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Cause of Construction Delay - Theoretical Framework

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Abstract

Delay can be defined as time overrun or extension of time to complete the project. Construction delay is something that cannot be avoided especially in government agencies in Malaysia. Therefore delay is a situation when the actual progress of a construction project is slower than the planned schedule or late completion of the projects. The causes of delay are taken from the past literature review. There are two main types of delay: excusable delay and non-excusable delay. The literature reviews are summarized and the delay framework is constructed based on the literature review summary in context of public higher learning institutions.

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1. Introduction

Construction industries are a growing industry in Malaysia. Fundamentally, construction activities are derived from the local economic activities in Malaysia. Construction of non-residential and residential buildings contributed between 40 to 55 percent of the total construction market between 2006 and 2009. The market revenues for building construction reached approximately \$7.21 billion in 2008 and \$6.67 billion in 2009, and it will potentially hit the \$9.00 billion mark by 2015. (Leong 2010)

Ministry of Housing and Local Government (KPKT) is the agencies who manage and monitor the residential construction in Malaysia. KPKT (KPKT 2010) define the project delay is the project who are

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experiencing delays in construction period where different gaps between the actual in progress sites work compared to the work scheduled which is between 10% to 30%. Meanwhile sick project is the project are experiencing delays in construction period where gap between actual work progresses compared to the work scheduled is more than 30% or the projects are failed to complete in the construction period.

Failure to achieve: targeted time, budgeted cost and specified quality result in various unexpected negative effects on the projects. Usually, when the projects are delayed, they are either extended or accelerated the time and therefore, invite to the additional cost. The standard practices usually allow some percentage of the project cost as a contingency allowance in the contract price and this allowance is usually based on judgment. Although the contract parties agreed upon the extra time and cost associated with delay, in many cases there were problems between the owner and contractor as to whether the contractor was entitled to claim the extra cost. (Murali Sambasivan 2007)

This study will focused on the delay that happened in public higher learning institution that conducted by Ministry of Higher Education. A numbers of cases are recorded. Recent case is at main campus of University Malaysia Kelantan and second case of delay is a construction of research complex in National University of Malaysia, Bangi. Both cases are experienced delay. Delays give increase to disturbance of work and loss of productivity, late completion of project increased time related costs, and third party claims and abandonment or termination of contract. It is important that general management keep track of project progress to reduce the possibility of delay occurrence or identify it at early stages. (Saleh Al Hadi Tumi 2009)

2. Objective

The objective of this study to get the theoretical framework that causes construction delay in public higher education institution in Malaysia. The causes of delay are collected from the previous international journal paper. The consequence of this study is to make a future study about the cause of delays in construction industry in Malaysia, especially for projects in the Ministry of Higher Education Malaysia

3. Literature Review

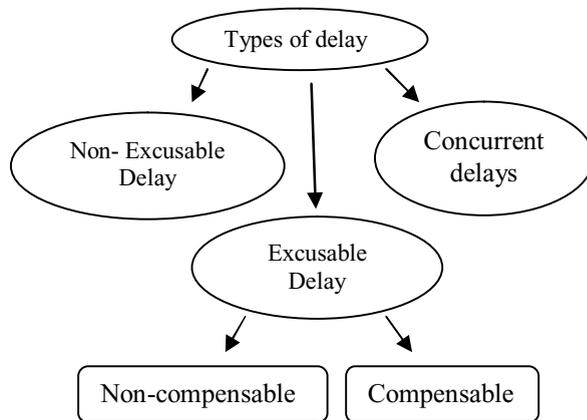


Figure 1: Types of Delay

3.1 Review

There are two type of delay non-excusable delays and excusable delays (Saleh Al Hadi Tumi 2009). A non-excusable delay is delay caused by the contractor or its suppliers, through no fault by the owner. The contractor is generally not entitled to relief and must either make up the lost time through acceleration or compensate the owner. Therefore, non-excusable delays usually result in no additional money and no additional time being granted to the contractor.

Excusable delays are divided into two: compensable and non-compensable delays. Compensable delays are caused by the owner or the owner's agents. While non-compensable delays are caused by third parties or incidents beyond the control of both the owner and the contractor. These delays are commonly called "acts of God" because they are not the responsibility or fault of any particular party. (Wa'el Alaghbari 2007; Saleh Al Hadi Tumi 2009)

Alaghbari et. al. (Wa'el Alaghbari 2007) future study has added another type of delay, concurrent delays. If there is there only one factor is delaying the construction project; it is usually quite easy to calculate both the time and money resulting from that single issue. Concurrent delay is a more complicated and this is very typical in construction project. This situation happened when more than one factor delays the project at the same time or in overlapping periods of moment.

