THE IMPORTANCE AND ALLOCATION OF RISKS IN MALAYSIA CONSTRUCTION PROJECT

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A project report submitted in fulfillment of the
requirements for the awards of the degree of
Master of Science (Construction Management)

Faculty of Civil Engineering
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DEDICATION

Special thanks to my beloved father, mother, brother,
and all my friends for their help and understanding.

Thanks for Everything….

ACKNOWLEDGEMENT

I would like to take this opportunity to record my sincere appreciation to those who has been helping me throughout the project. This project report would not have been possible successful without the great support, guidance, sacrifice and generous contributions from various parties.

First of all, I would like to thank Dr. Khairulzan Yahya who is my project supervisor. I am really thankful to him for the impressive ideas, knowledge, patience and understanding that he has contributed throughout the whole duration of preparing this project. His contributions are much appreciated.

Besides that, I would like to extend my appreciation to those parties involved whom have lending their hand in helping me getting the related information during the project process.

Lastly, I would like to thank all my family members, relatives and friends for their support and dedication in helping me to complete this project. Thank you very much.

ABSTRACT

The risks naturally exist in every construction project and they are hardly to eliminate and only can be transferred or shared by contractual parties. Generally the overrun of the cost and time in project are mainly caused by risks. Therefore, in order to effectively manage risks in construction projects, it is essential to identify important risks, and properly allocate them to the contractual parties. This means it is essential for contractual parties to understand well in allocation of risks. The objective of this study was to identify the importance of risks, evaluate respondents' perception in risk allocation and the contribution of risks to increase project cost. A questionnaires survey was conducted and distributed to the contractors Grade 7 and developers in Johor. A total of 33 construction project risks were identified and evaluated. Methods of analysis used in this study were frequency analysis, mean index analysis, Mann-Whitney test and risk analysis matrix. The finding of the study shows that the most of risks identified were under medium level of risks and 'change in work' was the most important influenced risk on the delivery of project as it has the highest ranked. As compared the perception of contractors and developers, both of them have similar view on the importance of risks and the allocation of risks. The most contribution risk to increase construction project cost was 'inflation'.

ABSTRAK

Risiko wujud secara semulajadi dalam setiap projek pembinaan. Risiko sukar untuk dielakkan dan hanya boleh dipindahkan atau dikongsi oleh pihak-pihak yang terlibat dalam sesuatu kontrak. Umumnya, kebanyakan lebihan masa dan kos dalam sesuatu projek adalah disebabkan oleh risiko. Oleh itu, mengenalpasti kepentingan risiko dan mengagihan risiko kepada pihak-pihak berkontrak adalah penting dalam usaha untuk menguruskan risiko dalam projek pembinaan. Dengan kata lain, adalah penting bagi pihak-pihak yang berkontrak memahami dengan baik dalam pengagihan risiko. Objektif kajian ini adalah untuk mengenalpasti kepentingan risiko, menilai persepsi responden dalam pengagihan risiko dan sumbangan risiko untuk meningkatkan kos projek. Satu kajian soal selidik telah dijalankan terhadap pemaju dan kontraktor Gred 7 di negeri Johor. Sebanyak 33 jenis risiko dalam projek pembinaan telah dikenalpasti dan dinilai. Kaedah analisis yang digunakan termasuklah analisis kekerapan, analisis indeks purata, ujian Mann-Whitney dan matriks analisis risiko. Penemuan kajian menunjukkan kebanyakan risiko yang dikenalpastikan adalah dalam kategori sederhana dan fakto ‘perubahan dalam risiko kerja’ adalah merupakan risiko yang paling mempengaruhi dalam menyiapkan projek. Dalam perbandingan antara persepsi kontraktor dan pemaju, kedua-dua pihak mempunyai pandangan yang sama mengenai tahap kepentingan risiko dan begitu juga dalam pengagihan risiko. Kajian juga mendapati bahawa faktor ‘inflation’ adalah penyumbang utama dalam peningkatkan suatu kos projek.

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LIST OF ABBREVIATION

ABBREVIATION		FULL NAME
CIDB	-	Construction Industrial Development Board
GDP	-	Gross Domestic Product
PSZ	-	Perpustakaan Sultanah Zanariah
REHDA	-	Real Estate & Housing Developers'Association
SPSS	-	Statistical Package for Social Science
UAE	-	United Arab Emirates
US	-	United States

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Construction is a complex and dynamic industry. Construction includes all types of activities related to construct, erect, repair or demolish immobile structure and related facilities. According to Abdullah (2004), construction industry is the sector of national economy which engaged in erecting, altering, repairing and demolishing buildings, structures, and civil engineering works. Moreover, it also involve the assembly and installation on site of pre-fabricated components and building engineering services.

Besides, construction industry is also a vehicle through which a country's physical developments are activated by starting projects from the blue print stage to the implementation. The implementation and materialization of such projects inevitably can bring a lot of benefits to the people and the country. Hence, this can satisfy the aspiration of national progress and growth, which also will be uplifting the status of the country economically (Adnan, 2008).

In recent years, there is rapid growth in Malaysia's construction industry after economic recovery. The positive growth of construction has made it being recognized as a major economic force and also generates Malaysia's development (Norliana, 2006). Thus, the construction industry has played a major role in contributing to Malaysia's Gross Domestic Product (GDP).

However, there also exist the negative consequences as there has positive effect in construction industry. According to Norliana (2006), if there are no prevention policies, the negative consequences normally arise from the incremental of project, activity and the usage of various machinery and equipment in construction site which causes the arising in risk of accident, delay, cost overrun, occupational safety and health and so on.

This represent that construction is a very competitive, high-risk business. In many circumstances, the competitiveness and the perception of risks can make the relationship between participants adversarial as the limitations of traditional project delivery systems. There are many studies agreed that the adversarial situations significantly influence the productivity and efficiency of the construction industry (Kadefors, 2004).

1.2 Background of Study

Risk is a complex phenomenon that has physical, monetary, cultural and social dimension. The consequences of risk events go well beyond the direct physical harm to financial or physical assets, people or ecosystems to effect the way a society operates and people think (Loosemore, Raftery, Reilly, & Higgon, 2006). In construction management field, risk defined as an exposure to economic gain or loss arising from taking part in the construction process (Barrie & Paulson, 1992).

Risks naturally always exist in every industry such as factory industry, agriculture industry, construction industry and others. Among the risks, some can be eliminated but some risks are hardly to be eliminated. Thus, it must find a solution to solve or prevent the risks to be occurred. As according to Andi (2006), the risks can only be shared or transferred from one party to other party through contract clauses.

The construction industry, like any other industry or business, is risky. This is because of the unique features of construction activities, for instance complicated processes, long period, financial intensity, abominable environment and dynamic organization structures (Patrick, Zhang, & Wang, 2009). Due to the nature of construction organization structure, management, process and business activities, the construction industry are usually associated with a high level of risks. The risks that exist in this industry are normally negatively affect contracting parties' beneficial and also affect executed project which cause schedule delay or cost overrun (El-Adaway & Kandil, 2010).

For construction projects, they normally carried out under an environment characterized by varying degree of uncertainties and risks, which can categorized in 'known', 'known-unknown', and 'unknown-unknown' conditions (Andi, 2006). However, construction projects are apparent to have more inherent risk as there are many contracting parties involved in a project such as owner, contractor, subcontractor, designer, supplier and others. Each project has its own unique and built only once. In addition, the increasing of size and complexity of construction project would also add to the risks (El-Sayegh, 2008). Although risks can be predicted of most projects, it is difficult to handling them.

Hence, effectively identifying and managing risks is very essential in a construction project as to deal with the risks related with variable construction activities. It has been becomes an important issue in project management as to achieve the successful delivery of a project and the objectives in terms of cost, time, quality, safety and environmental sustainability (Patrick, Zhang, & Wang, 2009).

1.3 Problem Statements

The cost overrun and schedule delay in the most construction project were mainly caused by risks. Thus, the effectiveness of risk identification and management are needed in order to solve this problem. As a result, the risk management has become increasingly important in today's environment as it be able to reduce or prevent risks happened and dire consequences.

