INVESTIGATION ON CONSTRUCTION PROJECT DELAYS IN MALAYSIA

BY

AMALIN SOFIA BINTI ISMAIL

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Kulliyyah of Architecture and Environmental Design
International Islamic University Malaysia

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ABSTRACT

Delay is commonly happens in the construction industry that causes time extension for contractors to complete the construction project and as well as increases the cost of project. It tends to occur among small and medium contractors with limited personnel capabilities and abilities. The objectives of the study are to identify factors causing delays, to determine the implications of delays and as well as to suggest solutions to reduce delays that happen in the construction projects. The data was collected through questionnaire surveys and semi-structured interviews that were conducted within area of Kuala Lumpur and Selangor. A total of 43 questionnaires were collected from small and medium contractors firms and the data collected were analysed using Statistical Social Package Science (SPSS) software. Semi-structured interviews were further conducted among three targeted contractors and reported accordingly. The study found out that financial constraints, delays in subcontractors' works and improper project planning are the major factors that causing delays. Furthermore, the study also revealed that delays are mostly causing both time and cost overruns. The results obtained concluded that the most significant approaches suggested to reduce delays include pay progress payment on time, manage financial resources efficiently, proper project planning and also effective communication between contractors and labours.

Keywords: Delays, Small and medium contractors, Factors, Implications, Approaches

ملخّص البحث

كثيراً ما يحدث التأخّر في إنجاز مشاريع البناء والتشييد ممّا يسبّب في تمديد المدّة المخصّصة للمقاولين لإكمال هذه المشاريع وارتفاع الميزانيّة. ويحدث هذا التأخّر غالباً في المشاريع التي ينفّذها المقاولون من ذوي الفئة الصغيرة والمتوسّطة ذات الإمكانيّات المحدودة. وتتمثّل أهداف هذا البحث في التعرّف على عوامل التأخّر، وتحديد آثاره، واقتراح الحلول للتقليل من حالات التأخّر التي تحدث في عمليّة البناء. وقد تمّ جمع المعلومات من قِبل الباحثة بواسطة الاستبانات والمقابلات نصف المنظّمة التي أجريت في منطقة كوالا لمبور وسلنجور حيث تمّ جمع 43 استبانة من أصحاب شركات المقاولة الصغيرة والمتوسّطة، وتمّ تحليل نتائج هذه الاستبانات باستخدام البرنامج الإحصائي لعلم الاجتماع (SPSS). كما أُجريت مقابلات نصف منظّمة مع ثلاثة من المقاولين المعنيّين، وشمل هذا البحث تقاريرها. وقد توصّل البحث إلى أنّ العوائق الماليّة، والتأخّر في تنفيذ الأعمال من قِبل المقاولين الفرعيّين، وسوء تخطيط تنفيذ المشاريع هي أبرز العوامل التي تسبّب في تأخّر إنجاز مشاريع البناء. إضافة إلى ذلك، فإنّ التأخّر يؤثّر سلبيّاً على الوقت والميزانية المخصّصة للمشروع. وقد استنتج البحث أنّ من أهمّ الوسائل المقترحة للتقليل من حدوث التأخّر هي التقيّد بتسديد الالتزامات المالية في مواعيدها المحدّدة، وإدارة الموارد المالية بفعاليّة، وحسن تخطيط مشاريع البناء، والاتّصال الفعّال بين المقاول والعمّال.

الكلمات المفتاحية: التأخّر، والمقاولون من ذوي الفئة الصغيرة والمتوسّطة، والعوامل، والآثار، والحلول

APPROVAL PAGE

I certified that I have supervised and read this study and that in my opinion; it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the Master of Science in Quantity Surveying and International Procurement

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Tan Chin Keng
Supervisor

I certified that I have supervised and read this study and that in my opinion; it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the Master of Science in Quantity Surveying and International Procurement

…….....
Mohd Fairullazi Ayob
Examiner

This dissertation was submitted to the Department of Quantity Surveying and is accepted as a fulfilment of the requirement for the degree of Master of Science in Quantity Surveying and International Procurement

…….....
Mohamad Saiful Nizam Mohd Suhaimi
Head, Department of Quantity Surveying

This dissertation was submitted to the Kulliyyah of Architecture and Environmental Design and is accepted as a fulfilment of the requirement for the degree of Master of Science in Quantity Surveying and International Procurement

…….....
Abdul Razak Sapian
Dean, Kulliyyah of Architecture and
Environmental Design

DECLARATION

I hereby declare that this dissertation is the result of my own investigation, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degree at IIUM or other institutions.

