

**A comparative study between public and private procurement system  
in building projects in Malaysia**

**By**

**Nurhidayah Bt Mohd Radzi**

**Thesis submitted in fulfilment of the requirements  
for the Degree of  
Master of Science**

**January 2012**

**Satu kajian perbandingan antara sistem perolehan awam dan swasta  
dalam projek-projek bangunan di Malaysia**

**Oleh**

**Nurhidayah Bt Mohd Radzi**

**Tesis yang diserahkan untuk  
memenuhi keperluan bagi  
Ijazah Sarjana Sains**

**Januari 2012**

## ACKNOWLEDGEMENTS

### بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Alhamdulillah, a zillion thanks go to Almighty Allah (S.W.T) for giving me guidance and good health to complete the thesis.

I would like to express my sincere appreciation to my supervisor, Associate Professor Dr. Mastura Jaafar for her help, guidance and encouragement to finish this thesis.

My thankfulness also goes to my parents (Mohd Radzi Bin Aziz and Sholihah Arshad) and to my sisters and brother (Nurhafizah Bt Mohd Radzi, Nurasyiqin Bt Mohd Radzi, Nurhazirah Bt Mohd Radzi, Mohd Zaid Bin Mohd Radzi, NurSyazwani Bt Mohd Radzi and Nurnazifah Bt Mohd Radzi) for their support and believing in me. I am also very thankful to my friends Tengku Muhammad Nizam Bin Tengku Yacob and many others for their understanding, patience and support, to accomplish this thesis.

My pleasure thanks to Kementerian Pengajian Tinggi for financially supporting my study.

Finally, I also would like to thank all others (the respondents and the interviewees) who have, in one way or other, given me invaluable help, assistance, and advice.

## TABLE OF CONTENTS

Acknowledgements.....	ii
Table of Contents.....	iii
List of Tables.....	viii
List of Figures.....	ix
List of Abbreviations.....	x
Abstrak (Bahasa Malaysia).....	xi
Abstract (English).....	xiii
<b>CHAPTER 1- INTRODUCTION</b>	
1.1 Introduction.....	1
1.2 Construction Industry background	
1.2.1 Malaysian construction industry (MCI).....	2
1.3 Procurement systems.....	8
1.4 Problem statement.....	10
1.5 Research objectives.....	14
1.6 Research questions.....	15
1.7 Scope of study.....	15
1.8 Definition of key terms	
1.8.1 Procurement system.....	16
1.8.2 Public sector client.....	17
1.8.3 Private sector client.....	17
1.8.4 Problems of procurement.....	18
1.8.5 Satisfaction.....	18
1.8.6 Procurement preference.....	18
1.9 Outline of the thesis.....	19
1.10 Summary.....	20

## **CHAPTER 2 - LITERATURE REVIEW**

2.1	Introduction.....	21
2.2	Different client's sector in the Construction Industry.....	21
	2.2.1 Public sector clients.....	22
	2.2.2 Private sector clients.....	23
2.3	Definition of procurement system.....	24
2.4	The evolution of procurement system	
	2.4.1 Evolution and application of procurement systems in UK.....	25
	2.4.2 Evolution of procurement system in Malaysia.....	27
2.5	Types of procurement system.....	28
	2.5.1 Traditional.....	29
	2.5.2 Alternative procurement.....	33
	2.5.3 Management system.....	37
	2.5.4 Others procurement system.....	40
2.6	Procurement and client's sector.....	43
2.7	Problems of procurement .....	46
	2.7.1 Problems in traditional method .....	50
	2.7.2 Problems in Alternative system.....	51
	2.7.3 Problems in Management system.....	52
	2.7.4 Problems in others procurement system.....	53
2.8	Satisfaction level of procurement used.....	54
2.9	Summary.....	55

## **CHAPTER 3: RESEARCH METHODOLOGY**

3.1	Introduction.....	56
	3.1.1 Research area of procurement usage and preference.....	58
	3.1.2 Procurement problems variables.....	58
	i) Legal.....	59
	ii) Management.....	61
	iii) Capabilities.....	62
	iv) Dispute.....	63

	v) Time.....	64
	vi) Risk.....	65
	vii) Operation.....	66
	viii)Cost.....	66
	ix) Quality.....	67
	3.1.3 Procurement satisfaction.....	68
3.2	Questionnaire Design.....	68
3.3	Data collection method.....	74
	3.3.1 Pilot test.....	76
	3.3.2 Personally administered questionnaires and postal questionnaire survey.....	77
	3.3.3 Face-to-face interviews.....	78
3.4	Validity and Reliability.....	79
3.5	Sampling and Research Population.....	80
3.6	Response Rate.....	81
3.7	Method of Analysis	
	3.7.1 Analysis for quantitative data collection.....	83
	3.7.2 Analysis for qualitative data collection.....	84
3.8	Summary.....	84

#### **CHAPTER 4 : RESEARCH ANALYSIS AND FINDINGS**

4.1	Introduction.....	85
4.2	Section A (Respondent's Background).....	86
	4.2.1 Highest Education.....	87
	4.2.2 Specialisation.....	88
	4.2.3 Current position.....	89
	4.2.4 Experience.....	90
	4.2.5 Firm type.....	91
	4.2.6 Client sector.....	92
4.3	Section B (Procurement usage of public and private sector clients)	
	4.3.1 Procurement system usage in CI according to sector.....	93

