PRIVATE SECTOR'S PERCEPTION OF THE RISK ALLOCATION IN PUBLIC-PRIVATE PARTNERSHIP (PPP) ARRANGEMENT

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A project report submitted in partial fulfilment of the requirements for the award of Bachelor of Science (Hons.) Quantity Surveying

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April 2012

DECLARATION

I hereby declare that this project report is based on my original work except for citations and quotations which have been duly acknowledged. I also declare that it has not been previously and concurrently submitted for any other degree or award at UTAR or other institutions.

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APPROVAL FOR SUBMISSION

I certify that this project report entitled **"PRIVATE SECTOR'S PERCEPTION OF THE RISK ALLOCATION IN PUBLIC-PRIVATE PARTNERSHIP (PPP) ARRANGEMENT"** was prepared by **LAU SIEW SOON** has met the required standard for submission in partial fulfilment of the requirements for the award of Bachelor of Science (Hons.) Quantity Surveying at Universiti Tunku Abdul Rahman.

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Supervisor : _____

Date : _____

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ABSTRACT

The implementation of Public-Private Partnership (PPP) in local construction industry is not entirely new where the conceptual principal of PPP had been implemented in the 1980s. Since the current PPP projects are largely involving large and complex projects, a study on risk allocation is necessary. This research is meant to obtain the private sector's opinion on their preferred risk allocation in order to collaborating together with the Government in a typical PPP arrangement. A literature review is conducted where this research reveals on the introduction of PPP worldwide, then in Malaysia. Next, involvement of private sector in PPP projects is studied before the allocation of risks to parties are studied from two perspectives, the Government and the private sector in allocating and accepting the risks from each other. In order to identify typical risks available in PPP arrangement, a preliminary research is conducted by referring to nine previous researches. The research is conducted through online survey where 147 respondents had been randomly selected within Klang Valley area with 32 feedbacks being successfully collected. It is found out that apart of allocation of risks, they will also consider on the profitability of the proposed projects upon participating in a PPP arrangement. The private sector rated "design and construction" risk that will give the most impact in the PPP project. They are still not willing to allocate majority of the risks to their side where most of the typical risks are to be shared between both parties. In term of acceptability of the risks, they were willing to accept risks related to "design and construction" and also "Operating" compared to other risks. Hence, this study shall be involving a larger amount of respondents in order to obtain a more thorough opinion on their preferred risk allocation, as well as identifying the Government's preferred risk allocation.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 General introduction

Risk allocation is defined as "a primary measure of assignment between the projects' direct participants that is between the public and private sector, excluding the end users" [1]. Risks in a procurement approach usually occur due to the lack of financial resources and inability of producing exceptional level of skills to manage a project. Introduction of Public-Private Partnership (PPP) procurement approach is seen as a solution to eliminate the possibilities of contributing more damages to the financial health as well as increasing the level of skills needed. Over the past several decades, governments have turned increasingly to PPP as a way of financing, maintaining infrastructure and providing public services in the face of budgetary challenges [2]. In Malaysia, Public-Private Partnership Unit (3PU) has been established to manage the said budgetary. PPP is operated in a concept where the investment, risk, responsibility, and reward are shared between the public and private sector [3].

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[1] Bing. L. et al. (2005). The allocation of risk in PPP/PFI construction projects in the UK. *International Journal of Project Management 23*, 25-35.

[2] Center for Democracy and Technology. (2006). Public-private partnerships, e-Government and Privacy. *Working Paper November 2006*.

[3] Khairuddin, A.Z. (2010). PPP Guidelines: A conceptual framework. *Seminar on 'Malaysia's PPP'*.

Local construction industry usually contributes works and activities that involve higher risks compared to other types of economic activities in Malaysia [4]. The existence of risks alone is not possible to be eliminated in any procurement system where parties involved in a particular construction project had to bear a considerable amount of allocated risks in order to ensure the success completion of the projects. Several procurement approaches in general had been designed to provide a fair risk allocation among the parties involved in the projects which is agreed by all the parties involved. The amount of risks to be allocated to a party differs depending on the nature of each procurement approach. For instance, risks under traditional approach are allocated more towards the Client or Employer whereas Contractor bears most of the risks under Design and Build (D&B) approach. Therefore, handling risks in PPP procurement approach proved to be very crucial as improper risk allocation will have a negative impact on the successful completion of a PPP project in term of time, cost and quality [5].

The existence of various risks and uncertainties often holds the government back as well as increasing the possibilities of the declaration of bankruptcy by the private sector [6]. Both parties must be certain on their allocated responsibilities and risks by where it is more favourable for a risk to be allocated to parties that are capable of handling it. The allocation of risks should be clearly communicated and understood between the parties involved since transparency and accountability is regarded as critical in the PPP programme [7].

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4 Abdul Rashid, K. (2002). *Construction Procurement in Malaysia* (First ed.). Research Centre, International Islamic University Malaysia: Perpustakaan Negara Malaysia.

5 Hashim, N.H. (2010). Practical Risk Management Framework in Project Development. *Seminar on 'Malaysia's PPP'*.

6 Xu, Y. et al. (2010). Developing a risk assessment model for PPP projects in China - A fuzzy synthetic evaluation approach. *Automation in Construction 19 (2010)*, 929-943.

7 *Transparency and accountability vital factors in public-private programmes.* (2011, March 4th). Retrieved June 10th, 2011, from http://www.thecommonwealth.org/news/234697/040311ppp.htm

Under PPP, the responsibility to finance and manage a package of capital investment, services and replacement of public sector assets is usually transferred to the private sector [8]. Hence, it is essential for public clients and private bidders to evaluate all of the potential risks throughout the whole project life [9]. Public and private sector bodies must pay particular attention to the procurement process while negotiating contracts for a PPP to ensure a fair risk allocation between them [10].

1.2 Rationale of the research

Private sector here bears the risks to ensure that the development performance is successfully delivered. Previous researches mentioned that the risks under PPP construction projects still had to be transferred to the private sector to ensure that the private developers took their responsibilities seriously [11][12][13]. Hence, the impact of risks in completing a PPP project is very significant where researches on the risk management and preferred risk allocation shall be conducted to explore the most appropriate ways for managing the important risks associated with PPP projects [14].

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[8] Public-Private Partnership Unit (3PU) (2010). *Public Private Partnership (PPP) Guideline.* Putrajaya: Prime Minister Department.

[9] Ke Y., Wang S., Chan A.P.C. and Lam P.T.I. (2009). Preferred risk allocation in CHina's public-private partnership (PPP) projects. *International Journal of Project Management 28 (2010),* 482-492.

[10] Chan A.P.C., Lam P.T.I., Chan D.W.M. and Cheung E. (2008). Risk-sharing mechanism for PPP projects - the case study of the Sydney Cross City Tunnel. *Surveying and Built Environment Vol. 19(1),* 67-80.

[11] Abdul Aziz, A.R. & Jahn Kassim, P.S. (2011). Objectives, success and failure factors of housing public-private partnerships in Malaysia. *Habitat International 35,* 150-157.

[12] Dixon, T., Pottinger, G. and Jordan, A. (2005). Lessons from the private finance initiatives. *Journal of Property Investment and Finance,* 23 (5), 412-423.

[13] Grimsey, D. and Lewis, M. (2002). Evaluating the risks of public private partnerships for infrastructure projects. *International Journal of Project Mangement,* 20:2, 107-118.

[14] Tang, L. et al. (2004). A review of studies on public-private partnership projects in the construction industry. *International Journal of Project Management 28 (2010),* 683-694.

Based on the author's knowledge, currently there is no similar research been conducted related to the preferred risk allocation to parties involved in local PPP projects. Therefore this research is meant to find out the preferred risk allocation in the opinion of the private sector towards the implementation of PPP procurement approach in local construction industry.

1.3 Aim and objective of the research

This research aims to provide a guideline on the risk allocation between the Government and the private sector. The result of this research can be used by the Government to configure and identify several new approaches to encourage more participation from the private sector through better allocation of the risks.

Hence, the objective of this research is:

- To study the risk allocation in the opinion of the private sector in local PPP construction projects.

1.4 Research strategy

In order to achieve the aim and objective of this research, a proposed research strategy, comprising of 4 stages will be followed, as shown in Figure 1.1.

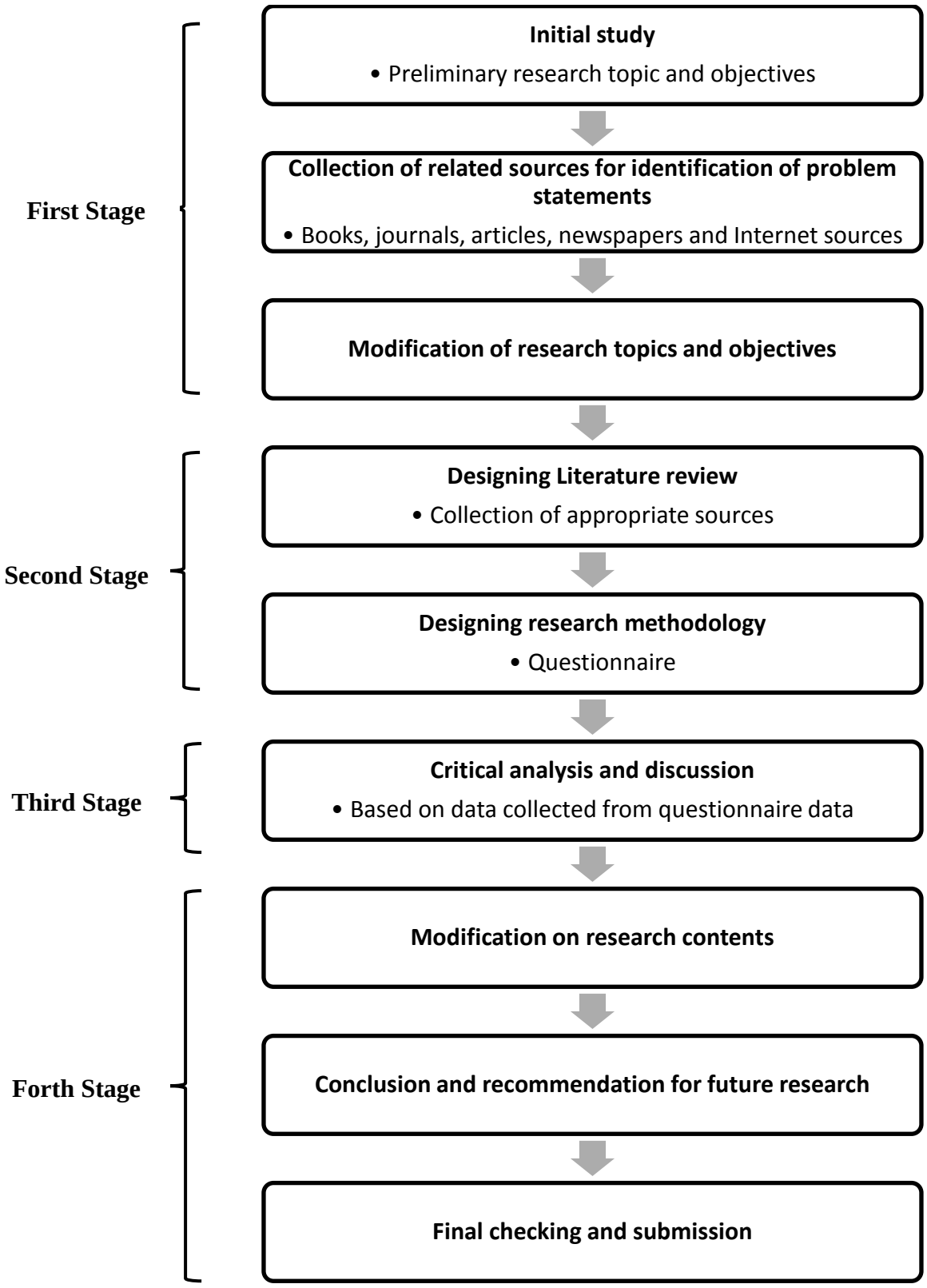

Figure 1.1 : Research Strategy

1.4.1 First stage of research strategy

Initial study is conducted in order to identify the suitable research topic during the first stage of the research strategy. Appropriate areas of researches are enlisted for selection based on the author's preference. The author identifies 2 scopes of issues which are issues related to PPP procurement approach and the risk management to be merged into a research topic. The preliminary design of the aim and objectives of this research is planned after the consultation with the author's supervisor.

Identifying the problem statement for this research is very crucial to ensure that the proposed research topic can be conducted as well as determine the probable research methodology and analysis to be conducted. Therefore collections of related sources, such as books, journals, articles, newspapers and internet sources are necessary for the identification of problem statements.

Several discussions with the author's supervisor are done regarding to the suitability of the problem statements, together with the proposed aim and objectives. Then the earlier proposed research topic and objectives are modified to suit the approved problem statements.

1.4.2 Second stage of the research strategy

After the approval of the research's aim and objectives, the literature review is conducted through the collection of various resources. Literature review is a research method where the collections of sources are to be combined and analysed critically to ensure that the collected reviews match with the proposed research scope. Most of the contents in the literature review are supported by various sources to support the validity of the statements. In designing the literature review, two types of sources data are identified, namely the primary and secondary data.

The primary sources provide the most accurate information as the sources are published in original and accepted by public. The primary data consisted of the journals and articles, mainly the researches that are published in the International Journal Management Report and also several conferences that are related to the area of this research.

The secondary data meanwhile consists of the researches that are cited from the original sources, such as reference books, newspaper articles and data from the Internet sources.

After identifying the selected area to be covered in the literature review, the preliminary proposal of the research methodology designed. The primary way of conducting this research methodology is through questionnaire survey. Approval of the questionnaire structure from the supervisor is necessary before the distribution.

1.4.3 Third stage of the research strategy

A preliminary research is conducted to identify typical contents that are appropriate and suitable to be included into the questionnaire structure. In this stage, questionnaire surveys that are successfully received from the selected respondents are critically analysed.

The research analysis is conducted through the combination of 2 elements, which are the findings and discussions. For the findings section, all the data collected from the respondents are transferred into diagrams, figures and tables for the purpose of clearer data presentation. For the discussions section, the analysis of the collected data is conducted together with several arguments to support the analysed data.

1.4.4 Forth stage of the research strategy

The last stage of the research strategy consists of the modification of the research contents, proposing a conclusion and recommendation through the conducted research and final checking for submission.

Modification of the research contents is necessary to be conducted in case the contents designed earlier cannot reflect the aim and objectives of this research clearly. After the completion of the findings and discussions, appropriate conclusion is proposed. Recommendations that the author proposes for future researches are then identified. This is followed by the final checking on every element in this research before the submission date.

1.5 Scopes and limitations

The scopes of this research are limited to;

- The private construction firms which are located within Klang Valley area.
- The private firms that are operated under architectural, engineering, contractor, developer and quantity surveying nature.

Their previous experience in the involvement in PPP projects are not considered as the primary purpose of this research is to obtain their opinions in the allocation of risks in PPP projects.

1.6 Chapters' organisation

The chapters' organisation for this research is to be arranged in the sequences as shown in Figure 1.2.

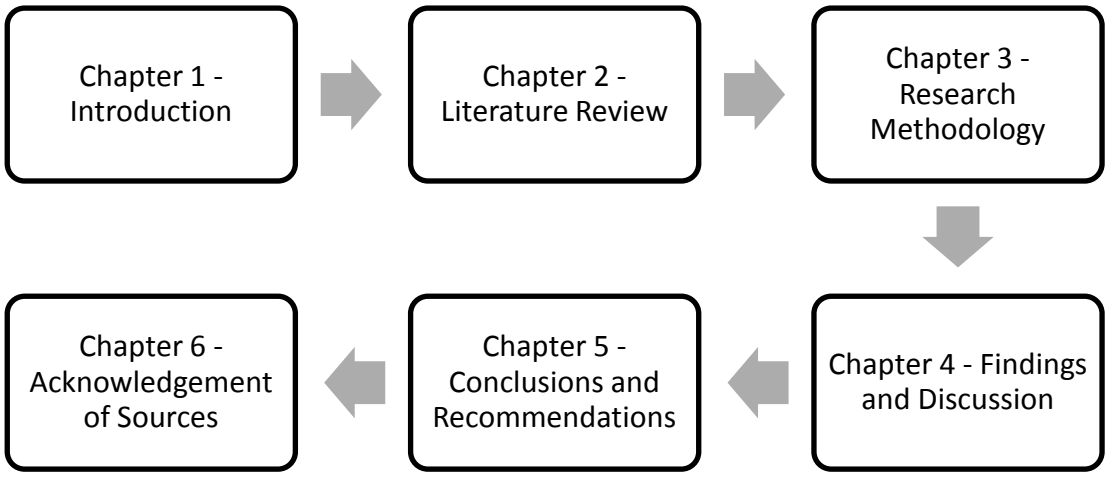

Figure 1.2 : Chapters' Organisation

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction of PPP concept worldwide

Public projects under the conventional procurements often bring several disadvantages to the Government. This is because without any collaboration with other parties, the Government, as the Client has to bear almost all of the risks that might occur during the implementation of the public projects without any support from other parties.

Traditional procurement system for instance allocates all the risks to the Client's side where the Client is in direct contractual relationship with all the parties involved such as general consultants and main contractors. Government together with the public sector had to bear all the costs arise due to the delays and cost overruns, which were very common in this conventional procurements [15]. In the end, the public interests suffer the losses due to the delay of the affected projects. Government has to plan well the financial management as the financial resources for the Government-initiated projects are mostly sourced from the public taxes. To find better alternative, Government had to adopt another approach due to global

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[15] British Malaysian Chamber of Commerce. (2009). *Private Finance Initiative: From the UK to Malaysia*. Retrieved May 25, 2011, from http://www.bmcc.org.my/index.php?option=com_content&task=view&id=389&Itemid=59

competition, savvy and knowledge customers, increasing amount of public debt, rapid infrastructure development and demand for increasing standard [16][17][18] .

The world is changing drastically where most of the countries started to focus on their developments to boost up their economic growth. The development activity will not get active from the Government alone. Existence of private sectors in the affected developments is very decisive in determining the development status of that particular country. Hence the existence of the private sectors in Government-initiated projects shall able to contribute to rapid development process through the financing of the projects which results in the emergence of the PPPs [19].

The PPP concept however is not entirely new. The conceptual term of PPP had been firstly introduced by UK Conservative government since 1992 under the title of Private Finance Initiative (PFI) [20]. The implementation of PFI in UK's construction projects proved to be a success where only 22% of the PFI projects experiencing cost overruns whereas 88% of projects had been successfully delivered on time (See Figure 2.1 and 2.2). It reduces the possibility of cost overruns which usually happened under conventional approach The implementation of PPP probably brought the highest level of significance and worldwide trend in the public sector [21].

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16 Broadbent, J. and Laughin, R. (2003). Public private partnerships:an introduction. *Accounting, Auditing & Accountability Journal*, 16 (3): 332-341.

17 Ramesh, M. and Howlett, M. (2006). Globalization and the choice of governing instruments: The direct, indirect and opportunity effects of internationalization. *International Public Management Journal*, 8 (3): 175-194.