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This dissertation is dedicated to my late father for comforting and encouraging me towards success and taught me to trust in Allah, believe in hard work and that so much can be done with little.

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LIST OF ABBREVIATIONS

GDP	Gross Domestic Product
EOT	Extension of Time
LAD	Liquidated Ascertained Damages
VO	Variation Order
CIDB	Construction Industrial Development Board
HSE	Health and Safety Executive
QS	Quantity Surveyor
AEC	Architectural, Engineering and Construction
SME	Small and Medium Enterprises
NSC	Nominated Subcontractor
IBS	Industrialised Building System
PBT	Pihak BerkuasaTempatan
MARA	Majlis Amanah Rakyat
TNB	Tenaga Nasional Berhad
IWK	Indah Water Konsortium
SYABAS	Syarikat Bekalan Air Selangor

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The construction industry in Malaysia is one of the important sectors that help in generating the economic growth and as reported by the Ministry of Finance (2009), it represents nearly 3-5% of country's Gross Domestic Product (GDP). In the Star Online as written by Kelly (2016), Datuk Johari Abdul Ghani, Finance Minister II said "Although the construction sector only accounts for about 4% of the GDP in 2015 or about RM42bil, it has significant forward and backward linkages with the overall economy, especially with the manufacturing and services sectors, which together accounts for the bulk share of the economy at around 74% of the GDP". It is also true with the latest statement made by IECONOMICS (2016) that the current forecast of GDP until July 2016 is 3% with the total amount of RM 11899 million.

Without the construction of the building, there is no exactly the comfort place for a human to live in and there is no manufacturing or production can run. Those are some of the simple examples of the importance of construction to take place continuously. Then, to make the construction project successful, the contractors need to consider the project to be completed on time and within budget without ignoring the best quality for better delivery and satisfaction of the client. Haseeb *et al.,* (2011) stated that the completion of construction projects on specified time or time agreed within parties indicates the work and construction efficiency.

In any construction project, the parties will have specific goals or objectives to be achieved. Elbeltagi (2009) said the goal of the construction project is to build something and what differentiate the construction industry from other industries is that its projects are large, built on-site and generally unique. He also said it involves many resources to be consumed and all of them will have a direct impact on the construction progress include time, money, labour, equipment, materials, etc. Then, originally construction project have specific properties and additional constraints in terms of specifications, project duration and processes (Drewer, 2001). Since the construction industry is quite complex, have many impacts and constraints, it can be said that delay is a common phenomenon that happens almost in all construction projects nowadays.

The delay is commonly related to the parties who involved directly during the construction especially the contractor and the client itself. As defined by Aibinu and Jagboro (2002), the delay is a situation where a contractor and the project owner jointly or severally contribute to the non-completion of the project within the original or the stipulated or agreed contract period. Besides that, Stumpf (2000) stated that a delay is an act or event that extends the time required to perform the tasks under a contract. It was further supported by Sanders and Eagles (2001) that define delay as an event that causes extended time to complete all or part of a project. In other words, delay can be simply referred to a situation where the project is not completed within the schedule or in the fixed time.

Furthermore, delays in construction projects happen because of various factors or causes. These causes lead to the delay in construction completion, and this delay leads to some negative effects on the construction project (Haseeb *et al.*, 2011). In addition, there are two categories of causes of delays; internal causes and external causes. Internal causes arise from the parties to the contract (e.g. contractor, client,

and consultant) while external causes arise from events beyond the control of the parties. These include the act of God, government action, and material suppliers (Ahmed *et al.,* 2003). Since many stakeholders in construction are becoming increasingly concerned about the duration of construction projects because of increasing interest rates, inflation, commercial pressures (Nkado, 1995), thus it is important to avoid any possibilities of delay to happen and to find the way to reduce the delay in the construction project.

Delay can be directly related to the completion time of the project which makes progress of work become slow and late to be finished. Actually, there are two main types of delay that occur on the construction project, namely excusable and non-excusable delays (Alkass *et al.,* 1996) and these terms come from the perspective of the contractors. When involving the contractors, they only can be granted Extension of Time (EOT) if it is an excusable delay. On the other part, a delay deemed as non-excusable is compensable to the employer because it results in levying of liquidated ascertained damages (LAD) (Safri, 2009). The terms EOT and LAD are very common with the delay that happens within the construction project and it is further discussed in Chapter 2 of Literature Review.