4.3.2	Value of projects versus types of procurement ‘used’ between both sectors.....	97
4.3.3	Types of project versus types of procurement ‘used’ between both sectors.....	100
4.3.4	Procurement usage and problems.....	104
	i) Reliability test on problems variables.....	104
	ii) Ranking problems for each procurement used by both sectors.....	105
	iii) T-Test for procurement types used and problems.....	111
4.3.5	Types of procurement usage and level of satisfaction.....	115
4.4	Section C ( Procurement preference of public and private sector clients)	
4.4.1	Procurement preference between both sectors.....	117
4.5	Summary.....	121
 <b>CHAPTER 5: DISCUSSIONS</b>		
5.1	Introduction.....	122
5.2	Background of the respondents and the companies.....	122
5.3	Types of procurement system used by both sectors.....	125
5.4	Types and value of project.....	133
5.5	Problems of procurement ‘usage’.....	135
5.5.1	The arrangement of problems faced by both sectors.	
	i) Dispute problems.....	137
	ii) Legal problems.....	138
	iii) Capability problems.....	140
5.5.2	Difference in terms of problems faced by both sectors using the traditional and alternative systems.....	143
	i) Traditional Method.....	144
	ii) Alternative system.....	150
5.6	Level of satisfaction of procurement used.....	155
5.7	Ranking types of procurement ‘preferred’ by private and public sector.....	156
5.8	Summary.....	157

## **CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS**

6.1	Introduction.....	159
6.2	Achievements of research objectives and research findings.....	159
6.2.1	The use of procurement system between public and private sector clients.....	160
6.2.2	Problems of the procurement system by public versus private sector client.....	161
6.2.3	Satisfaction level.....	164
6.2.4	Preference of procurement type.....	165
6.3	Challenges of the study.....	166
6.4	Limitations.....	169
6.5	Recommendations for future study.....	169
6.6	Industry recommendations.....	170
	References.....	172



## LIST OF TABLES

Table 3.1	Questionnaire design	71
Table 3.2	Response rate by medium of questionnaires survey distribution	81
Table 3.3	Response rate by individuals	82
Table 3.4	Responses by states.	83
Table 4.1	Highest Education of the respondents	87
Table 4.2	Specialisation of the respondents	88
Table 4.3	Current position of the respondents	89
Table 4.4	Respondent's experience in construction industry	90
Table 4.5	Respondent's type of firm	91
Table 4.6	Sector of clients	92
Table 4.7	Procurement used by public and private clients sector	95
Table 4.8	Value of projects versus types of procurement system between both sectors	98
Table 4.9	Types of project versus types of procurement system between sectors	102
Table 4.10	Cronbach Alpha for problems of procurement	104
Table 4.11	Non-parametric test on problems of procurement type used between sectors	108
Table 4.12	T-test on the problems of procurement system used by both private and public sector	114
Table 4.13	t-test on the level of satisfaction mean	116
Table 4.14	Procurement preferred by public and private sector	118
Table 5.1	Summary of mean ranking problems for each of the procurement types between public and private client sectors.	142
Table 5.2	Significant difference on the problems of procurement system used by both private and public client sector.	154

## LIST OF FIGURES

Figure 1.1	Scenario of Malaysian construction industry	16
Figure 2.1	Traditional system	32
Figure 2.2	Main concept of alternatives procurement	36
Figure 2.3	Management contracting system.	38
Figure 2.4	Construction management system.	39
Figure 3.1	Framework of the research design process	57
Figure 3.2	Research area	58
Figure 3.3	Methodology of this study.	75
Figure 4.1	Highest Education of the respondents	87
Figure 4.2	Specialisation of the respondents	88
Figure 4.3	Current position of the respondent	89
Figure 4.4	Respondent's experience in construction industry	90
Figure 4.5	Respondent's type of firm	91
Figure 4.6	Sector of clients	92
Figure 4.7	Procurement 'used' between public and private sector.	96
Figure 4.8	Value of projects versus types of procurement system between both sectors.	99
Figure 4.9	Project types versus procurement types.	103
Figure 4.10	Types of procurement 'preferred' versus client sector.	119

## LIST OF ABBREVIATIONS

<b>CIDB</b>	Construction Industry Development Board
<b>NEM</b>	New Economic Model
<b>REHDA</b>	Real Estate Housing Developers Association
<b>CIMP</b>	The Malaysian Construction Industry Master Plan
<b>MHLG</b>	Ministry of Housing and Local Government
<b>PWD</b>	Public Work Department
<b>IBS</b>	Industrialised Building System
<b>MCI</b>	Malaysian Construction Industry
<b>9MP</b>	9 <sup>th</sup> Malaysian Plan
<b>PAM</b>	Persatuan Arkitek Malaysia
<b>DBKL</b>	Dewan Bandaraya Kuala Lumpur
<b>MPPP</b>	Majlis Perbandaran Pulau Pinang
<b>KESEDAR</b>	South Kelantan Development Authority
<b>UDA</b>	Urban Development Authority
<b>FELDA</b>	Federal Land Development Authority
<b>SEDC</b>	Sarawak Economic Development Corporation
<b>IEM</b>	Institute Engineers Malaysia
<b>BQSM</b>	Board of Quantity Surveyor
<b>ST2</b>	Strategic Thrust 2
<b>SPSS</b>	Statistical Package for Social Sciences
<b>D&amp;B</b>	Design and build
<b>PPP</b>	Public – Private Partnership
<b>PFI</b>	Private Finance Initiative
<b>LS</b>	Lump Sum
<b>BOT</b>	Built, Operate and Transfer
<b>JOC</b>	Job Order Contracting
<b>PMC</b>	Project Management Consultancy

**Satu kajian perbandingan antara sistem perolehan awam dan swasta  
dalam projek-projek bangunan di Malaysia**

**ABSTRAK**

Tesis ini telah dijalankan untuk meninjau pandangan dan pemilihan di kalangan klien di sektor awam dan juga swasta terhadap jenis sistem perolehan yang diguna pakai di Malaysia. Tesis ini juga bertujuan untuk mengenal pasti jenis-jenis masalah yang terdapat pada setiap sistem perolehan. Selain itu juga, ianya bertujuan untuk melihat sejauh mana tahap kerelevanan sistem perolehan yang masih digunakan di kalangan sektor awam dan swasta di Malaysia pada masa kini.