18 Bradford, N. (2006). Public-private partnership: Shifting paradigms of economic governance in Ontario. *Canadian Journal of Political Science*, 36(5): 1005-1033.

19 The World Bank and the International Finance Corporation (IFC). (1992). *Investing in the Environment.* Washington D.C.: The World Bank.

20 Sciulli, N. (2009). Measuring Compliance with Public Private Partnership Policy. *International Review of Business Research Papers* , 5 (2): 340-348.

21 Garvin, M.J. and Bosso, D. (2008). Assessing the effectiveness of infrastructure public-private programs and projects. *Public Works Management & Policy*, 13: 162-178.

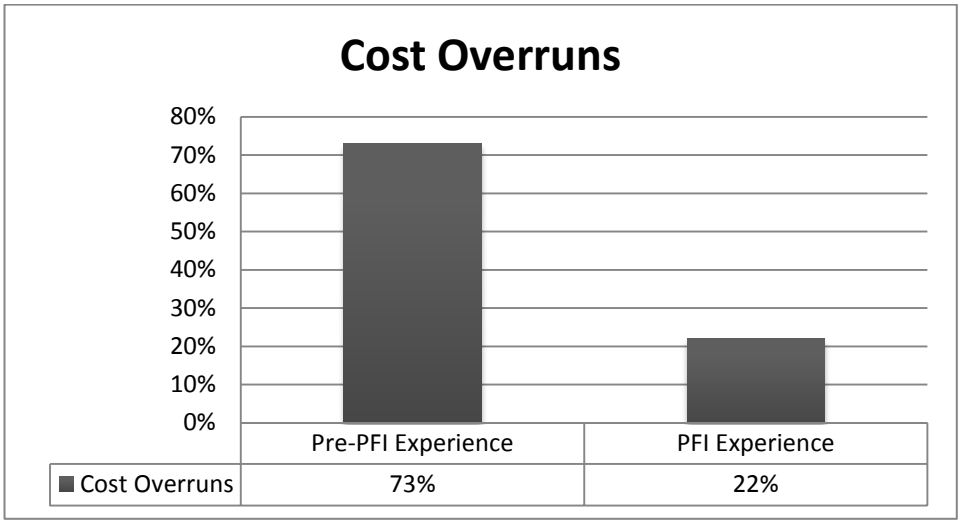

Figure 2.1 : Significance of PFI in term of cost overruns in UK

(adopted from Elkhouly [22])

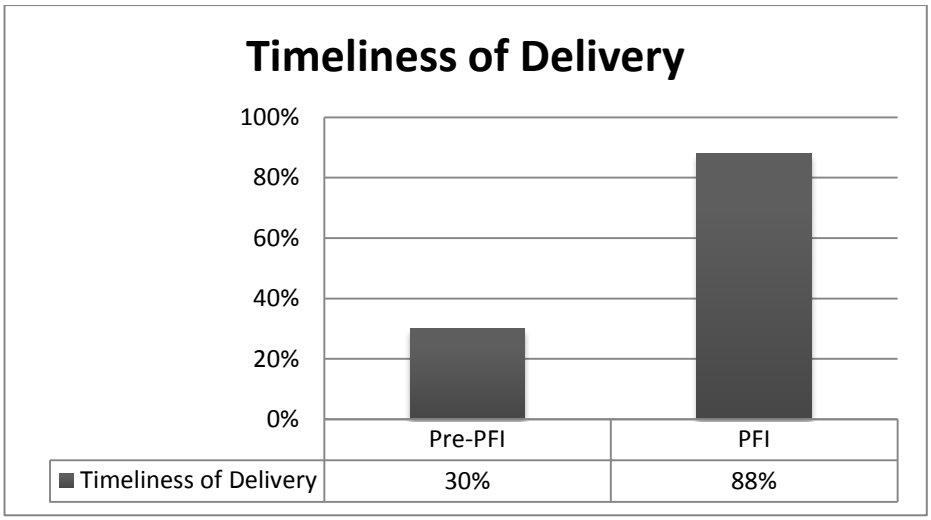

Figure 2.2 : Significance of PFI in term of timeliness of delivery in UK

(adopted from Elkhouly, 2005)

Currently there are around 90 countries adopting the PPP approach, compared to only approximately a dozen countries during 5 years ago [23].

[22] Elkhouly, W. (2005). The contribution of the private sector to successful public-private partnership. *Paper presented at European Commission.* Brussels, Belgium.

2.2 PPP in Malaysia

2.2.1 Definition of PPP in Malaysia

There is no universal definition of PPP. For instance, Malaysia's Public-Private Partnership Unit (3PU) defines the conceptual term of PPP as "the transfer to the private sector the responsibility to finance and manage a package of capital investment and services including the construction, management, maintenance, refurbishment and replacement of public sector assets such as buildings, infrastructure, equipment and other facilities, which creates a standalone business" [24].

Meanwhile, SMEC Malaysia's draft strategic paper for PPP describes their conceptual term of PPP based on 3 sources, which are by Vebb and Pulle (2002), Council for Public-Private Partnerships (2004) and National Council for Public-Private Partnerships (2003) and come to the conclusion that PPP is "a general term covering any contracted relationship between the public and private sectors to deliver public infrastructure or facilities and any related ancillary services which optimizes the allocation of responsibilities, rights risks and rewards between the parties so as to maximize the efficiency and value of public service delivery."

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[23] British Malaysian Chamber of Commerce. (2009). *Private Finance Initiative: From the UK to Malaysia*. Retrieved May 25, 2011, from http://www.bmcc.org.my/index.php?option=com_content&task=view&id=389&Itemid=59

[24] Public-Private Partnership Unit (3PU). (2010). *Public Private Partnership (PPP) Guideline.* Putrajaya: Prime Minister Department.

2.2.2 Evolution of PPP in Malaysia

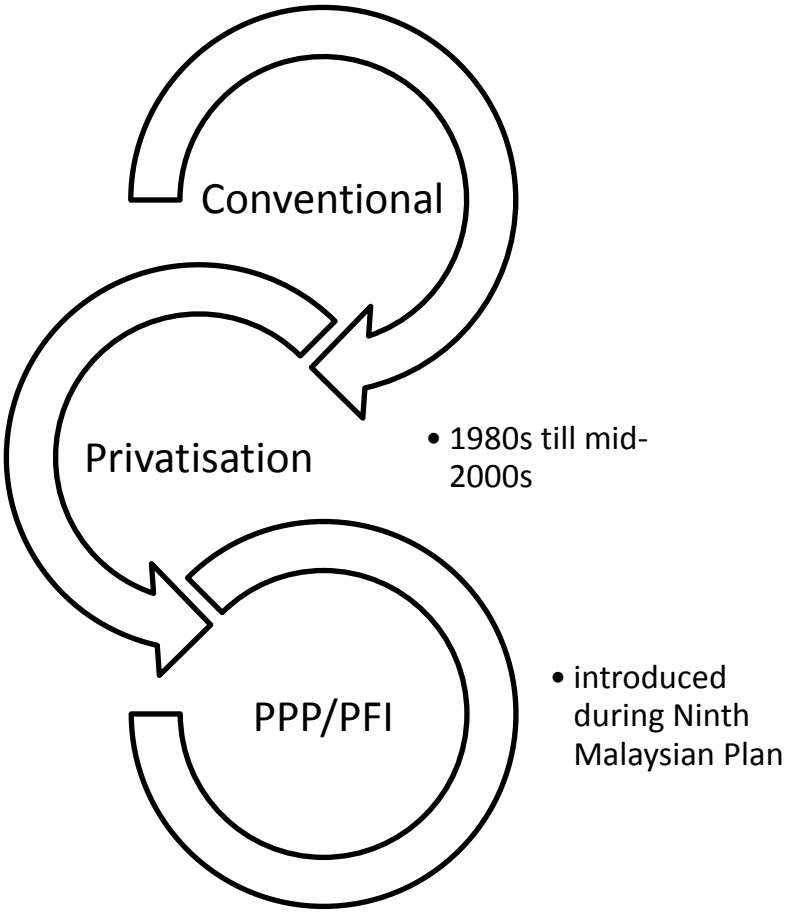

Figure 2.3 : Evolution of PPP in Malaysia

2.2.2.1 Conventional Approach

Public projects under conventional approach were handled fully by the Government or public agencies where Government had to bear huge responsibilities to ensure that the success completion of the projects. Government under this approach hired the Contractors to construct the projects under conventional Design-Bid-Build,

Design and Build, deferred payment, cost plus etc. [25]. In conventional Design and Build procurement system, the Government has the single responsibility with the Contractors where the Contractors bear all the risk that are directly related to the construction process such as the design and the construction method. The expertise of the Contractors cannot be guaranteed the failure of the projects caused by the Contractors' default will force the Government to bear all the consequences. In this situation, even though most of the risks are bear by the Contractors theoretically, the possibility of the risks to be transferred back to the Government is very high.

Design and build approach has several constraints which reveals that projects implemented under design and build procurement method are more technically demanding. Client has to prepare a scope of work that requires the works to be defined in detail. A huge amount of expertise is needed since design and build approach is usually implemented in large and complex projects that require high expertise. Risks without being handled by the expertise can interfere with the success of the projects, particularly the infrastructure projects [26] due to the complexity of the project nature.

2.2.2.2 Privatisation approach

The evolution of the PPP approach in Malaysia begins during the introduction of privatisation approach in the mid-1980s through the implementation of the Malaysian Incorporated Policy in 1981 [27] [28]. The privatization approach is

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[25] Abdul Rashid K. (2010, July). *Malaysia's New Wave PPP*. Retrieved June 7, 2011, from Quantity Surveying and Construction Procurement: http://khairuddin-constructionprocurement.blogspot.com

[26] Ng, A. and Loosemore, M. (2006). Risk allocation in the private provision of public infrastructure. *International Journal of Project Management* .

[27] Singaravelloo, K. (2010). PPP: The right marriage between local government and the private sector in Malaysia? *International Journal of Institutions and Economies 2(2)*, 142-166.

defined by the Economic Planning Unit as *"the transfer to the private sector of activities and functions which have traditionally rested with public sector.. ..applies to enterprises already owned by the Government and to new projects, which normally have been implemented by the public sector.."* [29]

The privatisation approach was seen as a way to reduce the Government's burden on financing the public projects as well as utilising the expertise that the private sector can offer. This approach existed in the form of joint venture arrangements between the public and the private sector [27]. The stages of the privatisation policy are shown in the figure below.

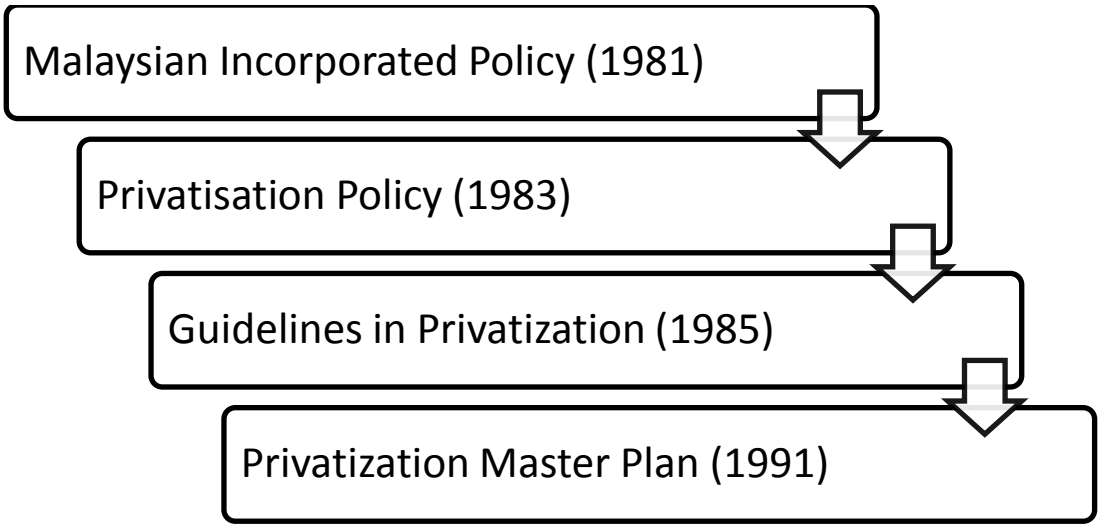

Figure 2.4 : Privatisation approach before the implementation of PPP

The Government's decision to introduce the privatisation approach brings another new dimension to the construction development, where the undertaken privatised project would be conceptualised, practised and mapped by the

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[28] Abdul Rashid, K. (2010a, August 5th). PPP within the Context of the Procurement Paradigm. Kuala Lumpur.

[29] Economic Planning Unit (EPU). (1992). *The privatisation master plan*. Retrieved June 18th, 2011, from http://www.epu.gov.my/

Government with specific objectives and handled over to either the project entirely or partly to the private sector [30]. This signifies that the Government-initiated projects can be either partly or fully privatised to the private sectors. From this arrangement, the responsibility of the Government to govern the development properties was reduced where the development of the projects were expected to be handled well by the private sectors. The services will become more effective after privatisation of a project [31]. All the risks are attempted to be transferred to the private sector under the privatisation approach [32]. Even though the private sectors indirectly had to accept all, if not most of the risks from the Government, they still keen to take over the traditional role of the Government in financing, procuring and managing the assets [33] with the aim to earn profits.

Privatisation indeed plays an important role in the development of New Economic Policy/National Development Policy (NEP/NDP). For instance, 510 projects which were privatised can contribute up to the total savings of RM161 billion in term of capital expenditure [34]. Several corporatized and privatised firms, which were actively involved in the privatisation world, had successfully ventured aboard and enlisted themselves in Malaysian Stock Exchange [35].The success of the implementation of privatisation approach however argued by Singaravelloo (2010) where he stated that the Privatisation Master Plan, introduced in 1991 failed to guide the implementation of the policy at the local government level. He argued that the Economic Planning Unit did only useful to the federal and state government, but not

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[30] Osman, O. (2008). Privatisation in the Construction Industry: In emerging governance and economic issues in construction industry in Malaysia. Pulau Pinang: Universiti Sains Malaysia.

[31] Batley, R. (1996). Public-private relationships and performance in service provision. *Urban Studies*, 33(4-5): 723-751.

[32] Hashim, N.H. (2010). Practical Risk Management Framework in Project Development. *Seminar on 'Malaysia's PPP'*.

[33] Cottle, G. (2003). Risk associated with public-private partnership arangements.

[34] Khairuddin, A.Z. (2010). PPP Guidelines: A conceptual framework. *Seminar on 'Malaysia's PPP'*.

[35] Mohamed Yakcop, N. (2010). *Opening remarks.* Seminar on 'Designing a world-class public-private partnership infrastructure and framework for Malaysia'.

to the local government initiatives because the local government had to follow the instruction given by either federal or state government.

2.2.2.3 PPP/PFI approach

PPP approach were then introduced to replace the privatisation concept where instead of the project fully privatised, the Government under PPP arrangement still owns a percentage of its right to the projects by sharing the ownership together with the private sector. In PPP, Government has the rights to control the operations, decisions and policies of the privatised entities [36]. The Government together with the private sector form a strong relationship in term of financial and organisational aspect in PPP projects that usually involve "joint-ventures, joint stock companies and joint development projects." [37].

PPP itself is not a typical procurement system where the conceptual term of PPP can appear in many procurement forms. There are seven types of contracts where the PPP concepts can be applied, which are "service contracts, management contracts, afterimage or lease contracts, build- operate-transfer (BOT) and similar arrangement, concessions and joint venture." [38]. This signifies that the conceptual term of PPP can be applied in certain procurement as long as there is collaboration between the public agencies and the private sector to deliver the public entities.

Effective collaboration between each public and private sector is needed to eliminate the possibilities of the disputes. However, effective collaboration alone is

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36 Osman, O. (2008). Privatisation in the Construction Industry: In emerging governance and economic issues in construction industry in Malaysia. Pulau Pinang: Universiti Sains Malaysia.

37 Hodge, G.A. and Greve, C. (2007). Public-private partnerships: An international preformance review. *Public Administration Review* , 67 (3): 545-558.

38 Asian Development Bank. (2008). Public-Private Partnership Handbook.

not enough to prevent any dispute. Possible disputes can also occur due to the complexity of the PPP concept [39]. In order to achieve sustainable PPP's performance, further investigation is necessary to be conducted by clarifying the processes of value creation.

Projects implemented using PPP concepts are getting more common nowadays since it is almost guaranteed that the effective collaboration in PPP arrangements will results in the win-win situation for both parties. The financial restructuring plan between Malaysia Airport Holding Berhad (MAHB) and the Government for instance results in a win-win situation [40]. Apart of that, statistics shown by PPI World Bank (2001) [41] states that 96 projects worth RM50 billion had been privatised from 1990 to 2009 (Refer to Table 2.1 and 2.2). Most of the projects initiated under PPP concept are categorised under public transportation projects.

There are two reasons of the increasing the use of PPP concept in those projects, which are for government to reduce their debt; and also to attain value for money from the projects [42]. Government under PPP arrangement owns the benefits to spread the risks to the private sector. Apart of the benefits earned by the Government, the private sector does also earn advantages through the PPP collaboration with the Government, especially in loan arrangement and other matters that require the verification of the purchaser or borrower's status [43].

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[39] Kamaruddin, N.A., Mohd. Nor, M.T., Mat Isa, R. and Abdullah, N.L. (2011). Value Creation in Public Private Partnership: Effect of Commercial and Social Entrepreneurship on Performance. *2nd International Conference on Business and Economic Research (2nd ICBER 2011)*, (pp. 2065-2073).

[40] *MAHB & Govt in win-win public-private partnership*. (2009). Retrieved July 10th, 2011, from Malaysia Airports: http://www.malaysiaairports.com.my/index.php/news-archive/53.html

[41] The World Bank and the International Finance Corporation (IFC). (1992). *Investing in the Environment.* Washington D.C.: The World Bank.

[42] Watson, D. (2003). The rise and fall of public private partnerships: challenges for public accountability. *Australian Accounting Review 13 (3)*, 2-14.

[43] Osman, O. (2008). Privatisation in the Construction Industry: In emerging governance and economic issues in construction industry in Malaysia. Pulau Pinang: Universiti Sains Malaysia.