Besides that, in any construction activity, it cannot be run without the performance of the contractor. Based on the Collins Dictionary of Laws (2006), a contractor is a person that enters into a contract to construct a building or to provide or install specialised portions of the construction. They are actually entrepreneurs involved in the management of construction projects (Inuwa *et al.,* 2013; Harris and McCaffer, 2005). Mafimidiwo and Iyagba (2015) said they offer their skills and services and accept the challenge of executing the works in exchange for financial reward. Then, it can be clearly identified that the majority of the contractors who runs

the project are among the small and medium size contractors. According to Theong *et al.*, (2014), since around 90% of the registered contractors are small and medium size contractors with the least paid-up capital and tendering capacity, it is suffices to deduce that majority of the contractors in Malaysia are small and medium sized.

This small-scale and medium-scale contractor can be defined broadly as one with limited capital investment, who may need financial and managerial support to effectively run his or her business (Sibanda, 1999). In the perspective of construction, the contractors can be further classified into seven grades according to their tendering capacity as well as paid up capital. It is based on Mustafa Kamal *et al.*, (2012) which categorised the contractors into small (G1, G2 and G3), medium (G4 and G5) and large companies (G6 and G7). In addition, CIDB (2012) has classified the tendering capacity for small contractors with value not more than RM 1,000,000 while for medium contractors with the value not exceeding RM 5,000,000.

Then, it is further supported by Dlungwana and Rwelamila (2003) that stated the contractors can be distinguished from each other by variables such as the size of annual turnover, capacity and capability. Some key features of small-scale contractors are that they are largely unregistered, operate in the informal sector of the economy and have very little formal business systems. The small-scale sector comprises the largest percentage of total contractors, although they employ very few permanent staff, usually less than ten employees (Thwala and Phaladi, 2010).

1.2 PROBLEM STATEMENT

Malaysian construction industry is quite risky and fragmented with many issues and problems. The delay can be said as one of the most common, costly, complex and risky problems encountered in construction projects (Alaghbari *et al.*, 2005). Projects

can be delayed for a large number of reasons and usually will contribute to the cost and time overruns. Delay to projects is considered to be one of the common problems in the construction industry and usually, it has the negative effect on the project in terms of performance, time and cost.

There are some of the cases reported involving the delay within this country. Endut *et al.*, (2009) find out that only 46.8 percent and 37.2 percent of the public sector and private sector projects out of 259 projects in Malaysia were completed within the budget respectively with an average cost deviation of 2.08 percent. It means that more than half percentages of both public and private projects facing the delays. Then, Sambasivan and Soon (2007) also report that in 2005, about 70.3 percent of 417 government's contract in Malaysia were delayed or abandoned for more than three months. If these projects are delayed, it will not only slow down the economic growth in the country but it also can increase the government expenditures. Thus, there will be the wastage of country's resources that can be used for other purposes (Mohamed, 2015).

Most of the project delay will actually create the negative consequences either during or after the construction phase. There must be reasons for delays to happen in any construction projects. It might be caused by any project teams especially the contractor who is the main player during the construction. As stated by Aditi Dinakar (2014), the faults and errors due to the contractor can cause delays and waste of capital and time. In fact, delays in construction projects are quite expensive and even sometimes may result in severe damages to the involved parties. Intan (2012) also said that the delays can make the disruption of work and loss of productivity get a rise, completion of the project are late, increased time-related costs and third party claims and abandonment or termination of the contract.

In addition, many small and large size contractors in recent years have voiced their concerns over the difficulty to overcome delay problems. The main reason is because the contractors have no ability to identify the important causes of delay occurring during the construction process (Alwi et al., 2003). In consequence, due to a large amount of small and medium contractors available in the construction industry, the competition in bidding for tenders is often very high forcing small and medium contractors to estimate the costs and margin in an overly optimistic term minimising the overall tendered price. The issues above often lead to additional construction problems such as poor quality of the final output, poor productivity due to insufficient labour, materials and even equipment on site. Thus, this overly optimistic estimated cost often as well leads to improper means and method of construction leading to delays and additional amendments required (Smith and Bohn 1999).