Motivasi untuk mengkaji sistem perolehan dalam bidang pembinaan adalah disebabkan oleh masalah-masalah dan isu-isu yang banyak dalam industri pembinaan Malaysia baru-baru ini. Industri pembinaan di Malaysia adalah salah satu komponen yang memberikan kesan yang besar ke atas ekonomi negara dan sistem perolehan dikatakan mempunyai kaitan dengan perkara ini.

Kaji selidik telah dijalankan dalam tempoh 4 bulan pada tahun 2009. Ianya bertujuan untuk mendapatkan pandangan individu yang terlibat terhadap matlamat dan isu-isu yang timbul di dalam kaedah perolehan, mengkaji jenis-jenis perolehan yang digunakan, masalah yang terdapat pada setiap jenis perolehan, dan seterusnya faedah-faedah yang dapat diperolehi daripada penggunaan kaedah-kaedah perolehan yang berbeza.

Sesi temubual secara bersama dengan individu yang terlibat telah dijalankan untuk menguatkan fakta yang dikumpulkan ketika sesi kaji selidik dilakukan. Secara umumnya, jenis perolehan yang menggunakan kaedah Tradisional / Konvensional masih diguna pakai di Malaysia. Sebagai contohnya kaedah yang masih diguna pakai adalah sistem 'lump-sum- Lukisan & Spesifikasi, LS- BQ Firma, dan sistem Anggaran BQ. Selain itu terdapat juga kaedah alternatif yang boleh diguna pakai termasuk seperti Reka & Bina dan Turnkey.

Mengikut hasil keputusan kaji selidik, untuk kaedah yang 'lebih digemari' oleh klien, kedua-dua sector, mereka memilih keputusan yang sama dengan jenis kaedah perolehan yang 'telah digunakan' di Malaysia. Masalah utama yang telah dikenal pasti dalam kajian ini adalah masalah 'pertikaian' dan sektor awam lebih berpuas hati terhadap penggunaan kaedah tradisional (LS-Lukisan & Spesifikasi) berbanding dengan klien di sektor swasta. Kaedah perolehan yang berkesan akan memberikan manfaat yang besar kepada industri dan oleh itu, CIDB perlulah menilai tahap kesesuaian-sistem perolehan yang digunapakai pada ketika ini agar bersesuaian dengan perkembangan industri pada masa kini.

Klien sektor awam dan swasta perlulah bijak untuk memilih kaedah perolehan yang terbaik bagi memastikan mereka akan mendapatkan pulangan yang maksimum terhadap setiap sistem perolehan yang dipilih nanti. Tesis bertujuan untuk mendapatkan pandangan dan pendapat daripada pihak responden terhadap masalah yang timbul dalam sektor perolehan dan berkongsi pengalaman dalam menggunakan sistem perolehan.

**A comparative study between public and private procurement  
system in building projects in Malaysia**

**ABSTRACT**

This thesis was undertaken to survey the perception and selection of client in Malaysia including the public and private sector on the types of procurement system ‘used’ and ‘preferred’, the problems arising based on the procurement ‘used’ and also the satisfaction level between both sectors of client.

The motivation to study the procurement systems in construction field are caused by the problems and many issues in the Malaysian construction industry recently. Since Malaysian construction industry is one of the components that give a massive impact on the national economy, procurement system are said to be correlate to this matter hence, needs to be revised.

Personally Administered questionnaire survey were conducted over 4 months period in 2009 to get the population aim perception’s on the procurement issues such procurement types ‘used’ and ‘preferred’, the problems of procurement types and the level of satisfaction between public and private sector clients. Interviews sessions were also conducted in order to strengthen the answers gathered in questionnaire survey session.

The type of procurement system 'used' in Malaysia was still the Traditional/Conventional system which including the 'Lump-sum Drawing & Specifications, LS-Firm BQ's and the Approximate BQ's system followed by the Alternative system which included the Design & Build (D&B) and the Turnkey system. The 'preferred' types of procurement also obtained the same results as the 'used' procurement system in Malaysia. The main problem identified in this study is 'dispute' problem and the public sector is more satisfied on the traditional system (LS-Drawing & Specifications) than the private sector client.

The findings would be a great value to the industry, specifically CIDB that can study on the relevancy of these procurement systems to suit the current industry practice since it is vital for the clients to choose the best procurement method to get the maximum satisfaction on the benefits of each procurement system.

# **CHAPTER 1**

## **INTRODUCTION**

### **1.1) Introduction**

The focus of this thesis is on the comparison of the procurement systems used and preferred between public sector client and private sector client in Malaysian construction industry. This chapter provides a brief introduction by reviewing the aim and objectives of the study. The introductory chapter will provide the background of the construction industry to magnify the problems and challenges that occurred in Malaysian construction industry, which is hypothesised as being related to the selection of procurement systems used by public and private sector clients.

The research questions of this study are elaborated in detail in this chapter. Following that, this chapter will discuss the problem statements and the research objectives aimed accordingly. The methodology is also discussed in this chapter with the elaboration on the data collection method in accordance to the scope of this study. Finally, the definitions of the key terms are provided at the end of this chapter before the outline of the thesis is discussed.



## **1.2) Construction Industry background**

### **1.2.1) Malaysian construction industry (MCI)**

According to Construction Industry Development Board (CIDB) Malaysia Country Report (2009) in 2009, the Growth of Malaysia Gross Domestic Product (GDP) of Malaysian construction sector managed to grow by 5.8% compared to 4.2% GDP value in 2008, in spite of the challenging economic climate in which is against other economic sectors. Construction growth rate was observed to be high due to the majority project per budget for development expenditure from the two stimulus packages.