Table 2.1 : Number of Projects by Primary Sector

Financial Closure Year	*Energy*	*Telecom*	*Transport*	*Water & Sewage*	*Total*
1990	0	1	0	0	1
1991	0	0	1	0	1
1992	2	0	1	1	4
1993	3	0	4	3	10
1994	5	4	5	2	16
1995	1	2	6	1	10
1996	0	0	4	1	5
1997	2	0	5	0	7
1998	0	0	2	0	2
1999	1	0	2	0	3
2000	0	0	3	2	5
2001	6	0	2	1	9
2002	1	0	0	1	2
2003	1	0	5	1	7
2004	1	0	1	1	3
2005	1	0	2	0	3
2006	2	0	2	0	4
2007	0	0	1	1	2
2008	0	0	1	1	2
2009	0	0	0	0	0
TOTAL	26	7	47	16	96

(adopted from PPI World Bank, 2001)

Table 2.2 : Total investment of projects by primary sector (US$ million)

Financial Closure Year	*Energy*	*Telecom*	*Transport*	*Water & Sewage*	*Total*
1990	0	870	0	0	870
1991	0	0	0	0	0
1992	1350	0	160	284	1794
1993	1330	0	814	2558	4702
1994	3182	748	2011	790	6731
1995	1200	1012	1889	10	4111
1996	0	1033	2948	0	3981
1997	215	673	2182	0	3070
1998	0	175	592	0	767
1999	195	296	314	0	805
2000	0	276	1080	3965	5321
2001	1765	419	684	0	2868
2002	12	475	0	16	503
2003	2050	438	1570	0	4058
2004	1210	1204	342	2521	5277
2005	1600	483	587	0	2670
2006	203	487	531	0	1221
2007	0	595	423	0	1018
2008	0	412	425	0	837
2009	182	206	0	0	388
TOTAL	14494	9802	16552	10144	50992

(adopted from PPI World Bank, 2001)

Prior to the Government's ambition to turn Malaysia into a well-developed country by 2020, Government finds the earned advantages as a road to narrow down the development gaps between the developed countries and the developing countries. The Prime Minister stated that "What we do in Malaysia is build infrastructure to a First World standard and then run it in a Third World way."[44]. Government shall initiate more PPP projects as a medium to further boost up the nation's development in a shorter time. In 10th Malaysian Plan, the Prime Minister stressed out the

[44] British Malaysian Chamber of Commerce. (2009). *Private Finance Initiative: From the UK to Malaysia*. Retrieved May 25, 2011, from http://www.bmcc.org.my/index.php?option=com_content&task=view&id=389&Itemid=59

importance of PPP through smart and effective partnerships between the public and private sector. Therefore, to promote the economic growth through the participation of private sector, 52 new PPP initiated projects worth RM63 billion [45] had been announced in the plan including;

- Seven highway projects worth RM19 billion, including West Coast Expressway, Guthrie-Damansara Expressway, Sungai Juru Expressway and Paroled-Senawang-KLIA Expressway;
- Two coal electricity generation plants worth RM7 billion;
- Development of the Malaysian Rubber Board's land worth RMl0 billion;
- Petronas LNG Malacca plant worth RM3 billion; and
- Two aluminium smelters in the Sarawak Corridor of renewal Energy worth RM 18 billion.

The success of the PPP concept is proved where the research done by Wan and Noor (2005) [46] finds out that the partnership programmes in providing public housing in Kuala Lumpur have been successful. Same goes to research done by Singaravelloo (2010) [47] where the research on the implementation of PPP onto the development of Kuantan Centre Point, renovation and leasing part of Kuantan Central Market, and Menara Majlis Perbandaran in Batu Pahat proved to be a success. Up to 2009, Malaysia had been ranked eighth in term of the amount of investment (See Table 2.3). Therefore in order to encourage more participation by the private sector into Government initiated projects, Private Finance Initiative (PFI)

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[45] Leong, H.Y. (2010). *RM82bil construction projects in M'sia this year*. Retrieved May 5th, 2010, from Star Property: http://www.starproperty.my/PropertyScene/TheStarOnlineHighlightBox/6263/0/0

[46] Nor Azriyati, W. and Rosly, N. (2005). Business Partnership in Meeting Housing Needs of the Urban Poor. *Global Built Environment Review*, 5(2): 39-48.

[47] Singaravelloo, K. (2010). PPP: The right marriage between local government and the private sector in Malaysia? *International Journal of Institutions and Economies 2(2)*, 142-166.

was introduced under 9th Malaysian Plan as a significant measure to streamline PPP [48].

Table 2.3 : Top 10 countries by investment, 1990-2009 (US$ million)

Country	*Project Investment*
Brazil	274,775
India	171,230
China	112,322
Mexico	96,817
Russian Federation	87,825
Argentina	83,144
Turkey	54,609
Malaysia	51,117
Philippines	50,444
Indonesia	46,657

(adopted from PPI World Bank, 2001)

Currently, the task of implementing various privatisation and PPP projects was being handled by the Privatisation and PFI Section of the Economic Planning Unit in the Prime Minister's Department [49].

[48] Abdul Rashid, K. (2010a, August 5th). PPP within the Context of the Procurement Paradigm. Kuala Lumpur.

[49] *Transparency and accountability vital factors in public-private programmes.* (2011, March 4th). Retrieved June 10th, 2011, from http://www.thecommonwealth.org/news/234697/040311ppp.htm

2.3 Involvement of private sector in PPP

In a PPP arrangement, involvement of private sector is necessary as the private sector has the capabilities to provide several expertises in different field in order to increase the efficiency of the Government initiated projects. Private services are necessary due to the difficulties by the Government to sustain the services as well as high pressure given by the donor agencies because of the slow pace of privatisation and commercialisation [50]. The participation of private sector in PPP for the delivery of services helps to reduce the Government's burden where the technologies expertise offered by the private sectors can boost up the construction speed. Government-initiated projects can be completed in time without any serious problem.

In PPP arrangement, the corporation between both parties is very crucial, in which PPP "combines the efficiency and expertise from the private sector, and accountability and broader planning function of the public sector" [51]. Failure from either one of the parties to perform up to the standard will only causes big negative consequences to the affected projects, and at last the security of the public interest failed to materialise.

Implementation of PPP in local construction projects always become a medium for both public and private sector to share the responsibilities on providing basic public amenities [52]. Private sector shall take this opportunity since PPP provides several attractive avenues for the private sectors to perform their corporate responsibilities [53]. Research done by Tang et al. (2006) revealed that financial

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[50] Batley, R. (1996). Public-private relationships and performance in service provision. *Urban Studies*, 33(4-5): 723-751.

[51] Bagchi, P.K. and Paik, S. (2001). The role of public-private partnership in port information system development. *International Journal of Public Sector Management*, 14(6): Batley, R. (1996). Public-private relationships and performance in service provision. *Urban Studies*, 33(4-5): 723-751.

[52] Kyvelou, S. and Karaiskou, E. (2006). Urban development in the Euro-Mediterranean Region. *Management of Environmental Quality, an International Journal*, 17 (5): 599-610.

[53] Kamaruddin, N.A., Mohd. Nor, M.T., Mat Isa, R. and Abdullah, N.L. (2011). Value Creation in Public Private Partnership: Effect of Commercial and Social Entrepreneurship on

sources and the way to achieve best value for money are two elements that are important in the private sectors' opinion in getting involved in PPP arrangement [54]. The private sector shall fully utilise the avenues provided because with the aided avenues, the private sector can use it to their advantage to further smoothen the affected PPP construction projects. Hence, the private sector shall re-organise their strategic objectives so that their objectives can be aligned together with the Government's agenda to maximise the effectiveness of both parties in the PPP projects [55].

The participation of the private sector in large and complex projects is very common in the current construction trend where their participation of the private sector undeniably become one of the major construction procurement systems [56]. Through their participation, a "stronger managerial capacity, access to new technology and specialised skills that Government cannot afford to develop on their own" [57] can be delivered more satisfactorily.

Apart of that, the participation of private sectors in PPP arrangement also brings several positive significances to all parties. This is because with the participation of the private sector in PPP projects, the objectives of PPP can only be achieved as long as the private sector able to fulfil their obligation to the Government

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Performance. *2nd International Conference on Business and Economic Research (2nd ICBER 2011)*, (pp. 2065-2073).

[54] Tang, L. et al. (2004). A review of studies on public-private partnership projects in the construction industry. *International Journal of Project Management 28 (2010)*, 683-694.

[55] Kolk, A. van Tulder and R. Kostwinder, E. (2008). Business and partnerships for development. *European Management Journal 26*, 262-273.

[56] Al-Sharif, F. and Kaka, A. (2004). PFI/PPP topic coverage in construction journals. *20th Annual ARCOM Conference.*

[57] Wan Abdul Aziz, W.N.A., Hani, N.R. and Musa, Z.N. (2007). Public-private partnerships approach: A success story in achieving democracy in the home ownership fo urban inhabitants in Kuala Lumpur, Malaysia. *Real Corp 007: To plan is not enough: strategies, plans, concepts, projects and their successful implementation in urban, regional and real estate development*, 159-165.

[58]. Government assets, data and intellectual property can be utilised in a more productive way by the private sector. Substantial improvement is also possible in term of the quality of public facilities and services [59] if the private sector has the capability of handling the assets in a productive way. Other than that, the risk of cost overruns and project delays can be reduced as the private sector brings commercial disciplines into the Government initiated projects [60].

Private sector's participation in PPP arrangement will indirectly build their reputational benefits through the increasing collaboration of the employee's motivation as well as "positive consumer perceptions of enhanced corporate social responsibility" [61]. Furthermore, as an exchange from their willingness to accept part of the responsibilities in PPP arrangement, the private sector can look for "future business opportunities, a steady funding stream and a good return on its investment" [62]. The increasing participation of the private sector in PPP arrangement is proved when the investments by the private sectors after the 1997 Asian financial crisis had expanded to 17% per annum, spearheading the nation's economic development [63].

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[58] Kamaruddin, N.A., Mohd. Nor, M.T., Mat Isa, R. and Abdullah, N.L. (2011). Value Creation in Public Private Partnership: Effect of Commercial and Social Entrepreneurship on Performance. *2nd International Conference on Business and Economic Research (2nd ICBER 2011)*, (pp. 2065-2073).

[59] Edkins, A.J. and Smyth, H.J. (2006). Contractual management in PPP projects: evaluation of legal versus relational contracting for service delivery. *Journal of Professional Issues in Engineering Education and Practice*, 132 (1), 82-93.

[60] Ho, S.P. (2006). Model for financing renegotiation in public-private partnership projects and its policy implications: game theoretic view. *Journal of Construction Engineering and Management 132 (7)*, 678-688.

[61] Bagchi, P.K. and Paik, S. . (2001). The role of public-private partnership in port information system development. *International Journal of Public Sector Management*, 14(6): Batley, R. (1996). Public-private relationships and performance in service provision. *Urban Studies*, 33(4-5): 723-751.

[62] Al-Sharif, F. and Kaka, A. (2004). PFI/PPP topic coverage in construction journals. *20th Annual ARCOM Conference.*

63 Mohamed Yakcop, N. (2010). *Opening remarks.* Seminar on 'Designing a world-class public-private partnership infrastructure and framework for Malaysia'.

2.4 Allocation of risks to parties in PPP

2.4.1 Government in transferring risk to the private sector

Government looks at the PPP arrangement as an opportunity to transfer the risks to be bear by the private sector since through PPP, contract negotiation can be done by dealing together with the private sector to ensure that both parties will have a win-win situation. Government through the collaboration seeks for expertise, innovation and management of appropriate risks from the private sector as a way to spread some of the risks.

It is fair for both parties to share some of the risks between each other because from the Government's perspective, transferring the risk to the private sectors can increase their level of commitment in handling the PPP projects [64][65]. By having the private sector to bear several risks such as financial risks, it can potentially add the value of money in the Government projects. Apart of that, private sector having the commitment in ensuring the financial status stays healthy will force them to complete the projects on time. Any additional time after the actual completion date on those particular projects will causes cost overruns. The private sector has no options but to complete the project earlier than schedule if possible to protect their budget.

Government's intention in transferring some of the risks to the private sector started when Government states their preferences regarding to how the project risks shall be shared with the private sector. Consideration needs to be taken by the Government in stating the typical risk types to be transferred to the private sector as the private sector will judge on their own capabilities on managing the risks and

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[64] Dixon, T., Pottinger, G. and Jordan, A. (2005). Lessons from the private finance initiatives. *Journal of Property Investment and Finance*, 23 (5), 412-423.

[65] Grimsey, D. and Lewis, M. (2005). Are public private partnerships value for money? Evaluating alternative approaches and comparing academic and practitioner views. *Accounting Forum 29 (2005)*, 345-378.

propose a bidding price based on their capabilities on taking the allocated risks [66]. Failure of the private sectors to handle well the risks will only cause the Government to take back the responsibility, which results in wasting of time and losses suffered by the public interest.

Hence, in order to allocate the appropriate risks in the Government's perspective, Government shall bear some of the risks that may arise from variations such as changes in legislation or service requirements which can be controlled by the Government. On the other hand, the private party is expected to carry the other risks [67]. Both parties shall also conduct the allocation of risks with the main priority on the allocation to be based on the minimisation of economic costs besides on the capabilities of both parties to undertake the risks [68]. Every possible priority must be considered because in order to create a quality of successful partnership, Government shall ensure that strengths and weaknesses of each partner should be offset against those of each other. Hence, a possible development that merges the quality of both parties can be merged which results in the high project quality [69].

Even though Government earned benefits by transferring part of the risks to the private sector, Government still cannot run from the possibilities on being responsible for any failure on the PPP projects. It is indeed that PPP arrangement is all about sharing of risks and responsibility, however not every project implemented under PPP concept is successful. Several cases of BOT ventures faced problems due

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[66] Ke Y., Wang S., Chan A.P.C. and Lam P.T.I. (2009). Preferred risk allocation in China's public-private partnership (PPP) projects. *International Journal of Project Management 28 (2010)*, 482-492.

[67] Hashim, N.H. (2010). Practical Risk Management Framework in Project Development. *Seminar on 'Malaysia's PPP'*.

[68] Marques, R.C. (2010). *Private-public partnerships: contracts and risks. How should risk be evaluated and allocated in PPP contracts?* Retrieved July 10th, 2011, from http://www.regulationbodyofknowledge.org/faq/pppRisk/

[69] Wan Abdul Aziz, W.N.A., Hani, N.R. and Musa, Z.N. (2007). Public-private partnerships approach: A success story in achieving democracy in the home ownership fo urban inhabitants in Kuala Lumpur, Malaysia. *Real Corp 007: To plan is not enough: strategies, plans, concepts, projects and their successful implementation in urban, regional and real estate development*, 159-165.

to "cost overruns, unrealistic price and income projections, and legal disputes between private operators" which results in the government to take the responsibility to shoulder the cost of failure [70]. Apart of that, Malaysia's percentage of PPP project failures is the third highest in East Asia with the amount of 10.8%, as shown in Table 2.4. Even though the failure rate contributed by Malaysia is only 6.73% as shown in Table 2.5, such failures always cost a lot of consequence where it is necessary that a clear agreement between the public and private sector takes the highest importance and necessity. In case of any disagreement, the Government should allow for any re-negotiation during the concession period in order to solve the private sector's difficulties and also increases the level of trust between each party [71].

Government shall "establish effective risk allocation strategies and develop suitable allocation frameworks for PPP projects" to achieve a more efficient contract negotiation process [72]. Ng and Loosemore (2006) [73] suggested that a particular risk shall only be allocated to a private party who;

- has been made fully aware of the risks they are taking;
- has the greatest capacity (expertise and authority) to manage the risk efficiently and efficiently (and thus charge the lowest risk premium);
- has the capability and resources to cope with the risk eventuating;
- has the necessary risk appetite to want to take the risk; and
- has been given the chance to charge an appropriate premium for taking it.

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[70] Kumarasamy, M.M. and Morris, D.A. (2002). Build-operate-transfer type prcurement in Asian megaprojects. *Journal of Construction Engineering and Management 128 (2)*, 93-102.

[71] Singaravelloo, K. (2010). PPP: The right marriage between local government and the private sector in Malaysia? *International Journal of Institutions and Economies 2(2)*, 142-166.

[72] Bing. L. et al. (2005). The allocation of risk in PPP/PFI construction projects in the UK. *International Journal of Project Management 23*, 25-35.

[73] Ng, A. and Loosemore, M. (2006). Risk allocation in the private provision of public infrastructure. *International Journal of Project Management* .

The Government make the judgement based on the criteria as mention above because Government should realise that the involvement of private sector in PPP arrangement are more towards to an assistant role. The private sector owns several limitations such as unavailable or limited technical and financial resources [74] which can be minimised if the Government are willing to be considerate.

Table 2.4 : Number or project failures by country in East Asia

COUNTRY	*NO. OF PROJECT FAILURES*	*% SHARE OF TOTAL PROJECT FAILURES*
China	36	55.4
Indonesia	11	16.9
Malaysia	7	10.8
Philippines	5	7.7
Thailand	3	4.6
Vietnam	1	1.5
Laos	1	1.5
Vanuatu	1	1.5

(adopted from PPI World Bank, 2011)

Table 2.5 : Failure rate by local government-related failures in East Asia

COUNTRY	*NO. OF PROJECTS*	*NO. OF PROJECT FAILURES*	*FAILURE RATE (%)*	*% OF TOTAL PROJECT FAILURES*	*NO. OF PROJECTS CONTRACTED WITH LOCAL GOVERNMENT*	*% OF TOTAL PROJECT FAILURES*
Indonesia	83	11	13.25	16.90	0	0.00
Laos	8	1	12.50	1.50	0	0.00
Malaysia	104	7	6.73	10.80	1	14.29
Philippines	84	5	5.95	7.70	0	0.00
Vietnam	17	1	5.88	1.50	0	0.00
China	727	36	4.95	55.40	22	61.11
Thailand	100	3	3.00	4.60	2	66.67

(adopted from PPI World Bank, 2011)

[74] Abdul Aziz, A.R. & Jahn Kassim, P.S. (2011). Objectives, success and failure factors of housing public-private partnerships in Malaysia. *Habitat International 35*, 150-157.

2.4.2 Acceptability of risks by the private sector

From the private sector's perspective, the private sector should evaluate several issues such as identifying the typical risks to be allocated towards their side based on their capabilities on managing those risks. Even though their aim in getting involved in PPP projects is mainly for getting profit, deep consideration shall be taken on how the risks allocated to their side will affect their performance.

In some circumstances, an optimal risk allocation is usually evaluated with the intention to minimise both the total management costs of the public and private sector rather than transferring all the risks to the private sector [75]. However, Government in PPP arrangement always take minimal risks and allocate the rest to the private sector. These unfair allocation of risks usually happened in developing countries where the Government has less experience in PPP approach [76]. Lack of experience shouldn't be used as an excuse as the amount of collaboration between the Government and the private sector under the PPP term is still quite low. Some of the risks allocated to the private sector, including "design and construction, financial, operating, and legislative and government policy risk" [77] sometimes cannot be controlled in the most efficient way even though each party is aware of the capabilities of that party on handling it [78]. Good teamwork between both parties is necessary to avoid any problem occurs during the project process.

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[75] Ke Y., Wang S., Chan A.P.C. and Lam P.T.I. (2009). Preferred risk allocation in CHina's public-private partnership (PPP) projects. *International Journal of Project Management 28 (2010)*, 482-492.

[76] Chan A.P.C., Lam P.T.I., Chan D.W.M. and Cheung E. (2008). Risk-sharing mechanism for PPP projects - the case study of the Sydney Cross City Tunnel. *Surveying and Built Environment Vol. 19(1)*, 67-80.

[77] Sciulli, N. (2009). Measuring Compliance with Public Private Partnership Policy. *International Review of Business Research Papers* , 5 (2): 340-348.