As stated by Uher and Davenport (2002), risk management can be defined as "a systematic method of looking at areas of risk and consciously to determine how each should be treated. It can also defined as a management tool that aims at identifying sources of risk, determining their impact, and developing appropriate management responses" (Patrick, Zhang, & Wang, 2009). Furthermore, risk management in construction projects has been widely discussed.

To manage well of the risks, it must identify potential risks that might be existing in construction project and analyse the probability of risk events first. Additionally, all parties involved in project must understand risk preference, risk responsibilities, risk management capabilities and risk event conditions in order to make the risk management to be more effective and efficient (Wang, ASCE, & Chou, 2003).

Understanding the concept of risk allocation and responsibilities of each contracting parties on the risks in contract clauses is an important step in managing risks. The owner and contractor often have disagreements over risk management responsibility as they usually have different understandings of contract clauses (Hartman & Snelgrove, 1996).

Thus, the efficiency and effectiveness of contract clauses can merely be comprehended when owner and contractor have the same perception or understanding of risk management and risk allocation responsibility. Without the clear and understandable contractual provisions, the contracting parties normally might have disagreement toward risk responsibility. Subsequently, this can cause mismanage a risk whereby the contracting parties assuming that the risk or its consequences are not under their responsibility (Hartman & Snelgrove, 1996).

The mismanaged risks may possibly make contract relationships adversarial and cause project inefficiencies**.** The result of this condition, it directly causes the increasing on the project cost. For instance, if the contractor has different perceptions of risk allocation with the owner or a lack of clear understanding to risk management, the contractor will inappropriately manage the risks in construction projects as he or she assumes that the risk events or consequences are not under his or her responsibilities (Wang, ASCE, & Chou, 2003).

Moreover, the construction project risks may be categorized into several types which are physical risks, economic risks, capability-related risks, time-related risks**,** safety and construction risks (EJCDC, 1990). As according to Klemetti, the construction risks can be categorized in several ways based on the source of risk, by impact type, or by project phase (El-Adaway & Kandil, 2010). Thus, it is important to identify and categorize the risks into groups as can make the contracting parties clear in type of risks and it can help them easily allocate the risks.

In conclusion, ineffective risk allocation or misunderstanding of risk allocation between contracting parties will leads a dispute after the occurrence of a risk event. It is important for contracting parties to understand clearly about the risk allocation and type of risks that are under their responsibilities as assisting them to manage the risks. However, the method of risk management is always influenced by the uniqueness of the construction industry in different country. As well, there is a little known about risk allocation and risk management in Malaysia construction

industry. Therefore, this study will assess this issue and focus on traditional procurement project as traditional procurement is the most common and popular method used in construction industry.

1.4 Aims and Objectives of the Study

After in view of the related issues and problems, the aim of this study is to evaluate the perception of contractors and developers on the importance and allocation of construction risks in construction project. In order to achieve it, the following objectives have been identified:

1. To identify the importance of construction risks in construction project.
2. To compare the perceptions of contractors and developers on the importance of construction project risks.
3. To evaluate the perception of contractors and developers on allocation of construction project risks.
4. To determine the contribution of risks to increase project cost.

1.5 Scope of the Study

This study was carried out by using questionnaire survey. The scope of study will focuses on contractors and developers in Johor. The respondents will only focus on contractors Grade 7 that registered with Construction Industrial Development Board (CIDB) and developers that registered with Real Estate and Housing Developers' Association Malaysia (REHDA).

1.6 Significance of the Study

The significance of this study is to ascertain the level of impact and frequency of construction risks in construction project and then figure out the importance of risks. The outcome can be used to help contractual parties to take action to manage the risks by adding contingencies on them. This can protect their interests in the event of a risk occurrence.

Besides, this study is also to identify construction risks allocation between contracting parties. The outcome of this study can also be a reference for contractual parties such as owners or developers and contractors to understand their responsibilities in certain risk events. Besides, this will also be a simple guideline for contractors when pricing the risks.

1.7 Research Methodology

The research methodologies are used so as to collect data, analysis data and report on results and findings**.** The methods used in data collection are literature reviews, and distributing questionnaire to the contractors and developers.

For data analysis, methods used in this study are frequency analysis, mean index analysis, Mann-Whitney Test and risk analysis matrix. After analysis, the data will be reported, elaborated, and discussed. SPSS software will be used in this study. Figures 1.1 shows the research methodology flow chart as used for this study.

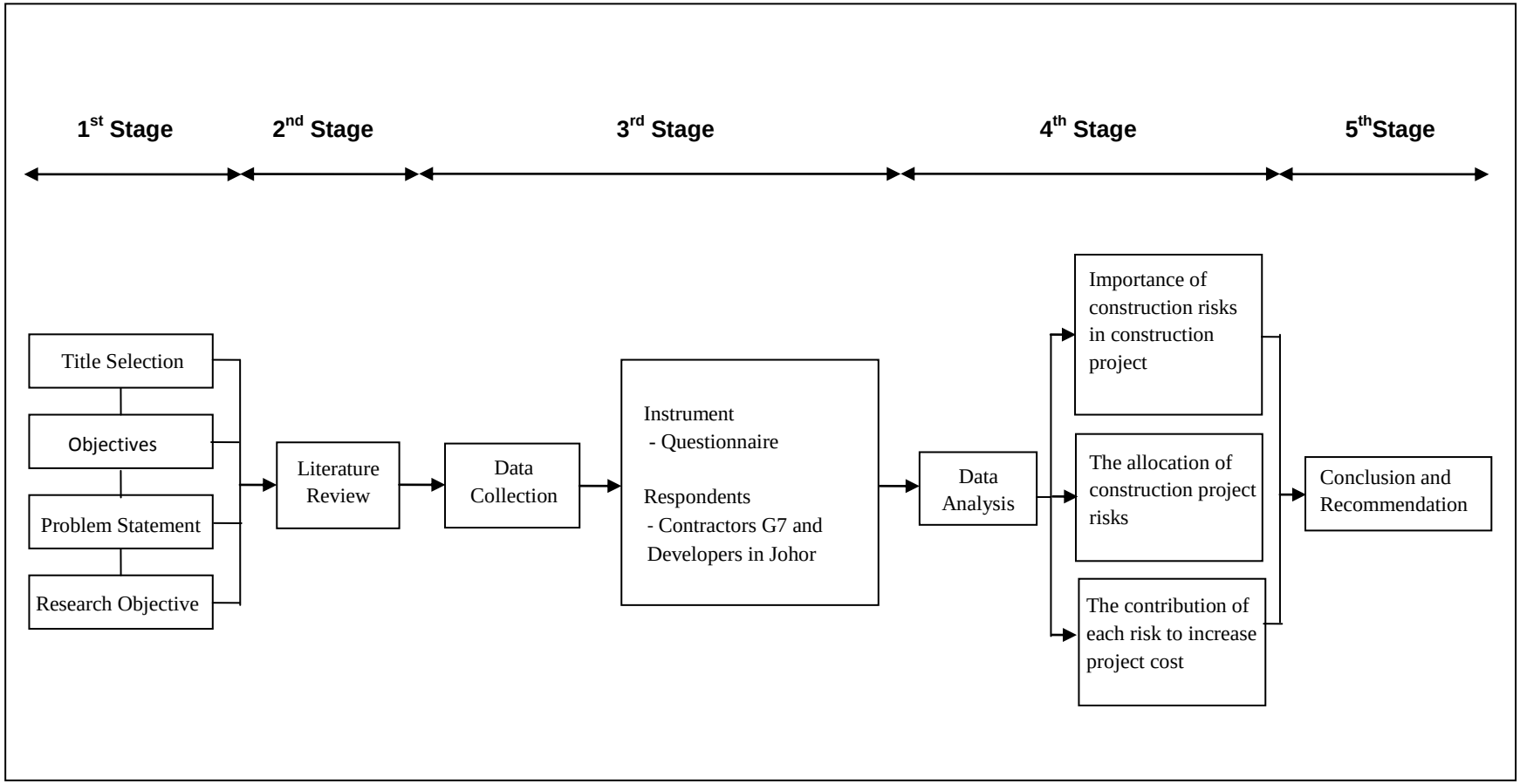

Figure 1.1 Research Methodology Flow Chart