The Malaysian economic stimulus package was announced by Deputy Prime Minister and Finance Minister, Datuk Seri Najib Razak in November 2008 in which these stimulus packages allocated RM7 billion Ringgit to maintain economic growth, reinforce Malaysian economy, and strengthen elasticity against economic recession. For construction industry, under these stimulus packages, the government allocated RM1.2 billion for construction of 25,000 homes for low and medium income groups (Economy Watch, 2011).

Furthermore, according to CIDB, 2009, the completion of a number of construction projects awarded in the earlier phases of the Ninth Malaysia Plan (9MP) are said to be a significant contributing factor to the strong growth of the construction sector for the year 2009. At the same time, the aggregate value of

construction projects is said to decline by 19.4% from RM85.25 billion in the year 2008 to RM68.6 billion in 2009. However, the number of projects grew by 1.4% from 6,443 projects in the year 2008 to 6,531 projects in 2009. This increment in terms of number of projects is indicated to be contributed by a higher number of smaller-value projects.

For the year 2010, the construction sector is anticipated to grow at least 4.9% or RM72 billion worth of construction projects value and for year 2011, the growth is forecast to moderately with 4.4% or at least RM82 billion projects value to be awarded.

In addition, CIDB (2009) indicated that the gap between the value projects of public and private projects also grew closer to each other with a ratio of 48:52 due to the fewer private projects launched in 2009 which were allocated under the two stimulus packages. Approximately 40% of the allocations in the two stimulus packages were allocated to the construction sector as the construction sector has proven to be capable of supplementing the other economic sectors.

The government, who is the public sector client, is observed to initiate the major development on social amenity projects in Malaysian construction industry, for instance educational projects and hospitals contribute about 34.5% or RM 15.4 billion), followed by infrastructure development projects with 20.1% or RM 9.0

billion from total project value by public sector, (CIDB, 2009; Ibrahim, et. al., 2010).

For private sector client, they added that development of the non-residential and residential projects is the main focus of this client sector with a total contribution of project value of 84.2% from the total value of private sector projects. In addition, Ibrahim, et al., (2010) and CIDB, (2009) report that large projects implemented by public client sector in 2008 were the Second Penang Bridge – Package 1 (RM 2.2 billion), KL – Kuala Selangor Expressway (RM958 million) and Johor Bahru – Nusajaya Offshore Highway (RM946million), contributing to construction industry growth.

The motivation that driving the idea to study the procurement systems in the construction field are affected by the problems, challenges and many issues occurred in the Malaysian construction industry recently. The condition of current procurement system needs to be studied since procurement system are said to be correlated with numerous problems and taken into consideration that Malaysian construction industry is one of the component that give huge impact on the national economy.

Like in other countries around the world, the Malaysian Construction Industry continues to face countless problems that threaten to spoil its development and hinder its sustainability if not addressed and managed effectively. The

construction sector continues to play an important role in the national economy, through the strengthening and enabling of the other sectors, while meeting the needs of basic infrastructure requirements and at the same time supporting social development. There are a few influential factors, in particular productivity and quality-related, time-related and cost-related factors that have created significant challenges to the development of the construction industry in Malaysia (Hamzah, 2003; Imtiaz and Ibrahim, 2005; Pratt, 2000; Rashid, et.al, 2006)

Furthermore, previous researchers notified that the construction industry has accomplished magnificent projects although some of the projects were not ‘cost’, ‘time’ and ‘quality’ effective (Hamzah, 2003; Imtiaz and Ibrahim, 2005; Pratt, 2000). They added that the Malaysian construction industry was also affected by an economic recession in 1997 when there was a financial crisis in the whole of Asia.

The financial crisis in 1997 resulted in excessive capacity and delay of major construction projects in Malaysia thus ceased the investments and activities in the construction industry (Ibrahim, et. al., 2010). Therefore, the introduction of different ‘fast-tracking’ project procurement systems is the industry’s effort to offer better deals to its clients or customers, as they start realising the ‘value for money’ of their projects in terms of cost, time, and quality (Rashid, et. al., (2006).

The Malaysian construction industry still depends on an old and traditional building technique while the other countries' major economic sectors have advanced in the use of modern technology. Zaini, (2000), notified that the Malaysian construction industry has not changed much since the 1960s in terms of the technology of construction despite a spectacular growth rate presented in the economic report. Furthermore, he added that the local construction industry needs to undergo a marked evolution in its development and maturity of old construction practices ( Hashim, et. al., 2006; Rashid, et. al., 2006; Ibrahim, et. al., 2010), management and technology need to be fundamentally upgraded to meet the standards of building performance for the future in transforming Malaysia into a modern and prosperous country.

According to CIDB, 2009, Malaysian construction industry has low profitability and does not invest enough capital in training, research and development. Many clients from public and the private sector are dissatisfied with the construction industry's overall performance and according to them, in general perception, the Malaysian construction industry is underachieving.

Notwithstanding the perception on the Malaysian construction industry, CIDB has come out with initiatives to enhance the productivity and effectiveness of the construction industry. The Malaysian Construction Industry Master Plan (CIMP) has recommended partnering as an approach to integrate the construction

industry's supply chain, improve client-customer relationship and enhance levels of productivity and quality of construction project implementation (CIDB, 2009).

Furthermore, through Strategic Thrust 2 (ST2) from seven strategic thrusts, this plan acts to focus on strengthening the image of the Malaysian construction industry. Under the three recommendations under the ST2, it includes the increasing effort on the Procurement to Pay (P2P) strategy in tendering and contracting practice. In addition, the programme was established to enhance the knowledge, efficiency and effectiveness of the Malaysian construction industry service and commercial business entities. This effort was accomplished through the development and improvements of the various construction hardware, strategic instruments and identification of specific best procurement practices in the process of managerial tendering and contracting. Moreover, efforts in enhancing this programme also includes the development of a standard form of contract, improvements on existing contract forms, development of a standard measurement method, development of a standard specification, and a study conducted on determining the best practices in tendering and contracting administrative process are in line with its promotion to industry players.

Recently, New Economic Model (NEM) has been launched by the Prime Minister of Malaysia and Minister of Finance, YAB Dato' Sri Mohd. Najib Tun Abdul Razak in the budget 2010 speech in October 2009, as one of the efforts to robust the economy. To achieve the Vision 2020, which aims on Malaysia as a

fully developed country, the main goal of the NEM is that Malaysia will become a high income advanced nation with inclusiveness and sustainability by 2020.

Dato' Sri Mohd. Najib Tun Abdul Razak emphasized the NEM comprises of high-skilled human capital, efficient in public services, a strong private sector and equal opportunity for all Malaysians. He also stated that through the Public Private Partnership (PPP), and a renewal of government processes to spark growth, are a sign of a commitment to reform and position the country, the workforce, the companies and the future generations for the challenges of a competitive global economy.

### **1.3) Procurement systems**

#### **Definition of procurement system**

There are many definitions on procurement given by previous scholars. Ashworth, (1990) defines procurement system as something to do with the type of contract, obligation rights, and liabilities of the parties involved that is between clients, consultants and contractors. According to Turner, (1990), procurement is simply defined as the construction constituents of three important parties that are clients, consultants and contractors who can fit together to provide practical guidance on the decisions to choose the actual procurement route.

In earlier days, Malaysia inherited the procurement systems from the British (Jaafar and Aziz, 2006 and CIDB, 2009) .Thus, traditional procurement system has been practiced

by public sectors to develop their projects. As for the private sector, they learned from the public sector practices. In 1990s, Malaysia adapted new procurement systems to cope with the increasing number of projects implemented and complexity of buildings and infrastructure projects to support the country's growth. This has led to the arising of many new procurement systems such as Turnkey, D&B, Project Management Consultancy (PMC), Package Deal, Build-Operate and Transfer (BOT), Job Order Contracting (JOC), Cost Plus and many more. Among the popular practices are Design and Build (D&B), Build, Operate and Transfer (BOT) and Project Management Consultancy (PMC) (Jaafar and Aziz, 2006).

According to Rashid, et. al., (2006), it is important to carefully consider all factors when selecting the procurement type used at the very beginning of the project. This is because different procurement systems will have different effects on cost, time and quality of the project and each of the systems own exclusive characteristics in terms of the pre-tender and post-tender activities, distribution of risks between clients and contractors, and the effectiveness of project monitoring and control. Alhazmi, et. al. (2000), elaborated that the importance of evaluating the procurement systems by comparison is to provide the public and private sector clients the opportunity to minimise the problems hence maximising the advantages of each system.

Previous studies on procurement systems have observed the weaknesses and the advantages of using each of the procurement systems. Problems have been recognized and the government has initiated solutions to overcome these problems but still the



problems in construction increases every year. Among the previous studies and reports that investigate the disadvantages and the problems on procurement systems are Love, et.al (1997); Gould (1997); Masterman, (2002); Smith, et.al. (2004); CIDB, (2006); Mustaffa and Hashim (2007), Ofori, (2007); Ling and Poh, (2008); Marzouk, et. al., (2008); Toor and Ogunlana (2008) ; Jaafar and Aziz, (2009) and Chang, et. al., (2010). Besides that, Brandmeier, (2010) has done a study on the success factor of procurement process.

#### **1.4) Problem statement.**

In Malaysia, studies on application of procurement systems have been done by Hasyim, et.al, (2006); Rashid, et. al., (2006); Seng and Yusof, (2006); and Jaafar and Aziz, (2009). Since 1990s, researchers have conducted many studies to look into the effectiveness of various types of procurement systems such as Love, et.al., (1997); Rashid, et.al., (2006); Hamzah, et.al., (2006); Roodhofs and Abbeele, (2006); Songer, et.al., (1997); Alhazmi, et.al., 2000). It has been observed that different countries use different procurement systems. For example, in UK, the use of traditional procurement systems is popular but not in US as the D&B is the system that is mostly used by them. The construction industry practices can contribute a significant factor in influencing the suitability of procurement systems used in each country.

In the middle of the 1990s, due to a high increase of projects to support the nation's growth, there were tremendous changes on the practices applied in the Malaysian construction industry. There was a high demand towards faster project completion and

speedier delivery of the project with an early start of construction work on site, certainty of performance in terms of cost, quality and time, minimal exposure to risk and early confirmation of design and price or cost which is said to be 'value for money' (Rashid, et. al., 2006).

One of the significant changes that happened is the determinant of the use of various procurement systems in Malaysia as an alternative to the traditional procurement system. However, this move is justified to have a relation with the move in other countries such as UK, (Davis, 1995) and US (Tulacz, 2002; Marwa, 2006; and Hale, et. al., 2009) with a target of achieving good project outcomes. However, there are cases in which evidence shows that the new procurement system cannot guarantee the best delivery system. For example, based on the review by Jaafar and Aziz, (2009) and Hashim, et. al., (2006), these two systems which are the alternative system, Design and Build (D&B) and management based procurement, Project Management Consultant (PMC) failed to deliver a quality-satisfied building. The consequence of this is, PMC has been excluded by Ministry of Education for project implementation under Ninth Malaysia Plan (9MP). The implementation of 13 hospitals under D&B and Turnkey which are said to be under the Alternatives system in 1990s were also completed with hundreds list of defects (Jaafar and Aziz, 2009; Hashim, et. al., 2006).

In addition to that, Malaysian construction industry also suffered from many critical problems such as late project completion, clients' have to bear additional costs, late payment issues, low project quality and low client's satisfaction due to high number of

defects for completed works (Jaafar and Aziz, 2009). Ibrahim, et. al. (2010) observed that in the end of 2004, major development projects face problems such as delays in construction time and cost escalation and structural defects were said to be found in school buildings and community college buildings. Furthermore, they concluded that these problems are said to be connected to PMC, which supervises and manages government projects. In addition, the system failed to control costs, design and scope of those projects, thus resulting in higher costs. It has been mentioned that the problems of construction industry regarding the procurement system were fraught with delays in approval of projects, uncompleted projects, and poor quality of work, cost overruns and late payment to contractors.

Public and private sectors of the construction industry suffers from changes lately (Jaafar and Aziz, 2009). However, many issues arise focusing on the public sector project failures compared to private sector. This is because the public sector uses public money that can be questioned in terms of accountability (Hashim, et. al., 2006) whereas private sector money will only involve their stakeholders. The trend of procurement studies in other countries also chooses to focus on public sector compared to private sector such as Alhazmi, et. al., (2000); Songer, et. al., (1997); Thai, K. V. (2001); Laedre, et. al., (2006); Marwa, et. al., (2006). In contrast, very seldom have studies been done on the comparison between public and private sector (Smith, et. al., 2004 and Hashim, et. al., 2006).

Procurement system in Malaysia has undergone 3 important stages of construction:-

- 1) In mid 1990's, when the construction industry growth was maximum, public sector using the PWD/JKR contract could not cope with a high number of public projects. A new procurement system was introduced such as PMC.
- 2) After the recession in late 1990's, when the industry demanded faster project completion, procurement systems with speedier time delivery such as D&B and PFI were initiated.
- 3) In 2000, the Industrialised Building System (IBS) was introduced as the fastest delivery system and this was in line with the government efforts to face the challenges in competitive global economy.

The new economic model requires the private sector to play a heavy role in order to push up the Malaysian construction economy. These changes have affected the procurement system used by the public and private sector clients and yet have not been researched by any parties.

According to Ibrahim, et. al., (2010), most of the literature on the problems faced by the construction industry are available globally but in the local construction industry, academics and practitioners only ran a small number of research on the problems faced. He further added that, there is a gap in the literature on the problems faced by the Malaysian construction industry, and also for developing countries in local and international journals, conferences, and conventions with very few writers having written on the problems in the MCI such as: Abdul Rahman and Alidrisyi (1994), Abdul

Rahman et. al., (2005), CIDB (2003), Hamzah Hassan (2003), Imtiaz and Ibrahim (2005), and Pratt (2000).

As there have been many changes happening in relation to the usage of procurement system in Malaysia, it is interesting to look into the impact of procurement types used in the industry. Many proofs from different researchers highlighted a list of procurement related issues arising in the construction industry. Adopted procurement system from the British does not guarantee the efficient application in Malaysian construction industry because it has to suit the local environment. Thus, previous procurement systems used especially in public sector have created many problems such as abandoned projects, Ali Baba contractor's issues, project delays and many more. The problems that arise in private sector are less reported because they will ensure that the client's 'value for money' matters.

### **1.5) Research Objectives**

The main objective of this research is to identify the applicability of procurement systems used in private sector compared to public sector in Malaysian construction industry. In addition to that, this study will explore on the problems, preference and satisfaction of construction industry players. The objectives of this study are:

- 1) To identify the most used procurement system by both public and private sector clients in Malaysian construction industry.
- 2) To identify the problems that arises from the selection of the procurement system used between both sectors.

3) To identify the level of satisfaction for each of the procurement used between both sectors.

4) To identify the preference of procurement system by both sectors.

### **1.6) Research Questions**

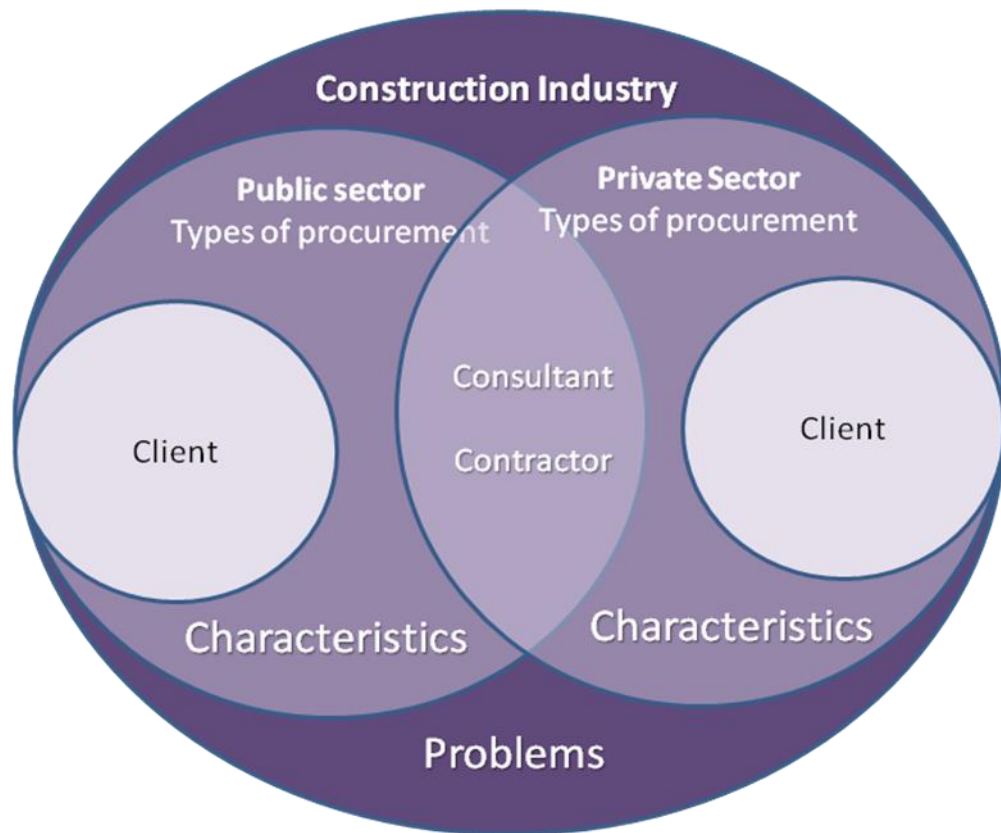
The research questions that need to be addressed in this study are:

- What is the most used procurement system by the public and private sector clients?
- What are the problems that arise from the selection of the procurement system between both sectors?
- What is the level of satisfaction for procurement used between both sectors?
- Which types of procurement systems are the most preferred by both sectors?

### **1.7) Scope of study.**

In this study, the main players of the Malaysian Construction Industry environment are the clients, consultants and lastly the contractors ( Ashworth, 1990; Turner, 1990). Walker, (2002), agrees that clients vary in many ways and particularly important is the satisfaction in achieving their various objectives and these differences are particularly marked between public and private clients. Hewitt, (1985) and Masterman, (1989) argue that the behavior of the client is different when procuring building projects and this basic difference exists between the ‘Public’ and ‘Private’ sectors. Masterman, (2002) further explained that these two sectors are different as a reflection of ownership or source of funding of the projects establishment. The problems exist on each procurement system

are caused by the reflection to the behaviour of both clients while procuring the difference procurement system. The scenario of the Malaysian construction industry is illustrated in Figure 1.1 below:-



**Figure 1.1: Scenario of Malaysian construction industry.**

## **1.8) Definition of key terms**

### **1.8.1) Procurement system**

This study will adopt the definition of procurement system given by Ashworth, (1990) as something to do with the type of contract, obligation rights, and liabilities of the parties involved that is between clients, consultants and

contractors. Procurement system also covers the public and the private sector clients.

### **1.8.2) Public sector client**

Public sector client is the owner of the project in which they have the obligation to spend the public money properly and wisely in compliance to a set of rules and regulations. Public client sector usually are Government bodies in the Construction industry such as Public Work Department (JKR), local authorities such as Dewan Bandaraya Kuala Lumpur (DBKL) and Majlis Perbandaran Pulau Pinang (MPPP) and semi government for instance Urban Development Authority (UDA), State Economic Development Corporation such as Federal Land Development Authority (FELDA), South Kelantan Development Authority (KESEDAR) and Sarawak Economic Development Corporation (SEDC).

### **1.8.3) Private sector client**

The Private sector client is the owner of the project in which is not encumbered by any procurement rules as long as it is legal and ethical and has much more freedom when proceeding with a project. The private sector client in the context of this research can be characterised as companies carrying out the projects to fulfil their own requirements and those carrying out the projects to be let or to be sold, which are usually known as developers.



#### **1.8.4) Problems of procurement**

For the purpose of this study, the concept of ‘problems’ of procurement in this study can be defined as, the main cause of procurement failures that occurs with the existence of the weaknesses and disadvantages that the procurement system owns. Problems are also called as ‘drawbacks’ or ‘constraint’ which means the limitation or restrictions imposed on the processes of obtaining construction projects (Rashid and Morledge, 1998)

#### **1.8.5) Satisfaction.**

Satisfaction defined in this study is in accordance with Chan, et.al. (2002) as the level of “happiness” of people affected by a project and the people involved include the key project participants for instance the clients, architects, contractors, various subcontractors, surveyors and engineers, end-users, and third parties . Torbica and Stroh, (2001) believed that if end-users are satisfied, the project can be considered successfully completed.

#### **1.8.6) Procurement preference**

Procurement preference is defined by Mortledge, et. al., (2006) as the procurement selection by experienced clients that has previously performed perfectly for them, or they think to be suitable when considering their main concern of objectives and attitude to risk. They added that the selection of an appropriate or preferable procurement strategy has two components that is analysis process (includes the process of assessing and establishing priorities for

the project objectives and client's attitude to risk) and secondly choice ( considering possible options, evaluating them and selecting the most appropriate system).

### **1.9) Outline of the thesis**

This thesis is divided into five chapters as below:

Chapter 1 of this thesis presents the overall introduction view of the research. It examines the background of research problems, the aims and objectives of the research that are formulated based on area of study. The theoretical framework and the formation of research questions are illustrated and discussed in this chapter.

Chapter 2 will discuss the literature review of the procurement systems available in Malaysian construction industry. The types of procurement mostly used and preferred are observed in this chapter and the literature will highlight the problems and factors influencing the selection of the procurement used and preferred.

Chapter 3 will review the structure of research methodology. Methods used to evaluate the data gathered will be discussed in this chapter. A set of diagram of the research design and research methodology is represented in this chapter.

Chapter 4 of this thesis will discover the information gathered from the respondents through questionnaires. Mixed method which includes the quantitative and qualitative

methods was used in this study. Quantitative approach is to be used in this research study based on the frequencies, ranking questions on a Likert Scale and close-ended questions. Number and group of respondents will be clearly identified in this chapter. Statistical Package for Social Sciences (SPSS) version 10.0 will be used to analyse the quantitative data. Qualitative approach is to be used in capturing the interview sessions of this study. Both data will be synthesized and critically evaluated.

The chapter 5 will discuss the whole study based on the findings and strategies on how to achieve the objectives as we aimed earlier on in this study. A comparison between the literature review and data analysis will be made in this chapter.

Finally, chapter 6 will cover the conclusions and recommendations for future study. Some recommendations will also be generated from the findings and the limitations during the research period will also be highlighted.

### **1.10) Summary**

Generally, the aim of this study is to observe the problems that arise from the usage of procurement systems in Malaysia between both sectors, public and private. The next chapter will elaborate further on the Procurement system revolution, and the usage of procurement routes in Malaysian construction industry with help from previous studies on problems and characteristics of each procurement system applied in this study.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1) Introduction**

This chapter reviews previous studies and researches related to procurement system. The first part of this chapter discusses on the involvement of private and public client sector in the construction industry, followed by a definition of procurement system. The evolution of procurement in general as well as in Malaysia will be discussed accordingly. The adoption of procurement system from colonial countries plays a significant impact on the development of procurement routes in Malaysia. Public and private sectors prefer and practice different types of procurement in their project implementation. Their procurement selection is influenced by procurement criteria such as problems and level of satisfaction that will be discussed in the last part of this chapter.

#### **2.2) Different client's sector in the Construction Industry**

According to Turner, (1990), building clients can be categorized in several ways:- individuals, group or partnership of people, corporate bodies, private and public clients, clients who build once and rarely, those who build often, those who build for owner occupation, those who build for investment or as developers, and those who act as agents or agencies for those who will eventually occupy the building. Masteman, (2002), defines the client as 'the organisation, or individual, who commissions the activities necessary to execute and complete a project in order to satisfy its/his needs and then to enter into a contract with the bespoke parties.

Looking at the various categories of clients, Masterman,(2002) categorized the clients of the construction industry as ‘public’ and ‘private’ organizations. Hewitt, (1985) and Masterman, (1989) argued that the behavior of the client is different when procuring building projects and this basic difference exists between the ‘Public’ and ‘Private’ sectors. Walker, (2002), agreed that clients vary in many ways and particularly important is the satisfaction in achieving their various objectives and these differences are particularly marked between public and private clients. Masterman, (2002) further explained that these two sectors are different as a reflection of ownership or source of funding of the organization.

Roodhooft, and Abbeele, (2006) found that the procurement process of consulting services in the public sector differs significantly from that of the private sector. Pottinger, (1998) found that different approaches exist between the public and private sector but both sectors showing the signs of similarity.

### **2.2.1) Public sector clients**

‘Public’ owners have the obligation to spend the public’s money properly and wisely, following a set of rules and regulations. The awarding of the project usually based on lowest responsible and responsive bidder. Public sector organisations exist for the ultimate benefit of the citizenry, the public (Gould, 1997) such as hospital and schools. Mahmood and Mansor, (1996) define public sector clients as some of the government bodies directly related to the Construction industry such as Public Work Department (JKR), local authorities

such as Dewan Bandaraya Kuala Lumpur (DBKL) and Majlis Perbandaran Pulau Pinang (MPPP) and semi government for instance Urban Development Authority (UDA), State Economic Development Corporation such as Federal Land Development Authority (FELDA), South Kelantan Development Authority (KESEDAR) and Sarawak Economic Development Corporation (SEDC). This type of client has been identified as the main contributor on the usage of traditional system.(Hashim, et. al., 2006)

### **2.2.2) Private sector clients**

Mahmood and Mansor (1996) describe private sector clients as, in the context of construction industry in Malaysia, can be divided into 2 groups, i.e. companies carrying out the projects to fulfill their own requirement and those carrying out the projects to be let or to be sold, which is usually known as developers. The 'Private' owners are not encumbered by any procurement rules as long as it is legal and ethical (CIDB News, 2007). Gould (1997) agreed with this and suggested that the private sector has much more freedom when proceeding with a project. This type of client is also identified to choose traditional procurement more than other procurement types (Hashim, et. al., 2006). As an example, private sector clients in Malaysia are Johawaki, Talam Corporation and Binaraya PKINK SDN. BHD.

### **2.3) Definition of procurement System.**

Ashworth, (1990) defines procurement system as something to do with the type of contract, obligation rights, and liabilities of the parties involved that is between clients, consultant and contractors. According to Turner, (1990), procurement is simply defined as the construction constituents of three important parties who are the client, consultants and contractors who can fit together to provide practical guidance on the decisions to choose the actual procurement route. Masterman, (2002) defines the procurement process development based on the International Commission on Building (CIB W92) as a strategy to satisfy client's development and/or operational needs with respect to the provision of constructed facilities for a discrete life cycle.

In more detail, Rashid, et. al. (2006) describe the term procurement which comes from the word 'procure' that literally means 'to obtain by care or effort', 'to bring about', or 'to acquire' while system brings the definition of 'organised method, technique, approach, process or procedure'. The combination of these words produced a phrase 'Procurement System' that brings the meaning of 'organized methods or process and procedure of obtaining or acquiring a construction process product such as house, shopping complex or road'. This phrase can clearly picture the scenario where the process involves a group of people who are brought together and organized systematically in terms of their roles, duties, responsibilities and interrelationship between them in 'obtaining' a building by a client.

According to Masterman (1996), project procurement can be defined as the organizational structure needed to D&B construction projects for a specific client. Detailed description on each procurement system will be covered in sub section 2.5.

## **2.4) The evolution of procurement system**

### **2.4.1) Evolution and application of procurement systems in UK.**

The extensive majority of construction projects prior to the Second World War from 1939 till 1945 were executed by traditional procurement system and it remains virtually unchanged for over 150 years. However, in general, there are four phases of the development of procurement systems which are the phase of sustained economic growth, period of recession, post-recession recovery and lastly the final period or the last decade (Hashim, et. al. 1999; Masterman, 2002).

The first phase is known as a phase of sustained economic growth where the usage of traditional system still predominates among the other procurement types (Hashim, et. al. 1999; Masterman, 2002). For most of the 20<sup>th</sup> century, procurement systems have generally followed the traditional system, in which this system requires clients to engage with separate organisations for three key services that are design, cost advice and construction (Park, et. al., 2009). In reality, they added that the traditional system often becomes a design-bid-redesign-rebid-build project thus budgets prepared by owners tend to refract from the actual construction costs which results in expensive redesign work. One