[78] Medda, F. (2007). A game theory approach for the allocation of risks in transport public private partnerships. *International Journal of Project Management*, 25 (3), 213-218.

The private sector however in certain cases is willing to take up large risks "to gamble for their desired return" [79]. The private sector under PPP approach is still fortunate to bear a considerable less risks rather than a larger amount of risks in privatisation approach. In PPP, the risks usually are allocated to parties which can manage the particular risk in the most efficient way. Therefore the allocation of risk and responsibility to private sector under PPP approach is still safe, compared to full responsibility that the private sector had to take in privatisation approach.

Even so, the private sector shall know their own responsibility to the projects as in some circumstances, parties tend to take the risks which "they are not clear of, that they are not able to cope with, that they do not have the appetite for and cannot charge for." [80][81]. Risks which are impossible to be eliminated can be allocated to parties so that it is borne in an agreed-upon fashion [82]. Therefore, in order to ensure appropriate risk allocation in PPP projects to the private sector, the private sector can enter into contract re-negotiation with the Government on the particular risks that they were taking together with the funds to be invested where the private sector can gain returns in term of "guarantees, protection and facilitation from the government." [83]

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[79] Chan A.P.C., Lam P.T.I., Chan D.W.M. and Cheung E. (2008). Risk-sharing mechanism for PPP projects - the case study of the Sydney Cross City Tunnel. *Surveying and Built Environment Vol. 19(1)*, 67-80.

[80] Loosemore, M., Raftery, J., Reilly, C. and Higgon, D. (2006). *Risk management in projects.* London: Taylor & Francis (2006).

[81] Arndt, R. and Maguire, G. (1999). Private provision of public infrastructure: risk identification and allocation project survey report. *Department of Treasury and Finance, Melbourne, Victoria*.

[82] Straus, A.G. (2007). Managing risk in PPP projects thrugh legal documentation. *Presented at the expert roundtable on private-public partnerships.* Amman, Jordan.

[83] *Govt welcomes private sector projects under PFI2*. (2007). Retrieved July 15th, 2011, from http://www.mbam.org.my/mbam/index.php?option=com_content&task=view&id=552&Itemid=331

2.5 Previous researches

There are a lot of risks that will occur during the implementation of PPP projects. Hence for the purpose of this research, a preliminary research has been conducted where a randomly selected of nine journals related to risk management in PPP projects are selected. The risks listed in each journal are compared to identify the frequency of occurrence. The selected journals are as shown in Table 2.6.

Table 2.6 : Selected previous researches for risk identification analysis

NO.	JOURNAL TITLE	AUTHOR (S)
1	Risk allocation in the private provision of public infrastructure	A. Ng and Martin Loosemore
2	The allocation of risk in PPP/PFI construction projects in the UK	Li Bing, A. Akintoye, P.J. Edwards and C. Hardcastle
3	Good project governance for proper risk allocation in public-private partnerships in Indonesia	Martinus P. Abedego and Stephen O. Ogulana
4	Role of public private partnerships to manage risks in public sector projects in Hong Kong	Li-Yin Shen, Andrew Platten and X.P. Deng
5	Partnerships Victoria: Risk Allocation and Contractual Issues	-
6	Public-private partnerships and effective risk management for local government	Ronald Aspin
7	Public-private Partnerships Manual - Module 4: PPP Feasibility Study, South Africa, p.p. 63-66	National Treasury of South Africa
8	Modeling risk allocation decision in construction contracts	K.C. Lam, D. Wang, Patricia T.K. Lee and Y.T. Tsang
9	Towards the betterment of risk allocation: Investigating risk perceptions of Australian stakeholder groups to public-private partnership toll road projects	Demi Chung, David A. Hensher and John M. Rose

Table 2.7 : Frequency of occurrence for each risk

RISKS	PREVIOUS RESEARCHES									FREQUENCY
	1	2	3	4	5	6	7	8	9	
Design & Construction risk										
Availability of material / labour		*		*			*	*		4
Construction completion delay	*	*	*	*	*		*		*	7
Construction cost overrun	*	*		*	*	*	*		*	7
Design default	*	*	*	*	*	*	*	*	*	9
Failure of commisioning test	*				*	*	*		*	5
Failure to meet performance criteria	*	*	*			*	*	*		6
Unproven engineering techniques		*					*			2
Legal & Contractual risk										
Changes in law & legislation	*	*		*	*	*	*	*		7
Changes in tax regulation		*	*		*	*				4
Excessive contract variation	*	*		*	*	*		*	*	7
Industrial regulatory change		*			*	*				3
Poor contract management	*		*	*				*		4
Macroeconomic										
Inflation	*	*	*	*	*		*	*		7
Influential economic events					*	*	*		*	4
Interest rates	*	*	*		*		*			5
Poor financial market		*	*		*					3
Natural risk										
Force majeure	*	*	*		*	*	*		*	7
Weather		*	*				*	*		4
Environment		*			*					2
Operating risk										
Delays / interruption in operation	*								*	2
Higher maintenance cost / frequent maintenance		*				*	*		*	4
Low operating productivity		*					*			2
Operating cost overrun	*	*		*		*	*		*	6
Operational revenues below expectation		*							*	2
Residual transfer value	*	*			*	*	*			5
Shortfall in service quality	*		*		*	*	*			5
Organisation / Coordination risk										
Inadequate experience in PPP/PFI		*		*						2
Lack of coordination & commitment	*	*		*	*	*	*		*	7
Political risk										
Changes in ownership					*		*		*	3
Expropriation / nationalisation of assets	*	*					*			3
Poor public decision-making process		*				*			*	3
Strong political opposition & interference		*		*			*			3
Unstable government		*	*							2
Project risk										
Availability of project finance		*		*	*					3
Delay in project approval & permit	*	*		*	*			*		5
Sponsor suitability risk	*				*					2
Site risk										
Land use	*				*		*			3
Site availability & preparation	*	*	*		*					4
Site / Geotechnical conditions	*	*	*	*	*			*		6
Social risk										
Changes in demand for output	*	*				*	*			4
Level of public opposition to project		*				*		*	*	4

The list of risks for the purpose of this research is determined based on two factors, which are;

- ✓ By identifying the frequency of occurrence of a particular risk. If a risk occurs more than one time, then the risk is listed for the purpose of this research
- ✓ By grouping the related risks together. For instance, “default in contract specification” and “wrong estimation” can be grouped under “poor contract management”

The frequency occurrence of each risk is shown in Table 2.7.

2.6 Typical risks in PPP arrangement

From the preliminary research, 41 typical risks had been identified where all these risks are grouped into 10 general risks. The general risks are as follow;

- ✓ Design and construction risks
- ✓ Legal and contractual risks
- ✓ Macroeconomic risks
- ✓ Natural risks
- ✓ Operating risks
- ✓ Organisation and coordination risks
- ✓ Political risks
- ✓ Project risks
- ✓ Site risks
- ✓ Social risks

2.6.1 Design and Construction risks

The capabilities of the private sectors to counter any construction problem occurred during the construction process are to be tested where the private sectors must meet the requirements set by the public sector as well as trying to avoid the failure of completing the design within the time and budgeted costs.

The scope of design and construction risks for the purpose of this research is limited into seven areas which are as follow;

1. Availability of material or labour
    - Material inflation due to poor financial market
    - Frustration from the material and labour recognised suppliers which causes shortage of materials and suppliers and
    - Changes in policy in foreign labour intake as local construction industry is highly dependent on the foreign labour force
    - Failure of the materials and labours to be supplied in time
2. Construction completion delay
    - Inadequate and effective work programme
3. Construction cost overrun
    - Inappropriate design changes and deficiency
    - Inconsistent design update
    - Increase of input prices
    - Poor construction quality which causes defect
    - Delay in work progress which causes the affected parties to be responsible for completing the project within limited budget, as well as paying the penalties or liquidated damages to the Government [84]

[84] Mohammed, T.I. (2009). *Characteristics and risk of PPP infrastructure*. Retrieved July 3rd, 2011, from The Financial Express: http://www.thefinancialexpress-bd.com/2009/07/09/72412.html

4. Design default
    - Changes of technical standards during the design phase
    - Constant design changes
    - Late design changes
5. Failure of commissioning test
    - Failure to conduct any commissioning test during construction stage to identify unplanned outage and downtime
6. Failure to meet performance criteria
    - Default by the contractor and sub-contractor which affect their performance
    - Poor quality workmanship
7. Unproven engineering techniques
    - Constantly updated construction technology
    - Adopted technology is not yet implemented in local construction projects

2.6.2 Legal and Contractual risks

PPP projects always need special legislation [85] where the legislative risks are usually bear by the Government who has the rights to alter any legislative issue for the sake of the success of PPP projects.

However, some legislation set by the Government did not bring many benefits to the private sectors. In some cases, the private sectors are willing to accept any risk as long as they can get the desirable profits. In housing development projects for instance, under current legislative rules, the developers are required to sell 30% of the newly constructed houses to the bumiputeras a discounted price. Some of the

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[85] Tang, L. et al. (2004). A review of studies on public-private partnership projects in the construction industry. *International Journal of Project Management 28 (2010)*, 683-694.

public agencies are even expecting the private developers to exceed the given quota to cater for Malay-dominated communities [86]. Private developers here suffered losses due to the special privilege given to the bumiputeras.

The scope of legal and contractual risks for the purpose of this research is limited to five areas, which are;

1. Changes in law & legislation
    - Constantly update contents in law and legislation by Government are constantly changed due to changes in leadership
    - Strict laws and regulations that are hard to follow
2. Changes in tax regulation
    - Government inconsistent application of the tax regulation
3. Excessive contract variation
    - Changes in specifications
    - Inadequate estimates
4. Industrial regulatory change
    - Changes that affect the development of the project
5. Poor contract management
    - Inconsistent contract document
    - Several contract disputes
    - Fault in tender and specification
    - Delay in settlement of contractual claim
    - Delay in tendering and selection procedure

[86] Abdul Aziz, A.R. & Jahn Kassim, P.S. (2011). Objectives, success and failure factors of housing public-private partnerships in Malaysia. *Habitat International 35*, 150-157.

2.6.3 Macroeconomic risks

In local construction industry, not all the PPP-initiated projects can achieve success because it is hard to predict the economic status during the construction process. The duration of the affected projects usually takes more than 5 years and there are possibilities that during the construction process, the economic growth might suffer a rapid drop and also inflation. The North- South highway project worth US$ 2.5 billion for instance suffered a 75% cost overrun due to inadequate allowances being made for inflation [87]. In infrastructure projects, if there is any delay in the projects, the debt will increase rapidly due to the high interest rates charged by the bank [88].

The scope of macroeconomic risks for the purpose of this research is limited to four areas, which are;

1. Inflation
    - Unpredictable inflation rate due to immature local economic and banking system
2. Influential economics event
    - External events that brings large impact to the project performance
    - Fluctuation to currency exchange rate
    - Difficulties in convertibility
3. Interest rates
    - Unpredictable interest rate due to immature local economic and banking system

[87] Ng, A. and Loosemore, M. (2006). Risk allocation in the private provision of public infrastructure. *International Journal of Project Management* .

[88] Straus, A.G. (2007). Managing risk in PPP projects thrugh legal documentation. *Presented at the expert roundtable on private-public partnerships.* Amman, Jordan.

4. Poor financial market
    - Inappropriate tariff implementation
    - Inappropriate tariff increase
    - Improper tariff design
    - Insufficient income

2.6.4 Natural risks

Natural risks are the events that both the parties cannot prevent able to deal with it alone as these risks are largely dependable to the country's climate condition and also the surrounding of the site.

The scope of natural risks for the purpose of this research is limited to three areas, which are;

1. Force majeure
    - Natural disasters such as flood, fire, storm, disease, war etc. which could not expected and predicted
2. Weather
    - Unexpected weather changes such as continuous rain which affects the site condition etc.
    - Poor weather condition
3. Environment
    - Potential pollution issues that may occur during the construction process
    - Strict environmental rules that will have an impact on the attention to environmental issues

2.6.5 Operating risks

Operating risks usually occur when the actual demand after the completion of the PPP projects is below the forecasted demand during the design stage. This causes the revenues obtained to be lower than expected. In housing projects, if the private developers over-supply the properties beyond the demand, it could delay the loan repayments which caused additional interest and debt to the developers [89].

The scope of organisation or coordination risks for the purpose of this research is limited to seven areas, which are;

1. Delay or interruption in operation
    - Late of the commencement of operation period due to delay in construction completion
    - Interruption from external factors
2. Higher maintenance cost or frequent maintenance
    - Several defects after the project completion
    - Out-dated technology or approaches to conduct maintenance
3. Low operating productivity
    - Changes in social needs after the project completion
    - Project failed to raise the public awareness
    - Failure to meet the Government's expectation from the project
4. Operating cost overrun
    - Improper measurement
    - Ill-planned schedule
    - Low operating efficiency

[89] Hussin, R. (2001). Project finance concept (smart partnership): viability of implementation in housing projects with special emphasis in risk manageent - an academic analysis, viewpoint and framework's proposal. *The Malaysian Surveyor*, 36 (2), 32-34.

5. Operational revenue below expectation
    - Changes in the value of money after project completion
    - Inadequate organisation practice and management during the concession period
6. Residual transfer value
    - Changes of the project value when the project transferred back to the Government at the end of the concession period
7. Shortfall in service quality
    - Operator default
    - Project company fault during the concession period
    - Poor service provided by the companies during concession period

2.6.6 Organisation or Coordination risks

The management of the arrangements shall be very effective since each party has their own working culture, perceptions and background. A definite formula shall be found to unite all those differences as these differences between both parties may result in conflicting objectives and strategies [90]. It brings negative influence to the project's management where it may contribute to the poor performance.

It is not easy to find out a chemistry that could improve the compatibility between the public and private sectors, as the private tends to seek for profits whereas the public tends to fulfil the social and electoral responsibilities [91]. Apart of

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[90] Kamaruddin, N.A., Mohd. Nor, M.T., Mat Isa, R. and Abdullah, N.L. (2011). Value Creation in Public Private Partnership: Effect of Commercial and Social Entrepreneurship on Performance. *2nd International Conference on Business and Economic Research (2nd ICBER 2011)*, (pp. 2065-2073).

[91] Susilawati, C., Armitage, L. and Skitmore, M. . (2005). Partnerships in affordable housing: The impact of conflicting investment criteria. *Paper presented at the QUT research week in conjunction to RICS COBRA conference, AUBEA conference and 3rd international symposium CIB student chapters.* Brisbane.

that, in some circumstances, the Government might not accept the development proposal which is proposed by the private sector where the Government reluctant to accept any change in term of adopting a new delivery approach [92]. Lengthy negotiations might occur due to the incompatibility of the parties involved which will drag the PPP projects to be completed only in a later time.

The scope of organisation or coordination risks for the purpose of this research is limited to two areas, which are;

1. Inadequate experience in PPP
    - Unfamiliarity to the projects implemented under PPP concept
    - Inability of team to perform well in PPP project
2. Lack of coordination & commitment
    - Incompatible of the parties to deal with issues occurred
    - Poor management from the co-ordinator
    - Inadequate distribution of responsibilities, risks and authority
    - Inefficient work practices
    - Government does not honour the commitment of the project and instead implement another similar project
    - Disputes between the project team member

2.6.7 Political risks

The existence of the political intervention is usually occurring in the Government sector. This is very common especially when there is a change of leadership in the

[92] Tang, L. et al. (2004). A review of studies on public-private partnership projects in the construction industry. *International Journal of Project Management 28 (2010)*, 683-694.

Government sector [93] which might influence the decision-making. Changes in the Government leadership will cause the future of the PPP projects initiated by the former leadership to turn into uncertainties because the PPP projects will only deliver the results over decade rather than before the next decision [94].

Corruption in the political world does also influence the PPP projects. When an incorrupt and honest political regime is absent, a typical PPP project can go on without any political intervention [95]. The corruptions inherent in political influence will risks undermining public trust and hence project outcome [96].

The scope of political risks for the purpose of this research is limited to five areas, which are;

1. Changes in ownership
    - Changes of Government leadership during the construction process
2. Expropriation / Nationalisation of assets
    - Government takes over the projects from the private sector without giving any reasonable compensation
3. Poor public decision-making process
    - Failure to meet public needs
    - Government considers their short-term goals more than the public needs

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[93] Singaravelloo, K. (2001). Fostering public-private partnership in a win-win situation: The experience of a Malaysian local government. *Paper presented at the conference of public-private partnerships, University of Twente, Hengelo.* The Netherlands.

[94] British Malaysian Chamber of Commerce. (2009). *Private Finance Initiative: From the UK to Malaysia*. Retrieved May 25, 2011, from http://www.bmcc.org.my/index.php?option=com_content&task=view&id=389&Itemid=59

[95] Ong, H.C. and Lenard, D. (2002). Can private finance be applied in the provision of housing? *Presented at the FIG XXII International Congress, April 19-26.* Washington D.C.

[96] Rondinelli, D.A. (2003). Partnering for development:government - private sector corperation in service provision. Bloomfield, CT:Kumarian Press.

4. Strong political opposition & interference
    - Prejudice on the value of money on the project
    - Government interferes unreasonably in privatised facilities or services
5. Unstable government
    - Changes in Government policy
    - Constant changes in Government leadership

2.6.8 Project risks

By shifting the risks to the private sector under PPP approach, the necessity by the private sector to complete the projects within the time is a must, where any delay in the projects will cause cost overrun. The parties who shall be responsible to overtake the construction projects in case there is failure of the financial budget depends on the seriousness on how much does it affected the projects.

The failure of the Latrobe Regional Hospital in Victoria is taken as an example. The projects failed because of the financial problems faced by the private sector until the State of Government of Victoria did not have any choice but to step in and take over rather than re-negotiating the PPP contract [97].

The scope of project risks for the purpose of this research is limited to three areas, which are;

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[97] English, L.M. (2004). Using PPP to deliver social infrastructure: health care delivery to Victoria. *Fourth Asia Pacific Interdisciplinary Research in Accounting Conference.* Singapore.

1. Availability of project finance
    - Unavailability of the financial instruments which cause difficulties of financing
    - Lack of sponsors and financing loan
    - Inadequate project budgets
    - Lack of financial attraction of project to potential investors
    - Failure to get financed in time
2. Delay in project approval & permit
    - Refusal of project approval and permit by Government
    - Slow process in getting the project approval and permit
3. Sponsor suitability risk
    - Failure to find suitable sponsors that are fully committed to the project
    - Changes in sponsors in the project team during the construction period

2.6.9 Site risks

Site risks, especially the land-related risks are one of the key reasons on why a project may have to be abandoned [98]. The land used for the PPP projects are usually provided by the Government. Even though the private sectors do not have to conduct feasibility study for the land since it is provided by the Government, in some cases the Government, or public agencies had set some regulations for the private developers to follow.

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[98] Should and can PPPs be assigned ratings? (2009). *Paper presented in Summit on sustainable PPPs in infrastructures.* Chennai.

In some circumstances, the Government prohibited the private sectors to charge the land to the bank [99]. Some of the private sectors might charge the land to the bank in order to raise their financial budget. In other words, the Government had to relinquish the land ownership once the land is charged to the banks. The Government might lose the land if the private sectors failed to repay the loan where the bank could auction the land off to the other potential buyers. Hence, an early assessment needed to be done before the site acquisition stage to provide a correct signal on the probability of success.

The scope of site risks for the purpose of this research is limited to three areas, which are;

1. Land use
    - Site is used for other purposes which makes the site is difficult to acquire
    - Land titles are registered under native title or cultural heritage
2. Site availability & preparation
    - Unable to occupy the site on time
    - Preparation of site takes longer time than usual
    - Existence of existing structure
3. Site or geotechnical conditions
    - Condition of the site is not suitable for proposed development
    - Supporting structures are not suitable
    - Poor ground condition

[99] Abdul Aziz, A.R. & Jahn Kassim, P.S. (2011). Objectives, success and failure factors of housing public-private partnerships in Malaysia. *Habitat International 35*, 150-157.

2.6.10 Social risks

Projects initiated under PPP projects may take decades to be completed. During that construction period, the preferences of the public might change. For instance, the public 10 years ago preferred to purchase a condominium unit due to their higher purchasing power. However, after the condominium project is completed, their preferences changed because of the inflation which lowered their power of purchasing, which caused them to resort on purchasing a low cost terrace house. The risks of changes in public needs increase where the longer the contract, the higher the chance of changes in public needs. The public sectors usually prefer the private sectors to "absorb those risks by stating in their agreements that regardless of the sales outcome, the public sectors were still entitled to the stipulated returns" [100].

The scope of social risks for the purpose of this research is limited to two areas, which are;

1. Changes in demand for output
    - Changes in public needs after the project completion
    - Changes in social interests due to high charges or interests
    - Decreased demand
2. Level of public opposition to project
    - Prejudice from the public due to different living standards, culture, social system etc.

[100] Abdul Aziz, A.R. & Jahn Kassim, P.S. (2011). Objectives, success and failure factors of housing public-private partnerships in Malaysia. *Habitat International 35*, 150-157.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Set of procedures that are used to complete this research. The methodology proposed to conduct this research must be able to reflect the aim and objective of this research. Therefore, the methodology of the research is designed as illustrated in Figure 3.1.

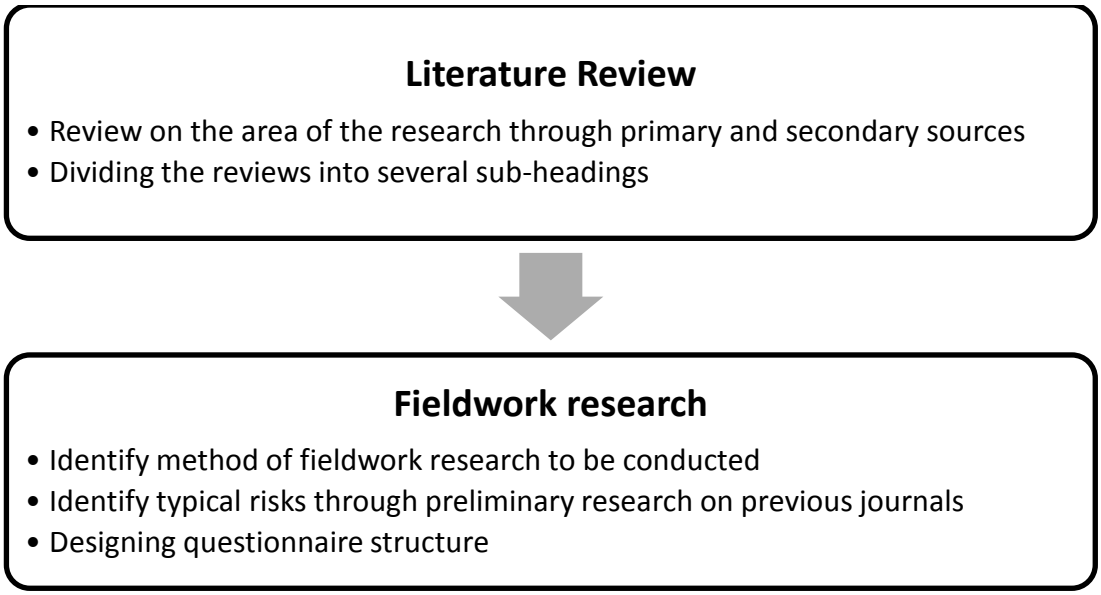

Figure 3.1 : Methodology used to achieve the research's aim and objective

3.2 Literature Review

Literature review is the primary source of this research. It is conducted in order to give the readers a better view and understanding on the research. The contents for the literature review are obtained from both primary and secondary sources such as reference books, journal papers, articles and other extra information that are related to this research such as online resources. A clearer framework can be established through literature review.

The contents under the Literature Review are to be categorised into 6 separate major sub-topics in a concept where the first sub-topic basically describe the conceptual term of PPP worldwide and the later sub-topics shall narrow down the scope of PPP till the typical risks in PPP arrangement. The sub-topics are as illustrated in Figure 3.2;

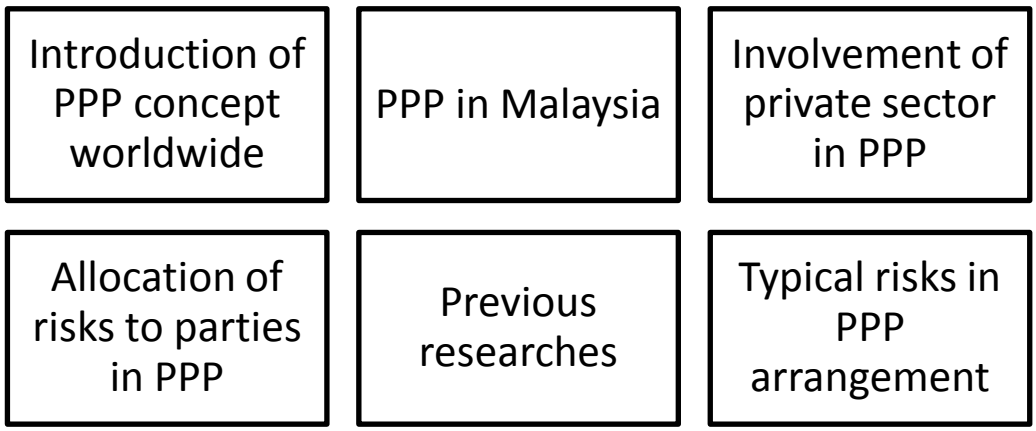

Figure 3.2 : Contents for the Literature Review

The first sub-topic under the Literature Review chapter elaborates the conceptual term of PPP worldwide. The elaboration of the PPP concept worldwide is necessary due to the different implementations and definitions of PPP in each country.

The second sub-topic starts to focus on the implementation of PPP in Malaysia. The evolution of PPP in Malaysia is analysed in detail, from the conventional approach, privatisation approach to the PPP/PFI approach which is implemented mostly in mega projects nowadays. Apart of that, the new conceptual implementation of PPP, PFI is briefly explained.

The third sub-topic reviews on the involvement of private sector in PPP. Private sector's involvement in PPP arrangement is very important due to the expertise that they can provide in the affected PPP projects. Therefore, this sub-topic is meant to rate the significance of their involvement.

The fourth sub-topic identifies the reasons of the allocation of risks to parties involved in PPP. The reasons of the said allocation are to be evaluated based on the perspective of two different parties, which are the Government and the private sector.

The fifth sub-topic shows the result of a study on related previous researches which are conducted in order to identify the method of identifying risks and the results of this research.

The sixth sub-topic identifies and elaborates the general risks that occur in the PPP arrangement. The evaluation of the said risks is important where those risks are to be critically analysed in the designed questionnaire structure, as well as evaluating the respondent's opinion on each risk.

3.3 Data collection

In fulfilling the research’s aim and objectives, a questionnaire survey is conducted where the data needed for analysis purpose will be set and distributed to the selected respondents through online survey. The questions are set based on the objectives of

the research after going through all the information obtained from the literature review.

The respondents of this research are randomly selected from private firms that are located within Klang Valley area. The scope of this research is limited to the mentioned area because the development process in this area is generally faster than other areas in Malaysia. However, the respondents' past experience in getting involved in any PPP project is not taken into account because the main purpose of this research is to obtain the private sector's opinion in the risk arrangement in PPP projects.

Before the distribution of the online-based questionnaire survey, a preliminary research is conducted where nine related PPP journals are selected in order to identify risks that existed in PPP projects. The identification of the risks serve as the main questions asked in the questionnaire survey in getting the respondents' opinion in the risk allocation in PPP projects.

After the questionnaire survey been designed, the email addresses of the randomly selected private firms, regardless of their nature in the construction industry are obtained. A total number of 147 private firms are listed as respondents for this research.

The flow of the data collection is illustrated as shown in Figure 3.3.

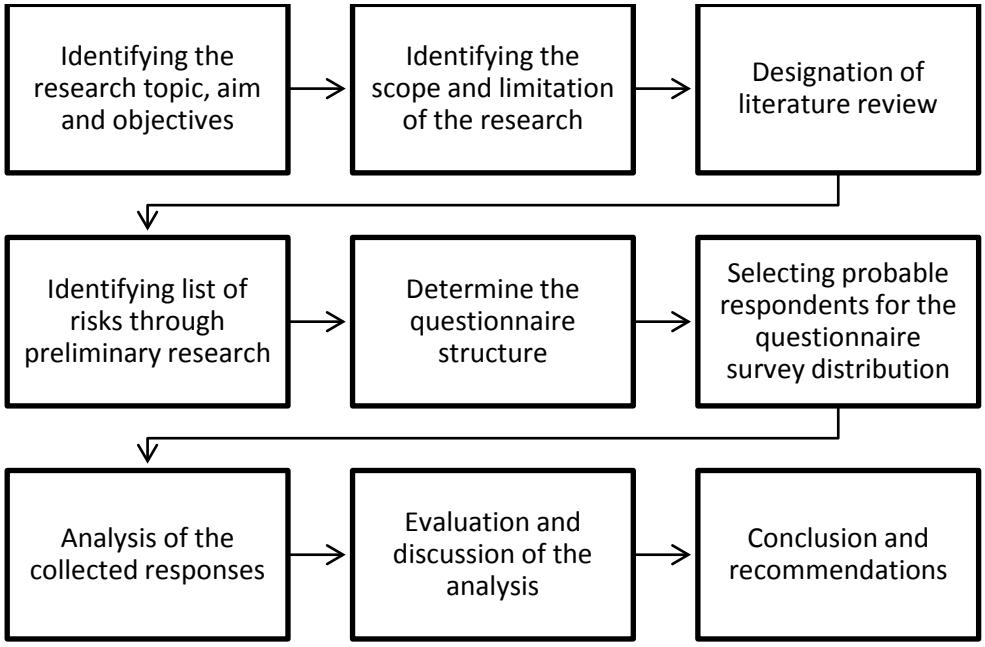

Figure 3.3 : Flow of the research's data collection

3.4 Questionnaire design structure

The questionnaire was structured into 3 sections;

- ✓ Section A – Respondents' background
- ✓ Section B – Respondents' opinions in getting involved in PPP projects
- ✓ Section C – Respondents' preferences on risk allocation in PPP

Section A shall capture the background details of the respondents where respondents will be asked to fill in their companies' name, the nature of the companies, respondents' years of working experience and the companies' primary project.

Respondents in Section B are asked to give their opinion in factors that will influence them to get involved in PPP projects shall they are invited by the Government to collaborate together with them in a particular PPP project.

Respondents in Section C are asked to rate the significance of each risks in affecting the success factor of the implementation of PPP projects, as well as their preference in allocating risks, either accepting the risks, transfer the risks to the Government or sharing the risks between both parties.

A sample of the questionnaire structure for the research is attached as shown in Appendix A.

3.5 Data analysis

3.5.1 Chart illustration

Chart illustration in form of bar and pie chart are used to represent the data collected for the respondents' background.

3.5.2 Likert-scale

3-point likert scale method will be used to analyse Question 1 and 2 in order to classify the responses into a statement or a definite category. 3-point likert scale is used instead of 5-point as the author felt that it is hard for the respondents to determine the variance from the 5-point likert scale.

For instance, respondents will face difficulties to rate the level of risks from "No risk, Less risk, Neutral, High risk, and Very high risk" as there are too many variance between each level, such as the legitimacy between the "High risk" and "Very high risk". Hence, 3-point likert scale is used where the respondents are only required to rate from "No risk, Less risk and High risk" which are easier for the respondents to rate the difference between each level.

The likert scale for the Question 1 is as follow;

- ✓ 1 = No consideration
- ✓ 2 = Less consideration
- ✓ 3 = High consideration

Meanwhile, the likert scale for the Question 2 is as follow;

- ✓ 1 = No risk
- ✓ 2 = Less risk
- ✓ 3 = High risk

However, the value of the 3-point likert scale used in this research will be factored to obtain more accurate results. Hence, the factor as shown below;

- ✓ 1 in 3-point likert scale : 1
- ✓ 2 in 3-point likert scale : 3
- ✓ 3 in 3-point likert scale : 5

3.5.3 Mean analysis

The mean analysis is conducted to measure the central tendency of the result. The author adopted the method used by author A.R. Abdul Aziz and P.S. Jahn Kassim to rank the mean result in their research [101]. The scale is organised as shown in Table 3.1.

[101] Abdul Aziz, A.R. & Jahn Kassim, P.S. (2011). Objectives, success and failure factors of housing public-private partnerships in Malaysia. *Habitat International 35*, 150-157.

Table 3.1 : Mean analysis category for tendency

Scale	Category
1.00 - 1.49	Very low tendency
1.50 - 2.49	Low tendency
2.50 - 3.49	Neutral
3.50 - 4.49	High tendency
4.50 - 5.00	Very high tendency

Meanwhile, for the risk allocation preference analysis, the author adopted the risk allocation categories used by author Yongjian Ke et. al. in their research [102] where the preferred risk allocation options are presented as mean values of participants' responses, as shown in Table 3.2.

Table 3.2 : Mean analysis category for risk allocation

Mean score	Category
< 1.50	Solely allocated to public sector
1.50 – 2.49	Mostly allocated to the public sector
2.50 - 3.49	Equally shared by both parties
3.50 - 4.49	Mostly allocated to the private sector
> 4.50	Solely allocated to the private sector

3.5.4 Standard deviation

The result on the standard deviation will be obtained to determine the consistency of the data. The quality of the data is considered consistent when a minimum figure of standard deviation is produce. The nearer the result of standard deviation to zero (0), the more consistent the result represents.

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[102] Ke Y., Wang S., Chan A.P.C. and Lam P.T.I. (2009). Preferred risk allocation in China's public-private partnership (PPP) projects. *International Journal of Project Management 28 (2010)*, 482-492.

3.5.5 Index

Rating scale is used to find out the acceptability index that determines the acceptability of the private sector on each risk. This method is adopted [103] where the qualitative data obtained from the respondents' response is converted into quantitative data. To find out the acceptability scores, two separate scores are measured, which are allocation index and risk score. Both scores then are multiplied in order to obtain the acceptability score in order to rank the overall implication of each element. The method of identifying the acceptability score is shown in Figure 3.4.

Acceptability index = Risk index * Allocation index

Figure 3.4 : Acceptability index

Risk and allocation score value are produced by using the formula as shown in Figure 3.5.

$$\text{Risk / Allocation Index} = \frac{3N3 + 2N2 + 1N1}{3(N3 + N2 + N1)}$$

where;
N3 = Number of respondents with option 3
N2 = Number of respondents with option 2
N1 = Number of respondents with option 1

Figure 3.5 : Risk and allocation

[103] Lim, E.C. & Alum, J (1995). Construction productivity: Issues encountered by contractors in Singapore. *International Journal of Project Management Volume 13 Issue 1 (1995)*, 51-58.

CHAPTER 4

FINDINGS & DISCUSSIONS

4.1 Analysis on the respondents' background

A total of 147 questionnaires had been distributed to the randomly selected respondents. The selected respondents are the private firms involved in construction industry which are located in Klang Valley area. The nature of the private firms varies from the consultancy, contractor, multi-disciplinary to specialist nature.

4.1.1 Survey return rate

As can be seen in Figure 4.1, only 32 feedbacks out of 147 questionnaires had been successfully obtained, with the percentage of 21.77%. The response rate is particularly low due to the lack of cooperation from the selected respondents to participate in this research. Even though the author had follow up the status of the questionnaires constantly as well as conducting the data collection through online webpage which is more convenient than sending the survey hardcopy, the responses however are still below the author's expectations.

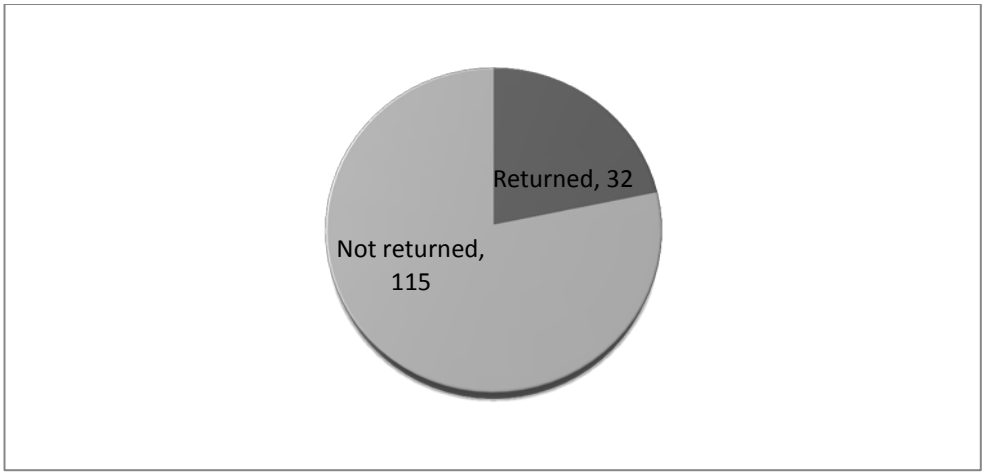
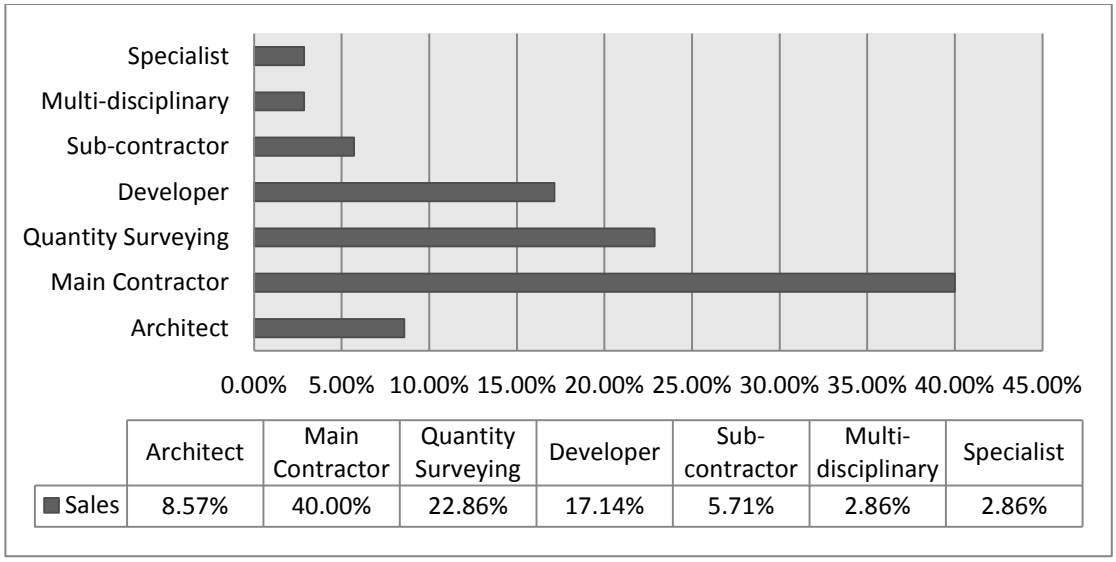


Figure 4.1 : Return rate of the distributed questionnaires

Apart of that, there are some of the selected respondents which did not update their current information where some of the survey which are sent via email had been rejected due to inactive email account. The low response rate may also due to their unfamiliarity in the PPP term which is still quite new in our country, considering the low number of PPP projects compared to projects implemented under different procurement systems.