Furthermore, these contractors have limited personnel in terms of both availabilities and abilities. They normally employ a very limited number of employees due to a small amount of projects bid (Thwala and Phaladi, 2009). Because of unaffordability to hire proficient personnel, so their employees possess limited abilities, particularly sophisticated skills. Poor coordination on site and poor communication system can lead to more problems arising upon undertaking a project that leading to a delay.

The need to control the factors of delays during the construction process comes out when the number of the project delays increasing from time to time. When a delay can no longer be absorbed by the client, it will lead to the project being abandoned. Thus, since Malaysia has no exception in this problem, it is important to study on the factors and effects of causing a delay before finding the solutions to resolve this major issue nowadays. Chang (2002) suggested that identifying factors is usually the first

step when addressing a problem and then corrective actions can be taken. Hence, it is essential to identify the causes of this problem in early stages of the construction project.

This research diagnoses the main causes and effects of delays. In relation to that, the ways to minimise project delays from the detailed study of the literature review also can be compared to the perspective of construction players especially the contractors before the exact data can be determined and interpreted to achieve the objectives of the research. Based on the findings, the researcher can generate the appropriate recommendations aimed at reducing the impact of delays. It also believed that the study would clarify and thus create an awareness of the extent to which delays can adversely affect project delivery.

1.3 RESEARCH QUESTIONS

The research questions of this study are as follows:

1. What are the factors causing delays in the project delays?
2. What are the implications of project delays?
3. How to reduce the project delays?

1.4 AIMS AND OBJECTIVES

The aim of this research is to improve the time management of the construction projects. In relation to the construction projects, the objectives of the study are as follows:

1. To identify the factors causing project delays
2. To determine the implications of project delays
3. To suggest solutions to reduce the project delays

1.5 SCOPE OF RESEARCH

This research focuses on the construction project delay involved in Malaysia's construction industry and the scope is on the project taken over by small and medium size contractors with Grade 1 until Grade 5 under CIDB registration only. Furthermore, this study highlights on the delay involved in any kind of building works like residential, retails, commodities and so on. Then, perspective and idea about project delay can be collected from the experienced contractors which their companies located within the area of Kuala Lumpur and Selangor since these areas are mostly involved in many construction projects.

1.6 BRIEF RESEARCH METHODOLOGY

The first part in the research is important to do the background of study as well as the problem statement before come out with the objectives. It can be referred to the Figure 1.1 Research Methodology Process below.

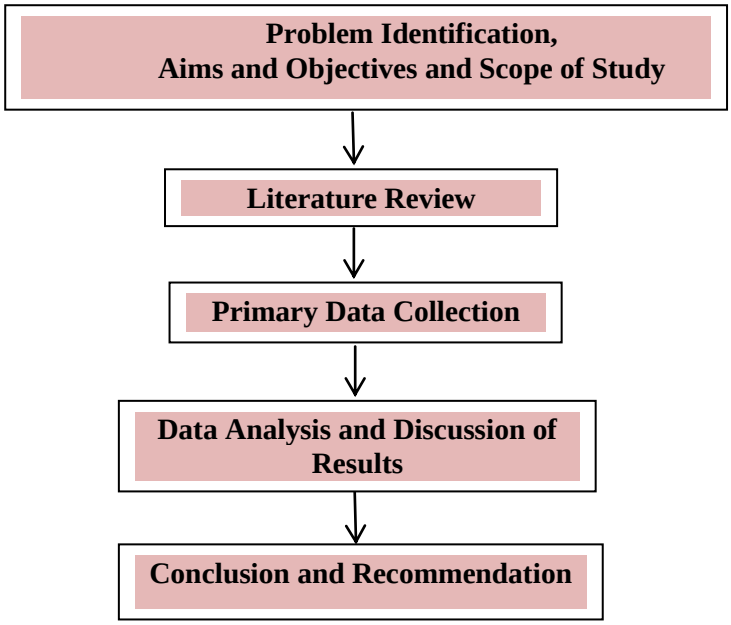

Figure 1.1: Research Methodology Process

Some methods and processes should be taken into considerations in ensuring that the objectives of this research are achieved. In this study, the research is focused on the literature review and primary data collections (questionnaire survey and semi-structure interview). Furthermore, quantitative methods (statistical methods) are used to analyse the data collection from the questionnaire survey whereas qualitative methods are used to analyse the interviews done with targeted contractors. The combinations of both methods called mixed methods. Then, there are followed by discussions section, recommendations, and lastly conclusion. The methodology adopted in the preparation of this dissertation is further explained as below: