by the Government was in access of RM 600 billion mainly in economic sectors such as agriculture, rural development, transportation;

commerce and industry (EPU, 2010). Table 2.2 shows the Malaysian government's development expenditure from the year 1981 – 2010.

Table 2.2 Malaysian Government Development Expenditure (1981 – 2010)

Sectors (RM million)	4th MP (1981-1985)	5th MP (1986-1989)	6th MP (1990-1995)	7th MP (1996-1999)	8th MP (2000-2005)	9th MP (2006-2010)	Total
Economic	28 042	22 886	27 712	47 172	65 446	89 886	281 144
Social	9 973	8 764	13 555	31 284	69 377	74 954	207 907
Security	7 494	2 527	10 987	11 644	22 042	21 203	75 897
General Administration	811	1 123	2 451	8 937	13 135	13 957	40 414
Total	46 320	35 300	54 705	99 037	170 000	200 000	605 362

(*Source: Economic Planning Unit, Fourth to Ninth Malaysian Plan 1981-2010*)

As can be seen from Table 2.3, the industry was buoyed by major projects initiated by the Government in the early and mid-1990s which contributed to high construction growth. These projects alone cost an estimated RM 60 billion in value to the construction industry.

Table 2.3 Partial list of Major Government Projects (1998 – 2001)

Major government projects	Year	RM billion
KLIA, Sepang	1998	8.70
Federal Government Administration Centre, Putrajaya	1999	30.80
Multimedia Super Corridor, Cyberjaya	1999	20.10
Formula One Circuit, Sepang	2001	0.43
Total		60.03

(*Source: CIDB, 2001*)

However, since the completion of these major projects more than a decade ago, there have been no new large scale projects as such announced by the Government. Another reason for the slowdown of the construction industry is the cyclical downturn in the economic sector that affects current industry performance. The recent global economic environment has significantly affected world growth, particularly advanced economies like the United States, United Kingdom, European Union and Japan. The global slowdown has in turn affected the Malaysian economy which depends a lot on trade with the affected countries. Given the exposure of the Malaysian economy, the negative wealth effects of the global crisis on demand and world trade have resulted in a decline in industrial production and manufacturing exports. As a result, domestic construction demand has also declined.

2.2.2 Future Direction of the Malaysian Construction Industry

Over the past several decades, the MCI has contributed significantly to the economy as an enabler of growth to other industries. Although it accounts for less than 5 percent of GDP, the industry is an essential growth enabler because of its extensive linkages with the rest of the economy, for example, the manufacturing industry (such as basic metal products and electrical machinery). Nevertheless, recent events, such as globalisation and the saturation of business prospects in Malaysia, have contributed to the sudden plunge in the growth of the industry. At this juncture, it is clear that fundamental changes are now needed in order for the construction industry to achieve greater efficiency and address the overarching challenges, as well as seize new opportunities in liberalized global markets (CIDB, 2007).

The MCI has reached a critical juncture in its development and the vast mega projects that sustained the industry over the past decade have been either completed or reprioritised. In addition, the dampening effect of the global financial crises and the subsequent economic prudence is slowly taking its toll on the industry. The challenges discussed above have retarded the forward movement of the construction industry. Thus, the current situation necessitates a comprehensive framework to ensure that a strong foundation will be laid so that construction players will be well positioned to complete globally.

Towards the end of 2007, the CIDB published a 10-year master plan (CIDB, 2007) that will be implemented from 2006 to 2015 with the objective of refocusing the strategic position and future direction of the industry. The main driver for the strategic plan was the fact that that the industry has recorded an average annual growth of only 0.7% during the period between 2000 and 2007 compared to an average annual gross domestic product growth of 5.5% over the same period. There were concerns that the construction industry, being a main pillar of industrialization and major contributor to economic growth, was not performing at its best and thus not able to meet the dual challenge of open markets and greater global competition.

The master plan was therefore initiated to establish an innovative, sustainable, professional, profitable and world-class construction industry through the identification of eight strategic thrusts that were imperative to the success of the mission, with one of them being to generate new opportunities both in the domestic and overseas markets (CIDB, 2007).

2.3 The Expansion of Malaysian Contractors Overseas

While the industry has slowed down in Malaysia, the construction industry in other parts of the world has been booming, offering ample opportunities for Malaysian contractors. Since 1986, a total of 594 overseas projects in excess of RM 60 billion (see Table 2.4) have been completed by Malaysian construction companies, mainly in India, the Middle East, and the Association of Southeast Asian Nations (ASEAN) (see Table 2.5) regions (CIDB, 2012). The focus of overseas projects has mainly been in civil infrastructure works such as road, highway and building projects which are areas of export specialty for Malaysian contractors. Taking advantage of global opportunities will allow the MCI to reduce the effects of domestic market conditions and have greater control over its own development without having to rely on mega-projects. Malaysia as a whole will also be able to benefit from the export of construction services. The reasons for the internationalization of Malaysian contractors will be elaborated in a later part of this chapter.

Table 2.4 Total number and value of projects overseas (cumulative from 1986)

Status	Total Projects	Project Value (MYR million)	Project Value (USD million)
Completed	594	60, 434.28	18,956.10
On-going	95	40, 933.78	10,777.60
Total	689	101, 368.06	29,733.70

(*Source: CIDB, 2012*)

Table 2.5 Overseas projects by Region (cumulative from 1986)

Segmentation	Total Projects	Project Value (MYR Million)	Project Value (USD Million)
South Asia Continent	134	18,832.94	6,195.05
Middle East	145	36,826.07	12,113.84
ASEAN	250	12,329.18	4,055.65
Africa	42	11,017.45	3,624.16
Others	119	11,384.83	3,745.01

(*Source: CIDB, 2012*)

Although relatively new to the international construction market as compared to those from developed countries such as those from North America, Europe, Japan and Korea, Malaysian contractors have completed and are currently involved in all kinds of construction projects overseas ranging from enormous buildings to sprawling airports and extensive highways to grand prix circuits. Malaysian contractors are slowly but surely penetrating into the international construction market.

2.3.1 Role of CIDB in Malaysian Construction Industry Practice

The MCI is championed by the CIDB, a government agency established to promote and stimulate the development, improvement and expansion of the construction industry, and generally to represent the industry to the government and the public. Construction companies in Malaysia are required to be registered with the CIDB and are classified according to their financial status, technical capabilities and track record into seven grades (G1 – G7) (Chan, 2009).

The registration of construction companies is on a one to three year basis and is granted to qualified construction companies under the relevant grade that defines the limits of the value of work the company is allowed to undertake. A total of 63,850 construction companies are registered with CIDB in different grades based on their tendering capacity as shown in Table 2.6 (CIDB, 2012).

Table 2.6 Contractors Population by Grade

Grade	Tendering capacity	Number of contractors
G1	Not exceeding RM 200, 000	32, 752
G2	Not exceeding RM 500, 000	8, 187
G3	Not exceeding RM 1, 000, 000	10, 437
G4	Not exceeding RM 3, 000, 000	2, 686
G5	Not exceeding RM 5, 000, 000	3, 817
G6	Not exceeding RM 10, 000, 000	1, 398
G7	No limit	4, 573
Total		63, 850

(*Source: CIDB, 2012*)

As can be seen from Table 2.6, G1 grade contractors make up more than half of the total registered contractors and are usually the domain of small sub-contractors carrying out individual construction works for private owners or construction activity for larger contractors. Grades G2 – G5 contractors are considered medium scale contractors while grades G6 – G7 are considered large scale contractors. All international contractors are registered under the grade G7 category.

CIDB expects that, by 2015, the Malaysian Construction Industry shall be among the best in the world (CIDB, 2007). It hopes to assist the country's construction sector to attain the level of a captive global player, excelling in its project delivery and has developed the "Going Global" initiative to promote and encourage the export of construction services and products. The CIDB's Policy Initiative on Markets has two segments:

a) Domestic Construction Market – technology transfer; improvement and enhancement of competition; and expansion of demand for domestic construction services and products (the Malaysian Domestic Market should remain open and in line with the WTO's regulations without compromising national interest).
b) International Construction Market (to enhance and maintain Malaysia's competitive advantage as a construction product and services exporting country) – industrialization; research and development; marketing; application of ICT; monitoring the international market; and promoting Malaysian firms overseas.