4.1.2 Respondent's company profession

The respondents' company professions vary as shown in Figure 4.2. Companies with main contractor nature contribute the highest percentage of the questionnaire feedback, which are 40.00%. This is followed by quantity surveying profession with 22.86%, developer 17.14%, architect 8.57%, sub-contractor with 5.71% and the lowest percentage by specialist and multi-disciplinary with only 2.86%.



	Architect	Main Contractor	Quantity Surveying	Developer	Sub-contractor	Multi-disciplinary	Specialist
Sales	8.57%	40.00%	22.86%	17.14%	5.71%	2.86%	2.86%

Figure 4.2 : Respondents' company professions

The Main Contractor contributes the highest percentage of the survey response rate probably due to their experience in managing different types of projects, as well as their higher probability of collaborating together with the Government in getting involved in a project. Apart of that, it is norm for a project where the main contractor will have higher involvement in different project stage, particularly in the construction stage compared to companies from other natures. Hence, it is safe to say that the main contractor has more experience is the overall stage of the PPP projects.

4.1.3 Respondents' company primary projects

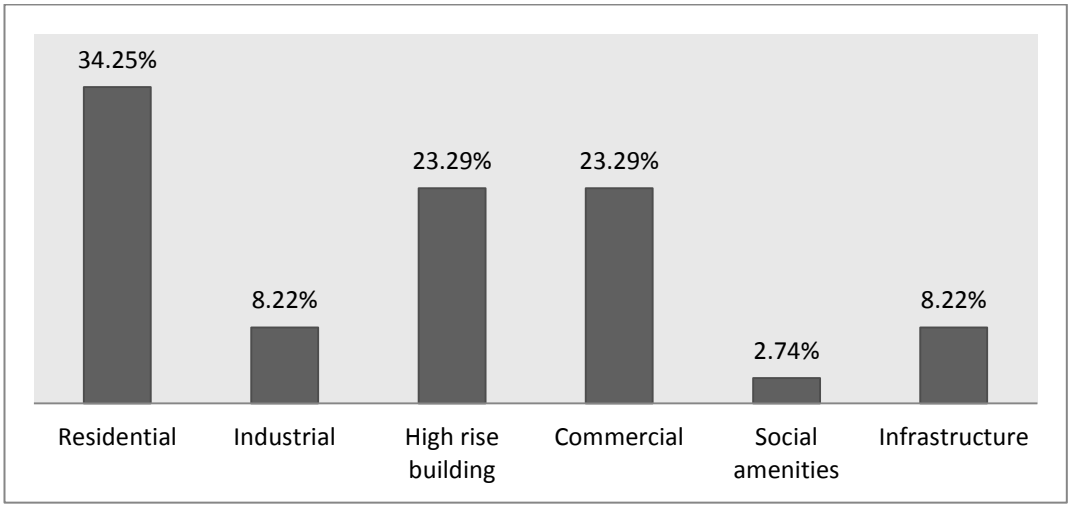


Figure 4.3 : Respondents' company primary projects

As shown in Figure 4.3, 34.25% of the 32 responses are primarily getting involved in residential projects. This is followed by high rise building and commercial projects with 23.29% respectively, industrial and infrastructure projects with 8.22% respectively and social amenities projects the lowest with only 2.74%.

As explained in the literature review, the conceptual term of PPP had been implemented earlier before the official introduction of PPP concept in Malaysia. This had been proven through the existence of research with the title "Objectives, success and failure factors of housing public-private partnerships in Malaysia" in 2011 by Abdul Aziz and Jahn Kassim. This signifies that the implementation of PPP concept in residential projects could have been more common compared to other project types in Malaysia.

4.2 Analysis on the involvement of private sector in PPP projects

4.2.1 Consideration by the private sector to get involved in PPP projects

Table 4.1 : Consideration in getting involved in PPP projects

CONSIDERATION	RESPONSES (%)			MEAN	STANDARD DEVIATION	RANK
	1	2	3			
Profitability of the project	-	18.75	81.25	4.625	0.793	1
Amount of risk allocated to your company upon contract negotiation	-	25.00	75.00	4.500	0.880	2
Previous experience in collaborating together with Government and other agencies	28.13	43.75	28.13	3.000	1.524	3

Remarks

1 = No consideration

2 = Less consideration

3 = High consideration

Table 4.1 shows analysis of the level of consideration that the private sector will consider to get involved in PPP projects. The rank is determined by using the mean value as reference.

With the mean of 4.625, 81.25% of the respondents agree that they will highly consider collaborating together with the Government in PPP projects based on the ***profitability of the project*** whereas 18.75% of the respondents show less consideration on it. The competitiveness level of the private sector in local construction industry is very high where they are willing to win the Government's project tender to earn more profit. The private sector sees this typical PPP arrangement as an opportunity to earn more profits as well as increasing their reputation to increase their chances to win more future PPP projects. These profits can be earned during the concession period where the private sector will have the opportunity to operate the facilities for a period of time before returning back the facilities to the Government. It shows that the private sector is willing to take large

risk in order to get their desired return, with the degree of consistency of 0.793, which is the most consistent compared to the other types of consideration.

With the mean of 4.500 and consistency level of 0.880, 75.00% of the respondent will highly consider involving in PPP projects based on the ***amount of risk allocated to their company upon contract negotiation*** with 25.00% of them shows less consideration on it. The mean difference of only 0.125 from the "profitability of the project" shows that the private sector also considers the amount of the risk allocated to them apart of the profitability. Most of the projects implemented using PPP concepts are complex and large which requires determination and commitment from both sides. It is impossible for the private sector to involve in such projects without any guarantee of support from the Government. Apart of that, the private sector has to ensure that the risks allocated to them are the risks type that they can handle well as well as ensuring that there are fair allocations of risks between both parties. Their participation in PPP projects without knowing well their capabilities may backfire them when any problem occurs.

Only 28.13% of the respondents show high consideration on their ***previous experience in collaborating together with the Government and other agencies*** where majority of them, 43.75% show less consideration and 28.13% will not consider on their previous experience. However, the consistency level of their response which is 1.524 shows that the private sector is still undecided on how their previous experience will influence their performance in PPP projects. They showed less consideration on their previous experiences probably because they are more inspired on the profitability of the PPP projects. Apart of that, the private sector is willing to find more challenges where they are confident on their capabilities on handling the PPP project regardless of their previous experience.

4.2.2 Respondents' opinion in the risk impact in PPP projects

Table 4.2 : Level of risks in influencing the success factor of PPP projects

RISK	RESPONSES (%)			MEAN	STANDARD DEVIATION	RANK
	1	2	3			
Design & construction	3.13	28.13	68.75	4.313	1.091	1
Legal & contractual	6.25	28.13	65.63	4.188	1.230	2
Project	3.13	56.25	40.63	3.750	1.107	3
Operating	15.63	37.50	46.88	3.625	1.476	4
Social	21.88	43.75	34.38	3.250	1.503	5
Political	15.63	59.38	25.00	3.188	1.281	6
Macroeconomic	6.25	78.13	15.63	3.188	0.931	6
Organisation / Coordination	3.13	87.50	9.38	3.125	0.707	8
Site	31.25	46.88	21.88	2.813	1.469	9
Natural	28.13	59.38	12.50	2.750	1.320	10

Remarks

1 = *No risk*

2 = *Less risk*

3 = *High risk*

Table 4.2 shows the analysis on the respondents' opinion in the risk impact that will occur in the PPP arrangement. The rank is determined by using the mean value as reference.

68.75% of the respondents feel that ***design and construction risk*** will gives the highest impact with the mean value of 4.313 and consistency level of 1.091. Design and construction risk has the highest rank because the private sector will handle most the project responsibilities during the design and construction stage. Their performance in this stage will determine the success of the projects because in this stage, they will handle a lot of variations such as changes in construction drawings, increase in material prices, failure to complete the project in time which brings huge impact to the project completion. Extension of time due to private sector's default will cause imbalance on the financial budget as they need to pay the liquidated damages to the Government and also financial institutes. Hence it is crucial for the private sector to complete the project in time and within cost.

Legal and contractual risk ranks second with the mean value of 4.188 and consistency level of 1.230. It is norm in local construction industry that several disputes may occur during the construction process. In term of legal aspect, Government takes the huge responsibilities as they are the law-maker in the country. If the specific law or legislation which is approved by the Government did not bring advantages to the private sector, the private sector will suffer losses in the end. In term of contractual aspect, the private sector bears more responsibilities as they need to ensure that the contractual aspects are handled well to avoid any dispute and variation. The private sector has to ensure the specifications and the quantities proposed in the contracts are accurate because any default had to be bear by the private sector unless the Government is willing to re-enter the contract negotiation.

Project risk ranks third with the mean value of 3.750 and consistency level of 1.107. 40.63% of the respondents feel that project risk will causes more impact in the PPP arrangement because most of the project risks are dealing with the financial aspect. It is important to ensure that parties entering into the PPP projects have the strong financial support because the strong financial health will ensure the smooth progress of the PPP projects if there work programme or package exceeds their planned budget. However, 56.25% of the respondents feel that the project risk will give less impact in the PPP arrangement. This is probably because the responsibility of ensuring the PPP project will implemented successfully during the initial stage shall be shifted to the Government as Government is the one who initiates a particular PPP project. Since the objective of the PPP project is to ensure that the project meets the public needs, the Government shall ensure that the project can initiates with less problems.

Operating risk ranks fourth with the mean value of 3.625 and consistency level of 1.476. 46.88% of the respondents feel that the operating risk will give high impact because the project, after the completion stage will still be handled by them. It is the private sector's responsibility and initiative to find a way to generate more profits during the concession period as they will be the one who will operate the projects for an agreed time before shifting the project responsibilities back to the Government. 37.50% of them feel the operating risk will give less impact probably

because of their confidence that demand from the public on the project will still high during the operation stage. The high demand from the public interest will ensure that they can generate more revenue during the concession period.

With the mean value of 3.250, ***social risk*** ranks fifth among 10 general risks. The consistency level for the social risk is the lowest, which is 1.503. This indicates that the respondents have different opinions on how the social risk will give impact to the PPP projects. 43.75% of the respondents consider the social risk to give less impact to the PPP projects probably because of their confidence in ensuring that the demand for output will still there after the project completion. However, public needs may change during the duration of the construction stage as a PPP project may need several years to be completed where 34.38% of the respondents agreed that the social risk has high impact.

Political risk ranks sixth with the mean value of 3.188 and consistency level of 1.281. 59.38% of the respondents consider the political risk will give less impact probably because of the stability that the Government can maintain. In the 55 years since the country's independence, the Government is still ruled by the same political party. The private sector is confident that the Government will ensure the success implementation of PPP projects so that the project can meet the public needs and continue win the public's support.

Macroeconomic risk shares the same position with political risk, with the consistency level of 0.931. Compared to political risk, macroeconomic risk has the higher consistency of response where 78.13% of the respondents feel that it will give less impact to the project. This is probably because since the 1997 Asian financial crisis, Malaysia's economic status had been maintained well by the Government. The results obtained differ to the literature review where it is reviewed that the North-South Highway Express suffered huge losses due to inflation. There is a possibility that the private sector is confident on the macroeconomic status of the country.

Organisation / Coordination risk ranks eighth with the mean value of 3.125. The consistency level is the highest with the value of 0.707. This shows that most of

the respondents, which comprises of 87.50%, agreed that this risk will give less impact to the PPP projects. Private sector may feel that both parties enter into the initiation of PPP projects with their own objectives and target. Hence, in order to ensure that each party will meet their target, both parties will help each other to ensure that there will be a win-win situation at the end of the project. The private sector did not see their inadequate experience in PPP project will give huge impact to them as all it requires for a project to succeed is the good teamwork and management from both parties.

Site risk ranks ninth with the mean value of 2.813. However, the consistency level is the second lowest with 1.469 in value. This shows that the respondents are still not united in determining the impact that the site risk will contribute to the project where they had their own opinion on their valuation. Majority 46.88% of the respondents feels that less impact will be expected from the site risks because it is the responsibility for both sides to corporate together to find a suitable site for the project. Late initiation of the project will cause wastage in term of time and cost.

Natural risk ranks the lowest, with the mean value of 2.750 and the consistency level of 1.320. 59.38% of the respondents feel that natural risk will give less impact because in case there are incidents related to natural events happened during the construction stage, there is insurance cover to protect the possible losses. Apart of that, seldom natural disasters had happened in this country compared to other countries that are exposed to more serious natural disasters such as tsunamis, volcano explosions and earthquakes.

4.3 Analysis on the private sector's preferable allocation of risk in PPP

Analysis on the private sector's preference in risk allocation in PPP is conducted under this sub-topic. Two tables of comparison are generated, which are;

- ✓ Table 4.3, which shows the mean and consistency value of each typical risk
- ✓ Table 4.4, which shows the overall preference of risk allocation by the private sector

From the tables above, the analyses are then further breakdown into 5 separate specific analyses, which are;

- ✓ Analysis on risks to be solely accepted by the private sector
- ✓ Analysis on risks to be allocated mostly to the private sector
- ✓ Analysis on risks to be shared equally between both parties
- ✓ Analysis on risks to be allocated mostly to the Government
- ✓ Analysis on risks to be solely allocated to the Government

Table 4.3 : Private sector's preference on risk allocation in PPP projects (pt. 1)

RISK	RISK ALLOCATION (%)			MEAN	STANDARD DEVIATION
	PUBLIC	SHARED	PRIVATE		
Design & construction risk					
Availability of material / labour	12.50	53.13	34.38	3.438	1.318
Construction completion delay	9.38	28.13	62.50	4.063	1.343
Construction cost overrun	12.50	21.88	65.63	4.063	1.435
Design default	9.38	50.00	40.63	3.938	1.435
Failure of commissioning test	12.50	62.50	25.00	3.250	1.218
Failure to meet performance criteria	15.63	21.88	62.50	3.938	1.523
Unproven engineering techniques	21.88	62.50	15.63	2.875	1.238
Legal & contractual risk					
Changes in law & legislation	71.88	18.75	9.38	1.750	1.320
Changes in tax regulation	68.75	9.38	21.88	2.063	1.684
Excessive contract variation	37.50	59.38	3.13	2.313	1.091
Industrial regulatory change	62.50	31.25	6.25	1.875	1.238
Poor contract management	12.50	78.13	9.38	2.938	0.948
Macroeconomic risk					
Inflation	37.50	59.38	3.13	2.313	1.091
Influential economic events	53.13	43.75	3.13	2.000	1.136
Interest rates	50.00	34.38	15.63	2.313	1.491
Poor financial market	59.38	28.13	12.50	2.063	1.435
Natural risk					
Environment	12.50	75.00	12.50	3.000	1.016
Force majeure	12.50	87.50	-	2.750	0.672
Weather	9.38	90.63	-	2.813	0.592
Operating risk					
Delays / interruption in operation	-	53.13	46.88	3.938	1.014
Higher maintenance cost / frequent maintenance	6.25	62.50	31.25	3.500	1.136
Low operating productivity	9.38	50.00	40.63	3.625	1.289
Operating cost overrun	6.25	25.00	68.75	4.250	1.218
Operational revenues below expectation	25.00	50.00	25.00	3.000	1.437
Residual transfer value	25.00	65.63	9.38	2.688	1.148
Shortfall in service quality	12.50	18.75	68.75	4.125	1.431
Organisation / Coordination risk					
Inadequate experience in PPP/PFI	9.38	75.00	15.63	3.125	1.008
Lack of coordination & commitment	9.38	81.25	9.38	3.000	0.880
Project risk					
Availability of project finance	12.50	75.00	12.50	3.000	1.016
Delay in project approval & permit	56.25	25.00	18.75	2.250	1.586
Sponsor suitability risk	31.25	56.25	12.50	2.625	1.289
Political risk					
Changes in ownership	53.13	31.25	15.63	2.250	1.503
Expropriation / nationalisation of assets	59.38	28.13	12.50	2.063	1.435
Poor public decision-making process	68.75	25.00	6.25	1.750	1.218
Strong political opposition & interference	71.88	18.75	9.38	1.750	1.320
Unstable government	78.13	18.75	3.13	1.500	1.016
Site risk					
Land use	25.00	65.63	9.38	2.688	1.148
Site availability & preparation	3.13	78.13	18.75	3.313	0.896
Site / Geotechnical conditions	-	87.50	12.50	3.250	0.672
Social risk					
Changes in demand for output	15.63	65.63	18.75	3.063	1.190
Level of public opposition to project	50.00	40.63	9.38	2.188	1.330

Table 4.4 : Private sector's preference on risk allocation in PPP projects (pt. 2)

RISK	MEAN	CATEGORY				
		1	2	3	4	5
Design & construction risk						
Availability of material / labour	3.438			√		
Construction completion delay	4.063				√	
Construction cost overrun	4.063				√	
Design default	3.938				√	
Failure of commissioning test	3.250			√		
Failure to meet performance criteria	3.938				√	
Unproven engineering techniques	2.875			√		
Legal & contractual risk						
Changes in law & legislation	1.750		√			
Changes in tax regulation	2.063		√			
Excessive contract variation	2.313		√			
Industrial regulatory change	1.875		√			
Poor contract management	2.938			√		
Macroeconomic risk						
Inflation	2.313		√			
Influential economic events	2.000		√			
Interest rates	2.313		√			
Poor financial market	2.063		√			
Natural risk						
Environment	3.000			√		
Force majeure	2.750			√		
Weather	2.813			√		
Operating risk						
Delays / interruption in operation	3.938				√	
Higher maintenance cost / frequent maintenance	3.500				√	
Low operating productivity	3.625				√	
Operating cost overrun	4.250				√	
Operational revenues below expectation	3.000			√		
Residual transfer value	2.688			√		
Shortfall in service quality	4.125				√	
Organisation / Coordination risk						
Inadequate experience in PPP/PFI	3.125			√		
Lack of coordination & commitment	3.000			√		
Project risk						
Availability of project finance	3.000			√		
Delay in project approval & permit	2.250		√			
Sponsor suitability risk	2.625			√		
Political risk						
Changes in ownership	2.250		√			
Expropriation / nationalisation of assets	2.063		√			
Poor public decision-making process	1.750		√			
Strong political opposition & interference	1.750		√			
Unstable government	1.500		√			
Site risk						
Land use	2.688			√		
Site availability & preparation	3.313			√		
Site / Geotechnical conditions	3.250			√		
Social risk						
Changes in demand for output	3.063			√		
Level of public opposition to project	2.188		√			

Remarks

1 = *Solely allocated to the public sector*

2 = *Mostly allocated to the public sector*

3 = *Equally shared by both parties*

4 = *Mostly allocated to the private sector*

5 = *Solely allocated to the private*

4.3.1 Risks to be solely accepted by the private sector

From the analysis, it is reviewed that the private sector is not willing to accept any particular risk in totality.

4.3.2 Risks to be allocated mostly to the private sector

Table 4.5 : Risks to be allocated mostly to the private sector

RISKS	MEAN	STANDARD DEVIATION
Operating cost overrun	4.250	1.218
Shortfall in service quality	4.125	1.431
Construction completion delay	4.063	1.343
Construction cost overrun	4.063	1.435
Design default	3.938	1.435
Failure to meet performance criteria	3.938	1.523
Delays / interruption in operation	3.938	1.014
Low operating productivity	3.625	1.289
Higher maintenance cost / frequent maintenance	3.500	1.136

Table 4.5 shows the analysis on the typical risks that the private sector willing to be allocated mostly to the private sector. The typical risks are ranked based on the value of the mean.

Operating cost overrun scores the highest mean value with the amount of 4.250 with the consistency level of 1.218. 68.75% of the respondents are willing to allocate this typical risk to their side because of their responsibilities to handle well the operating stage. Any cost overrun during the operating stage should be bear by the private sector as the Government has very little responsibilities in this stage, especially since it is agreed in the contractual agreement that the private sector will handle the operation stage after the project completion.

Shortfall in service quality scores the mean value of 4.125 with the consistency level of 1.431. The respondents are in opinion that this typical shall be allocated to their side because any default in service quality could only happened because of their own fault. For instance, default by the operator, failure to provide adequate quality in term of services and poor services provided by the private sector during the concession period.

Construction completion delay scores the mean value of 4.063 with 1.343 score in consistency level. Similarly to operating stage, the private sector is also largely involved in the construction stage where the delay in completion could probably happen due to the ineffective work programme. This work programme is usually done by the contractor, in this case the private sector. It is the private sector's responsibility to monitor the progress of the works diligently.

Construction cost overrun scores similar mean value with ***construction completion delay***, with a slightly lower consistency level which is 1.435. These two typical risks are inter-related where the construction cost overrun will probably happen because of the completion delay. If there is delay in the completion, the private sector will be forced to pay damages to the Government where the penalty charged to the private sector may disrupt the tight financial budget.

Design default, ***failure to meet performance criteria*** and ***delays / interruption in operation*** score the same mean value with 3.938 respectively.

In term of consistency level, ***failure to meet performance criteria*** scores the lowest value among all the typical risks that the private sector is willing to be allocated to their sides. This is probably because there are several factors that will cause the failure to meet the performance criteria, which the private sector shall not be solely blamed. For instance, Government may cause the failure of the private sector to meet the performance criteria due to the inconsistency by the sub-contractors nominated by the Government to perform their works as expected. However, the respondents are still in the opinion that this typical risk shall be allocated more towards their sides as their performance will largely determine the quality of the project.

Design default scores 1.435 for the consistency level due to constant changes of design or design proposals where both parties cannot come into consensus. However, this typical risk in the respondents' opinion shall be either shared or allocated mostly to the private sector as the design default could probably happened due to their failure to identify any default when the construction stage begins.

Low operating productivity scores the mean value of 3.625 with the consistency level of 1.014, which is the highest among all the typical risks that the private sector willing to allocate to their sides. The score of 3.625 indicates that part of this typical risk shall be shared between both parties. This is probably because the social needs may influence the cause of low operating productivity where the Government shall ensure that the scope of the public needs will not change during the concession period.

Surprisingly, ***higher maintenance cost / frequent maintenance*** scores the lowest mean value among the typical risks under this category with 3.500 and consistency level of 1.136. The author expected the mean value of this typical risk to be higher as the maintenance part should be under the responsibility of the private sector. Constant maintenance will only happen due to defects which should be bear by the private sector, but the analysis indicates that this typical risk are lean more towards to sharing of risk allocation. This indicates that the private sector does expect the involvement of the Government in this typical risk.

4.3.3 Risks to be equally shared between both parties

Table 4.6 : Risks to be equally shared between both parties

RISKS	MEAN	STANDARD DEVIATION
Availability of material / labour	3.438	1.318
Site availability & preparation	3.313	0.896
Failure of commissioning test	3.250	1.218
Site / Geotechnical conditions	3.250	0.672
Inadequate experience in PPP/PFI	3.125	1.008
Changes in demand for output	3.063	1.190
Environment	3.000	1.016
Operational revenues below expectation	3.000	1.437
Lack of coordination & commitment	3.000	0.880
Availability of project finance	3.000	1.016
Poor contract management	2.938	0.948
Unproven engineering techniques	2.875	1.238
Weather	2.813	0.592
Force majeure	2.750	0.672
Residual transfer value	2.688	1.148
Land use	2.688	1.148
Sponsor suitability risk	2.625	1.289

Table 4.6 shows the typical risks which in the private sector's opinion shall be equally shared between both parties. The typical risks are ranked based on the mean value.

Availability of material / labour scores the mean value of 3.438 with the consistency level of 1.318. This typical risk in the respondents' opinion shall be shared between both parties probably because in term of material availability, the private sector provides specifications based on the Government-initiated project's needs. Apart of that, the materials that are only available at the foreign countries may increase rapidly in term of price if the Government fails to control the current currency exchange. In term of availability of labour, the Government is largely involved in the foreign labour intake procedure as it is related to the diplomatic relations with foreign countries. This typical risk shall be shared since Government

wants to avoid a large dependence of local projects to the foreign workforce, whereas the private sector wants a cheaper workforce.

Site availability and preparation scores the mean value of 3.313 with the consistency level of 0.896. Respondents are in the opinion that this typical risk shall be shared between both parties because the location of the project is largely dependent to the Government's area of the development. A big project can provides development to the surrounding of the project which basically means that the Government will have a bigger decision-making in the site selection process. However, the private sector shall ensure that the site is available on time because the procedure of permit approval is handled by them as well as ensuring that there is no existing structure at the selected site.

Failure of commissioning test and ***site / geotechnical condition*** scores the same mean value with 3.250. The consistency level for ***site / geotechnical condition*** is the lowest with 0.672 which indicates that the respondents had higher consistency in ensuring that this typical risk to be shared between both parties. As mentioned above, the Government has the bigger decision-making in the site selection where the condition of the site is largely dependent to the selection of the site. Private sector shall ensure that the site condition is suitable for the proposed project.

Failure of commissioning test scores the consistency level of 1.218 which shows that in the private sector's opinion, Government shall get involved in the commissioning test too. This result is surprising as the commissioning test is usually conducted by the private sector during the construction stage where direct involvement of Government is very rare in this stage. This is probably because the private sector wants the Government to provide support in case there is any failure on the commissioning test.

Inadequate experience in PPP scores the mean value of 3.125 with the consistency level of 1.008. This typical risk shall be shared between both parties as the implementation of PPP in local construction industry are still quite few compared to other procurement approaches where both parties are familiar with. Both parties

in the private sector's opinion are still unfamiliar with the capabilities of the other parties where it is probable that both parties are collaborating for the first time. Both parties shall support each other to ensure that they can perform well in the project.

Changes in demand for output score the mean value of 3.063 with the consistency level of 1.190. This typical risk shall be shared between both parties because the success of this project after completion largely relies on how well the private sector manages the facilities. If the project failed to receive high demand during the concession period, the private sector will fail to earn profit. Government has to ensure that the demand for output will still be available during the concession period.

Environment, ***operational revenues below expectation***, ***lack of coordination and commitment*** and ***availability of project finance*** score the mean value of 3.000. This signifies that in the private sector's opinion, all these typical risks shall be shared with the same amount of responsibility between the Government and the private sector.

Lack of coordination and commitment scores the consistency level of 0.880. The private sector probably feels that it is hard for them to cooperate together with Government without any good coordination and commitment. They require a good teamwork and also getting involved in a team or consortium that aims for an ultimate goal which is to reach the success implementation of PPP projects. Even though both parties had their own personal desire and expectation in PPP project, the main objective of a PPP project shall be fulfilled first. In order to fulfil the objective, indeed a good coordination and commitment from both parties are required.

Availability of project finance scores the consistency level of 1.016. The financial health and budget is very important in order to initiate a project, especially a PPP project which requires a huge amount of budget since most PPP projects are large and complex requiring a lot of expertise. Unavailability of financial instruments, such as banks and public-listed companies in funding for a particular PPP project will cause difficulties in financing. These financial instruments need to be convinced

on the advantages of a project to be implemented under conceptual term of PPP which requires effort from both parties.

Environment risk scores the same consistency value with ***availability of project finance***, which is 1.016. Depending on the site location, several environmental issues may occur which is unavoidable. Apart of that, a lot of environmental pollution issues that will happen during the construction stage. Existence of pollutions will cause opposition from the public and also non-government organisation. Hence, efforts need to be taken between both parties to ensure that minimal environmental issues will occur. Sharing of risk between both parties will be ideal where both sides will pay special attention to the environmental issues.

Operational revenues below expectation have the consistency value of 1.437, which is the lowest among other typical risks that are shared between both parties. It shows that there is no consistency between the respondents where a lot of respondents feel that this typical risk shall be either transferred to the Government or accepted by the private sector. This is very subjective however because there are many factors that contribute to the existence of this typical risk. From the Government's perspective, this risk will happen where the operational revenues below expectation because the demand from the public is no longer high after the project completion. The private sector will find difficulties to generate high revenues. From the private sector, the revenues will below the expectation because of their method of generating the revenues. For instance, for highway project, the private sector implements high toll fees which will burden the public. Hence, this typical risk shall be shared where both parties can control this risk from happening.

Poor contract management scores the mean value of 2.938, with the consistency level of 0.948. In the private sector's opinion, this typical risk shall be shared probably because of the newly implemented PPP concept in local construction projects which requires modification to the standard form of contract. Faulty description in the modified form of contract may cause several contract disputes which will be troublesome and time-dragging.

Unproven engineering techniques have the mean level of 2.875, with the consistency level of 1.238. The private sector feels that this typical risk shall be shared probably because of the need of the project to implement new or advance technology which is never proved in other projects before. Any failure happen due to the unproven engineering techniques will causes failure to the project itself. Hence, this risk should be shared where the Government must consider the implementation of that particular unproven engineering technique so that both parties can come with an agreed consensus without any objection from either party.

Weather risk scores 2.813 in mean value and 0.592 in consistency level. Similarly to ***force majeure*** risk which scores 2.750 in mean value and 0.672 in consistency level, both risks shall be shared between both sector as the occurrence of these risks to happen are uncontrollable by both sides. Both the private sector and the Government should opt to purchase insurance to cover against any damage that might happen when these risks happen.

Residual transfer value and ***land use*** score the same mean level and consistency level, which are 2.688 and 1.148 respectively. ***Residual transfer value*** risk in the private sector's opinion must be shared between both parties because they worried that the project value will change when the project is transferred back to the Government at the end of the concession period. Increase of the project value will brings benefits to the private sector, but the risk of the reduction of the project value is still cannot be denied. Hence, the private sector has to ensure that the Government will allow for the possible fluctuation value when the project is transferred back to the Government. ***Land use*** risk meanwhile shall be shared as the site selection is agreed between both sides. If it is found out that the land titles are registered under native title or cultural heritage, it is the Government's role to ensure that the land titles to be converted with the agreement of the land owners. Apart of that, the Government shall ensure that the land is not used for other purposes. The private sector shall also help the Government to check on the suitability of the land.

Sponsor suitability risk scores the mean value of 2.625 and consistency level of 1.289. This typical risk is leaned more towards the allocation to the Government as in the private sector's opinion, it is a must for the Government to find a suitable sponsor that are fully committed to the project. This is because, if the selected sponsors withdrawn themselves from the project during the construction project, the project will face a possible financial crisis. The private sector here however must also ensure the suitability of the sponsors by showing their capabilities and expertises clearly which will convince the sponsor to continue investing on the project.

4.3.4 Risks to be allocated mostly to the Government

Table 4.7 : Risks to be allocated mostly to the Government

RISKS	MEAN	STANDARD DEVIATION
Excessive contract variation	2.313	1.091
Inflation	2.313	1.091
Interest rates	2.313	1.491
Delay in project approval & permit	2.250	1.586
Changes in ownership	2.250	1.503
Level of public opposition to project	2.188	1.330
Changes in tax regulation	2.063	1.684
Poor financial market	2.063	1.435
Expropriation / nationalisation of assets	2.063	1.435
Influential economic events	2.000	1.136
Industrial regulatory change	1.875	1.238
Changes in law & legislation	1.750	1.320
Poor public decision-making process	1.750	1.218
Strong political opposition & interference	1.750	1.320
Unstable government	1.500	1.016

Table 4.7 shows the typical risks that in the private sector's opinion should be allocated mostly to the Government. The risks are ranked based on the mean value.

Excessive contract variation, ***inflation*** and ***interest rates*** score the mean value of 2.313 with the consistency level of 1.091, 1.091 and 1.491 respectively. The

respondents feel that the ***excessive contract variation*** risk shall be allocated mostly to the Government probably because they feared that there will be a lot of changes in specifications from the Government during the construction process. These changes will cause unnecessary expenses to the specifications which bring to the increase in cost. However, the author felt that the private sector should be partly responsible in the occurrence of this risk as the variation may also occur due to the inaccurate estimates by the private sector. Meanwhile, ***inflation*** and ***interest rate*** risk shall be allocated to the Government because these risks will only occur due to the immature local economic and banking system which is under the Government's control.

Delay in project approval & permit and ***changes in ownership*** risk score the mean value of 2.250 with consistency level of 1.586 and 1.503 respectively. ***Delay in project approval & permit*** shall be mostly allocated to the Government probably because of the refusal of project approval permit by the Government. It is possible that the Government refuses to do so because they are not satisfied on the proposal proposed by the private sector which causes the delay. Apart of that, slow efficiency by the Government to process the approval and permit might also causes the blame to be shifted to the Government. Hence, the Government shall ensure that the efficiency in the project approval and permit to be improved. However, the respondents' opinion is not consistent where the value of 1.586 is the highest among all the typical risks that should be mostly allocated to the Government. This shows that in the respondents' opinion, part of the responsibilities shall also be accepted by the private sector as they are the one who prepare the approval and permit documentation. Their efficiency in preparing all those documentation allows the Government to process the application faster.

Changes in ownership risk is definitely should be transferred to the Government. Since a PPP project will require few years to complete, not mentioning the period the concession, there is a possibility that the country leadership will change during the construction stage. Even though the current political situation in Malaysia is very stable, where there is no change in leadership since her independence, the risk of changes in ownership shall not be totally eliminated.

Level of public opposition to project risk has the mean value of 2.188 and consistency level of 1.330. The project proposed by the Government probably cannot satisfy every citizen because of their different living standards, culture, social system etc. Every citizen has their own opinions on the implementation of PPP projects where they will judge on how the projects will benefit them in the future. The Government shall find a way to determine the public needs where it shall satisfy most of the public levels.

Changes in tax regulation, ***poor financial market*** and ***expropriation / nationalisation of assets*** score the mean value of 2.063 with the consistency level of 1.684, 1.435 and 1.435 respectively. Risk of ***changes in tax regulation*** should be allocated to the Government because Government is the one who control the amount of tax that needed to be charged to a certain project. Government must set a uniform rule where there will be fewer changes in the tax regulation during the implementation of PPP project. Inconsistent application to the tax regulation will cause difficulties for the private sector in balancing the project's financial budget.

Poor financial market risk meanwhile should be transferred to the Government as Government has the large amount of control on the financial market stability. Inability of the Government to handle the financial market such as inappropriate tariff implementation, inappropriate tariff increase and improper tariff design will cause poor condition in financial market where it is hard for the private sector to have a proper planning in the financial budget. However, the private sector shall also take some of the responsibilities in this typical risk as the private sector should also help the Government to find more income to be merged into the project's financial health. It is always better to ensure that the project's financial health always can be maintained.

Expropriation/nationalisation of assets shall also allocated mostly to the Government side because there might be a probability that the Government will suddenly take over the facilities from the private sector during the concession period with any approval from the private sector. The private sector probably wanted an

assurance from the Government that the concession period shall be respected and guaranteed to be handled by the private sector without any unexpected interference.

Influential economic events scores 2.000 in mean value and 1.136 in consistency level. This typical risk should be shifted to the Government's responsibilities where Government shall ensure that there is no big fluctuation to the currency exchange rate. Big fluctuation to the exchange rate will cause big increase of money when materials are ordered from the foreign countries. Government should allow for re-negotiation of material price during the construction stage where the private sector is allowed to adjust the contract sum if there is any fluctuation of price.

Industrial regulatory change scores 1.875 in mean value with 1.238 in consistency level. It is the Government's responsibility to keep a close eye on the prices and products to ensure that the suppliers will not have an advantage to monopolize and take advantage on the consumers. Government also need to make sure that there is transparency between all the public agencies as there is a possibility that each agency may cooperate with each other to start the monopoly which causes increase in prices and decrease in competitiveness.

Changes in law and legislation, ***poor public decision-making process*** and ***strong political opposition & interference*** score the mean value of 1.750 with consistency level of 1.320, 1.218 and 1.320 respectively. Risk on ***changes in law and legislation*** shall be allocated to the Government because they are the law-maker in Malaysia's legal constitution. It is the Government's responsibility to ensure that all the changes in law and legislation will not bring disadvantages to the private sector in implementing PPP projects as well as ensuring fairness to all parties involved. The law and legislation shall not be too strict where parties involved are allowed to propose for re-negotiation in case frustration occurred during the implementation of PPP projects. Government shall also ensure that there are no constant changes in a particular law and legislation so that it is easier for all parties involved to follow-up and obey the rules set by the Government.

Poor public decision-making process risk should be also transferred to the Government because Government has the final say regarding to decision-making relating to the public. If the Government decides on anything without meeting the public needs, the public will be unsatisfied and at last the Government will face disapproval from the public to implement the PPP projects. This PPP projects shall be able to meet the public needs where the Government should make a worthy and appropriate decision-making that will benefits the public more than themselves in order to earn their support. Apart of that, the Government shall also consider the public needs more than their own short-term goals. Short-term goals might be easier to achieve in a short time, but it will not be beneficial in a longer period.

Strong political opposition & interference should be transferred to the Government where the Government shall ensure that there is minimal political opposition and interference to the PPP projects. Any interference will causes unnecessary delay to the project where the private sector may face the prospect of unable to complete the project within the agreed time. In some circumstances, the Government interferes unreasonably in the completed PPP projects during the concession period which is handled by the private sector. This causes inability of the private sector to run the facilities well due to unexpected interference by the Government. Apart of that, there might be a prejudice on the value of money on the project which causes the opposition and interference. Both parties shall agree and be transparent on the actual value of money of the affected projects.

Unstable government scores the mean value of 1.500 with consistency level of 1.016. Government should be responsible in this typical risk where they should ensure there is consistency in the Government leadership. A PPP project takes several years to be completed and any cancellation by the newly elected Government during the construction stage will causes losses to both parties, as well as the public. Constant changes in the Government leadership will cause uncertain future of the PPP projects initiated by the former leadership.

4.3.5 Risks to be solely allocated to the Government

From the analysis, it is reviewed that there is no typical risk to be solely allocated to the Government.

4.4 Analysis on the private sector's acceptability of general risks in PPP

Analysis on the private sector's acceptability of general risks is conducted under this sub-topic. In order to gather the result of the respondents' opinion on the said acceptability, analysis on the acceptability of each typical risk is conducted as shown in Table 4.8. Then, the acceptability index of each typical risk is then averaged in order to determine the acceptability index for the general risks. The analysis is conducted based on the result shown in Table 4.9.

Table 4.8 : Acceptability of risks in the private sector's opinion

GENERAL RISK	TYPICAL RISK	INDEX SCORE		
		RISK	ALLOCATION	ACCEPTABILITY
Design & Construction	Availability of material / labour	0.885	0.740	0.655
	Construction completion delay		0.844	0.747
	Construction cost overrun		0.844	0.747
	Design default		0.771	0.683
	Failure of commissioning test		0.708	0.627
	Failure to meet performance criteria		0.823	0.729
	Unproven engineering techniques		0.646	0.572
Legal & Contractual	Changes in law & legislation	0.865	0.458	0.396
	Changes in tax regulation		0.510	0.441
	Excessive contract variation		0.552	0.477
	Industrial regulatory change		0.479	0.414
	Poor contract management		0.656	0.567
Macroeconomic	Inflation	0.698	0.552	0.385
	Influential economic events		0.500	0.349
	Interest rates		0.552	0.385
	Poor financial market		0.510	0.356
Natural	Environment	0.615	0.667	0.410
	Force majeure		0.625	0.384
	Weather		0.635	0.391
Operating	Delays / interruption in operation	0.771	0.823	0.634
	Higher maintenance cost / frequent maintenance		0.750	0.578
	Low operating productivity		0.771	0.594
	Operating cost overrun		0.875	0.674
	Operational revenues below expectation		0.667	0.514
	Residual transfer value		0.615	0.474
	Shortfall in service quality		0.854	0.658
Organisation / Coordination	Inadequate experience in PPP/PFI	0.688	0.688	0.473
	Lack of coordination & commitment		0.667	0.458
Project	Availability of project finance	0.792	0.667	0.528
	Delay in project approval & permit		0.542	0.429
	Sponsor suitability risk		0.604	0.478
Political	Changes in ownership	0.698	0.542	0.378
	Expropriation / nationalisation of assets		0.510	0.356
	Poor public decision-making process		0.458	0.320
	Strong political opposition & interference		0.458	0.320
	Unstable government		0.417	0.291
Site	Land use	0.635	0.615	0.391
	Site availability & preparation		0.719	0.457
	Site / Geotechnical conditions		0.708	0.450
Social	Changes in demand for output	0.708	0.677	0.480
	Level of public opposition to project		0.531	0.376

Table 4.9 : Average acceptability score for each general risk

GENERAL RISK	AVERAGE ACCEPTABILITY INDEX	RANK
Design & Construction	0.680	1
Operating	0.590	2
Project	0.478	3
Organisation / Coordination	0.465	4
Legal & Contractual	0.459	5
Site	0.432	6
Social	0.428	7
Natural	0.395	8
Macroeconomic	0.369	9
Political	0.333	10

Table 4.9 shows the average acceptability score for each general risk. The rank is determined based on the average acceptability index value.

Design and construction risk scores the highest acceptability index which is 0.680. It is revealed that the private sector is willing to accept most of the risks that are categorised under design and construction risk because this is the area where they can offer their expertise. It is natural that Government wants to collaborate together with the private sector in a typical PPP project because the private sector can offer a lot of expertise which the Government doesn't have and design and construction expertise is the area that the private sector commonly has. The private sector has to balance well on how they manage the design and construction stage so that the work programme will not have any loophole in causing unnecessary late completion. Early completion will ensure that the private sector saves a lot in the financial budget whereas late completion will cause additional penalty payment to the affected parties. It is the private sector's role too to ensure that there is less variation in the contract where they should check that the specification and quantity proposed are accurate. However, the private sector wants the unproven engineering technique to be shared between both parties where both parties shall certain on the application of new technologies which is not yet implemented in any PPP project.

Operating risk ranks second with the acceptability index of 0.590. Operating phase is usually still handled by the private sector after the completion of the

construction stage where the facilities will be operated by the private sector under a concession period before the facilities returned back to the Government. That being said, the private sector is willing to accept most of the typical risks available under operating risk where it is their responsibility to ensure that no unexpected event occurs during the operating risk. Private sector should guarantee the quality of the service that they offer during the operation period so that the public satisfied to the quality offered by the private sector. However, when the project is transferred back to the Government after the agreed concession period, the private sector wants the Government to take some of the responsibility too where the Government should make sure that the value of the project will not decreased when the ownership of the project changed. This is because the private sector does not want to suffer losses due to the changes of value of the project.

Project risk ranks third with the acceptability index of 0.478. The risks under project category are largely dealing with the project finance where both parties should be able to find the availability of the suitable sponsor before the initiation of the PPP project. It is impossible for the private sector to find the financial prospect from the potential sponsors alone. Assist from the Government is needed here where they too shall try to convince the potential sponsors or investors to get themselves involved in the PPP projects. Both parties shall also ensure that the sponsors or investors are willing to commit themselves until the end of the project. Any withdrawn from the investors after the PPP projects begin the construction stage will cause imbalance to the project finance. Apart of that, the Government should also ensure that there is no delay in project approval and permit if the private sector able to handle the documentation well and effectively.

Organisation / Coordination risk ranks fourth with the acceptability index of 0.465. Risks categorised under organisation or coordination risk are largely related to the cooperation between both Government and private sector. As there are only few successful PPP projects being implemented in Malaysia, it is safe to say that there still few companies that are largely experience in the conceptual term of PPP. Hence, for the private sector to enter into the collaboration with the Government for the first time, it would be risky for them to do so without any assurance of support from other

parties. Both parties shall support each other to ensure that the lack of experience in PPP projects will not become a nuisance. Besides that, both parties should fully commit to the project so that the project can run smoothly. Lack of commitment and coordination between the involved parties can be disastrous as it may contribute to the failure of the organisation.

Legal and contractual risk ranks fifth with 0.465 in acceptability index. Among all the typical risks categorised under legal and contractual risk, the private sector are more willing to accept risks related to contractual elements rather than legal elements. This is probably because contractual risk is the element which the private sector can control of, compared to legal risk which is largely controlled by the Government. There are several factors that could bring into the existence of contractual risk, such as default in estimates and specifications, delay in contractual claims, disputes in contracts etc. The private sector shall improve their managerial skills in monitoring the contract compilation so that minimal problems will exist in term of contractual risk. It is possible for the private sector to employ a competent and proven contract administrator who has a large experience in contractual management as well as high knowledge in PPP conceptual term so that it is easier for the contract administrator to monitor the project flow. Apart of that, the Government shall also allow for a contract re-negotiation if the private sector feels a huge burden in term of contractual agreement or risk allocation so that risk distribution can be reallocated.

Site risk ranks sixth with 0.432 in acceptability index. In the private sector's opinion, they are not really willing to accept this risk in totality where the Government should bear part of the responsibilities. Site risks usually occur before the commencement of the project where both sectors will cooperate in finding a suitable site for the project. The location however is largely dependent on the Government's side as Government will decide on the type of projects to benefit the public needs. Hence, Government should ensure that the suitable proposed site must free from any obstacle before passing the site to the private sector for the commencement of work. Private sector on the other hand should also conduct several tests to ensure that the site condition is suitable for the proposed project.

Social risk ranks seventh with 0.428 in acceptability index. It is understandable that the private sector is not willing to accept the risks as these risks are dependable on how the Government can convince the parties involved in PPP projects regarding to the public acceptability of the project. It is possible that the public needs after the project completion changes which causes decrease of the demand of output and at last cause losses to the private sector because they cannot earn back the money that they invested. Apart of that, Government may not able to convince all the public of the project due to their living standards, social, needs etc. which cause various opinions from the public. The role of convincing the public and reducing any possible public opposition to the project is more suitable to be carried by the Government rather than the private sector.

Natural risk ranks eighth with 0.395 in acceptability index. Considering the low rank of this risk, it can be determined that the private is not willing to accept this risk. This is because the occurrence of the natural events is unpredictable where it is impossible for the private sector to control, as well as the Government. The best way to conquer this risk is to buy insurance to protect the project in any event the project is badly affected due to natural disasters. However, in term of environmental issues, both parties can play a role in ensuring that there will be minimal environmental problems occur during the project implementation.

Macroeconomic and ***political risk*** ranks the lowest with acceptability index of 0.369 and 0.333 respectively. These two risks are definitely will not accepted by the private sector as the existence of these risks will happen due to the Government leadership. Capabilities of the Government is tested in term of macroeconomic where they should handle and manage the economic status well in ensuring that the PPP projects will not affected. In term of political issues, the Government shall ensure that the PPP projects will still able to continue even though there might be possibilities of political interference and changes in leadership during the project construction stage.

CHAPTER 5

CONCLUSIONS & RECOMMENDATIONS

5.1 Introduction

Conclusions are to be revealed in this chapter through the analysis from Chapter 4. This chapter shall discuss on the relation of the analysis with the research's objective as well as revealing the limitation of the research and recommendation for future researches.

5.2 Conclusions

5.2.1 Private sector's perception in getting involved into PPP projects

From the analysis, it can be concluded that the private sector is considering on the amount of risk allocation to be allocated to their side when collaborating with the Government in typical PPP arrangement. However, risk allocation alone is not the only consideration that they will consider. The private sector is also focusing on how the PPP projects can benefits them in term of profitability, considering on the small margin of difference between the risk allocation and the profitability. Hence, it is safe to say that the private sector does view on both the risk allocation and profitability consideration seriously before getting themselves involved into a typical PPP projects.

5.2.2 Private sector's perception on the risk impact in PPP projects

From the analysis, it can be concluded that in the private sector's opinion, design and construction risk has the biggest impact in PPP project, followed by legal and contractual risk. Natural risk has the lowest impact among the 10 general risks.

5.2.3 Private sector's preferable allocation of risk in PPP projects

From the analysis, it can be concluded that the private sector prefers only nine typical risks to be allocated mostly to their side, whereas 15 typical risks are allocated mostly to the Government. The remaining 17 typical risks are to be shared between both parties. There are no risks fall in either solely allocated to the private sector or the Government. This shows that the private sector is not willing to solely accepting any typical risk. The private sector still prefers to either share the risk allocation or transfer most of the risks to the Government. This indicates that the private sector is still not ready to accept most of the risks yet.

5.2.4 Private sector's acceptability of risks in PPP projects

From the analysis, it can be concluded that the private sector is willing to accept risks that are usually occur during the design and construction phase, as well as the operating phase. The private sector is less than willing to accept risks that are related to macroeconomic and political category.

5.3 Limitations

5.3.1 Results didn't reflect the overall opinion of local construction industry

The scope of this study is limited to private firms which are located within Klang Valley area. Hence, it is wise to say that the analysis conducted is only reflecting the opinion of private sector in Klang Valley area without really considering the opinions of the private sectors located at other developing areas.

5.3.2 Small size of respondents

There are only 32 respondents that participated in this research, compared to a total amount of 147 questionnaires that had been sent out. It is probable that the results obtained did not accurately reflect the overall opinion of the private sector due to the small amount of respondents participating in this research.

5.3.3 Probability of biased result

As mentioned in the research title, the research is conducted by focusing on the private sector's opinion instead on getting the opinion from both the private sector and the Government. The result may be biased as the private sector will ensure that they wanted limited risks to be allocated to their side and transfer as much risks as possible to the Government.

5.4 Recommendations

5.4.1 Future researches to represent overall opinion of local construction industry

The future researches shall involve all, if not majority of the private firms in every state so that a more accurate result can be obtained and analysed. The current research is only limited to private firms located in two states, which are Kuala Lumpur and Selangor Darul Ehsan.

5.4.2 Larger group of respondents to participate in future researches

Analysis conducted by using 32 respondents may not be accurate enough to determine the significance of the result. By having a larger scale of targeted respondents, a 5-point likert scale can be used in the questionnaire survey design where it is easier to conduct analyse because the significance of the 5-point likert scale will be clearer. Apart of that, a larger scale of respondents is necessary considering that there are still a lot of respondents who are qualified in this research where a high cooperation from them is a must to ensure that there are high return rate of the response.

5.4.3 Future researches to be conducted based on both sector's opinions

It is appropriate to obtain the opinion from the Government sector too regarding to their preferred risk allocation in a typical PPP arrangement. The analysis of this research may be biased more towards private sector's favour as the targeted respondents for this research is to the private sector. Hence, opinion from the Government is necessary so that a more valuable analysis can be conducted where

comparison between preferred risk allocations from both sectors can be shown in future research.

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APPENDICES

Appendix A : Questionnaire Survey (Sample)

UNIVERSITI TUNKU ABDUL RAHMAN (SETAPAK CAMPUS)
JALAN GENTING KLANG
53300 SETAPAK
WILAYAH PERSEKUTUAN KUALA LUMPUR

Name
Lau Siew Soon (09UEB05703)

Research topic
Private Sector's Perception on Risk Allocation in Public-Private Partnership (PPP) Arrangement

Research objective
To study the risk allocation in local PPP construction projects from the perception of private sector

Respondent's General Information

1. **Company Name** : _____

2. **Company's Profession**
   - □ Architect
   - □ Quantity Surveying
   - □ Engineering
   - □ Joint venture
   - □ Multi-Disciplinary
   - □ Main Contractor
   - □ Sub-contractor
   - □ Developer
   - □ Body Corporate

3. **Working Experience (years)** : _____

4. **Position** : _____

5. **Primary Projects** *(Respondent may pick more than one)*
   - □ Residential
   - □ Commercial
   - □ Industrial
   - □ Infrastructure
   - □ High rise building
   - □ Social amenities (schools, religion buildings etc.)
   - □ Others *(please specify)*: _____

6. **Company Stamp**

UNIVERSITI TUNKU ABDUL RAHMAN (SETAPAK CAMPUS)
JALAN GENTING KLANG
53300 SETAPAK
WILAYAH PERSEKUTUAN KUALA LUMPUR

Questionnaire

1. Please allocate the level of consideration that your company will consider in collaborating together with other agencies/partners in handling a Government-initiated project.
   (Please circle the appropriate figure from 1 = No consideration, 2 = Less consideration, 3 = High consideration)

Amount of risk allocated to your company upon contract negotiation	1	2	3
Profitability of the project	1	2	3
Previous experience in collaborating together with Government and other agencies	1	2	3

2. Table below show 10 types of risks that will occur during the implementation of the PPP projects. Please indicate the level of risks that will influence the success implementation of PPP projects.
   (Please tick √ at the appropriate column from 1 = No risk, 2 = Less risk to 3 = High risk)

	No risk	**Less risk**	**High risk**
RISK TYPE	**1**	**2**	**3**
Design & Construction risk			
Legal & Contractual risk			
Macroeconomic			
Natural risk			
Operating risk			
Organization / Coordination risk			
Project risk			
Political risk			
Site risk			
Social risk			

3. Please allocate your preferable allocation of risk in any event there is collaboration between your company (private sector) with the Government in PPP projects.
(Please tick √ at the appropriate column from PUBLIC = risk transferred to Government, SHARED = risk to be shared among both partners, or PRIVATE = risk to be accepted and handled by private sector)

RISKS	ALLOCATION OF RISK		
	PUBLIC	SHARED	PRIVATE
Design & Construction risk			
Availability of material / labor			
Construction completion delay			
Construction cost overrun			
Design default			
Failure of commissioning test			
Failure to meet performance criteria			
Unproven engineering techniques			
Legal & Contractual risk			
Changes in law & legislation			
Changes in tax regulation			
Excessive contract variation			
Industrial regulatory change			
Poor contract management			
Macroeconomic			
Inflation			
Influential economic events			
Interest rates			
Poor financial market			
Natural risk			
Environment			
Force majeure			
Weather			
Operating risk			
Delays / interruption in operation			
Higher maintenance cost / frequent maintenance			
Low operating productivity			
Operating cost overrun			
Operational revenues below expectation			
Residual transfer value			
Shortfall in service quality			
Organization / Coordination risk			
Inadequate experience in PPP/PFI			
Lack of coordination & commitment			

Project risk			
Availability of project finance			
Delay in project approval & permit			
Sponsor suitability risk			
Political risk			
Changes in ownership			
Expropriation / nationalization of assets			
Poor public decision-making process			
Strong political opposition & interference			
Unstable government			
Site risk			
Land use			
Site availability & preparation			
Site / Geotechnical conditions			
Social risk			
Changes in demand for output			
Public opposition to project			

Thank you for your participation!

Appendix B : Record of Supervision/Meeting

APPENDIX F

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF ENGINEERING AND SCIENCE

DEPARTMENT OF BUILT ENVIRONMENT

BACHELOR OF SCIENCE (HONS) CONSTRUCTION MANAGEMENT/QUANTITY SURVEYING

Student's Name : LAU SIEW SOON .....ID Number 09UEB05703.....

Supervisor's Name : MS. MARINA .....

RECORD OF SUPERVISION/MEETING

	Date	Time		Student's Initial	Lecturer's Initial	Subject of Discussion
		Start	End			
1	1 JUNE 2011	1000	1030			change FYP topic, clarification on objectives of FYP
2	21 JUNE 2011	1030	11.00			Discussion: Problem statement & Objectives
3	6 JULY 2011	0900	0930			"
4	18 JULY 2011	1100	1130			Literature Review, Plagiarism checking
5	20 OCT 2011	1100	1130			Feedback of Part 1
6	10 JAN 2012	1300	1330			Questionnaire Design
7	17 JAN 2012	1100	1130			Questionnaire Design
8	31 JAN 2012	1400	1430			Questionnaire Design
9	13 MAR 2012	1130	1200			Finding Analysis Method
10	27 MAR 2012	1130	1200			Submission of chapter 4 & 5
11	3 APR 2012	1130	1215			Feedback on overall report
12						
13						
14						
15						
16						
17						