3.2 Previously reviewed literatures

The studies were carried to figure out the main causes of construction delay. Battaineh et. al. (Battaineh¹ 2002) survey stated that the most significant cause of delay in the traditional type of contract, in perspective of contractor and consultant. It is also stated that to imparting the economic feasibility of capital project, extensive delays provide a fertile ground for costly deputies and claim. The result indicated the contractor and consultant agreed that owner interface, inadequate contractor experience, finance and payment, labor productivity, slow decision making, improper planning and subcontractor are among the top ten important factor.

In Saudi Arabia, Assaf et. al. (Sadi A. Assaf * 2006) conducted a research about construction project delay different type of project in the state. It was concluded that 70% of projects experience time overrun. The survey was conducted with 23 contractors, 19 consultant and 15 owners. Seventy-three cause of delay was recognized and the causes are grouped into nine classes. The outcome of the survey that agreed by all three parties is change order. The overall results are stated that the factor related to labor, contractor, project, owner and consultant are in the highest rank.

In Florida, Ahmed et. al. (Syed M. Ahmed 2003) identified the major causes of delay in building construction industries. The primary aim of this study is to identify the perception of the different parties regarding causes of delays, the allocation of responsibilities and the different types of delay. It was found that; the consultants play a very important role in design-related delays because they are in charge of the design process in conjunction with the owner of the project. Furthermore delayed in payments categories do not have the same negative impact on project completion times as other factors considered in this study such as code, design and construction related issues.

130 public project in Jordan has been investigate the causes of delay by Al-Momani (Al-Momani 2000) in year 2000. The whole projects indicated that poor design and carelessness of the owner, change orders, weather condition, site condition, late delivery, economic conditions, and increase in quantities are the main causes of delay. The presence of these factors has an impact on the successful completion of the projects at the time contractual particular.

Abdullah et. el. (Mohd Razaki Abdullah 2010) has made a survey of on delay on Majlis Amanah Rakyat (MARA) one of government agencies in Malaysia. MARA management procurement construction

project phenomenal issues of delayed has been argument for a long time. Eighteen of causes have been identified. The respondents are person who work as consultant such as executive, resident engineers, and clerk of work and client, MARA itself consist of director, project officer and engineers. The studies has conclude that cash flow and financial difficulties faced by contractors, contractors' poor site management and ineffective planning and scheduling by contractors are the main cause of the delay.

Sambasivan (Murali Sambasivan 2007) has made the study about the cause of delay in Malaysia itself. About 150 respondents participated in the survey. This study identified 10 most important causes of delay from a list of 28 different causes and 6 different effects of delay. The ten most important causes were: contractor's improper planning, contractor's poor site management, inadequate contractor experience, inadequate client's finance and payments for completed work, problems with subcontractors, shortage in material, labor supply, equipment availability and failure, lack of communication between parties, and mistakes during the construction stage.

4. Discussion

The framework are develop from three different author. Assaf et. al. (Sadi A. Assaf * 2006) groped the factor to a few group in the construction field. Responsibility was rated among the parties that may be involved on a construction project starting from the owner, contractor, and consultant, external factor, project, materials, labors and equipment. The result of his study is as follow: (1) Financial difficulties and economic problems, (2) Financial problems, (3) Supervision too late and slowness in making decision, (4) Slow to give instructions, (5) Lack of materials on market, (6) Poor site management, (7) Materials shortages on site, (8) Construction mistakes and defective work, (9) Delay in delivery of materials to site, and (10) Slowness in making decisions.

In 2003, Ahmed et. al. (Syed M. Ahmed 2003) are groped the cause of delay by responsibility and type of delay as table 3. The result of the study from rank number one to rank number ten is as followed: Building Permits Approval, Change order, Changes in Drawings, Incomplete Documents, Inspections, Changes in Specifications, Decision During Development Stage, Shop Drawings Approval, Design Development and Changes Laws and Regulations.

Next in year 2007 Alaghbari et. al (Wa'el Alaghbari 2007) of significant factor causing delay of building construction project in Malaysia. The study groped the cause of delay by the responsibility there are contractor, owner, consultant and external factor. The results from the study are as contractor's improper planning in the first place followed by contractor's poor site management, inadequate contractor experience, inadequate client's finance and payments for completed work and the problems with subcontractors. Moreover shortage in material get the sixth, then labor supply, equipment availability and failure, lack of communication between parties, and mistakes during the construction stage.

5. Conclusion

For many years, the issue of delay in Malaysia construction projects has been phenomenal. Its impacts were so significant that it tends to decelerate the implementation of Malaysia Plans. The improvement of delay factors not only limited to technical factors, but also factors in project management perspective both from the aspect of processes involve and the influence of human attitudes, mentality, skills and behavior. With that spirit, study based on the same issue and problems but looking from a different angle had been conducted and delay framework has been proposed as in Figure 2.

The depth studies as to what extent these factors and variables can positively and negatively affect the construction project are suggested for future study. The reliability and criticality of framework are also required to validate the significance of the framework.

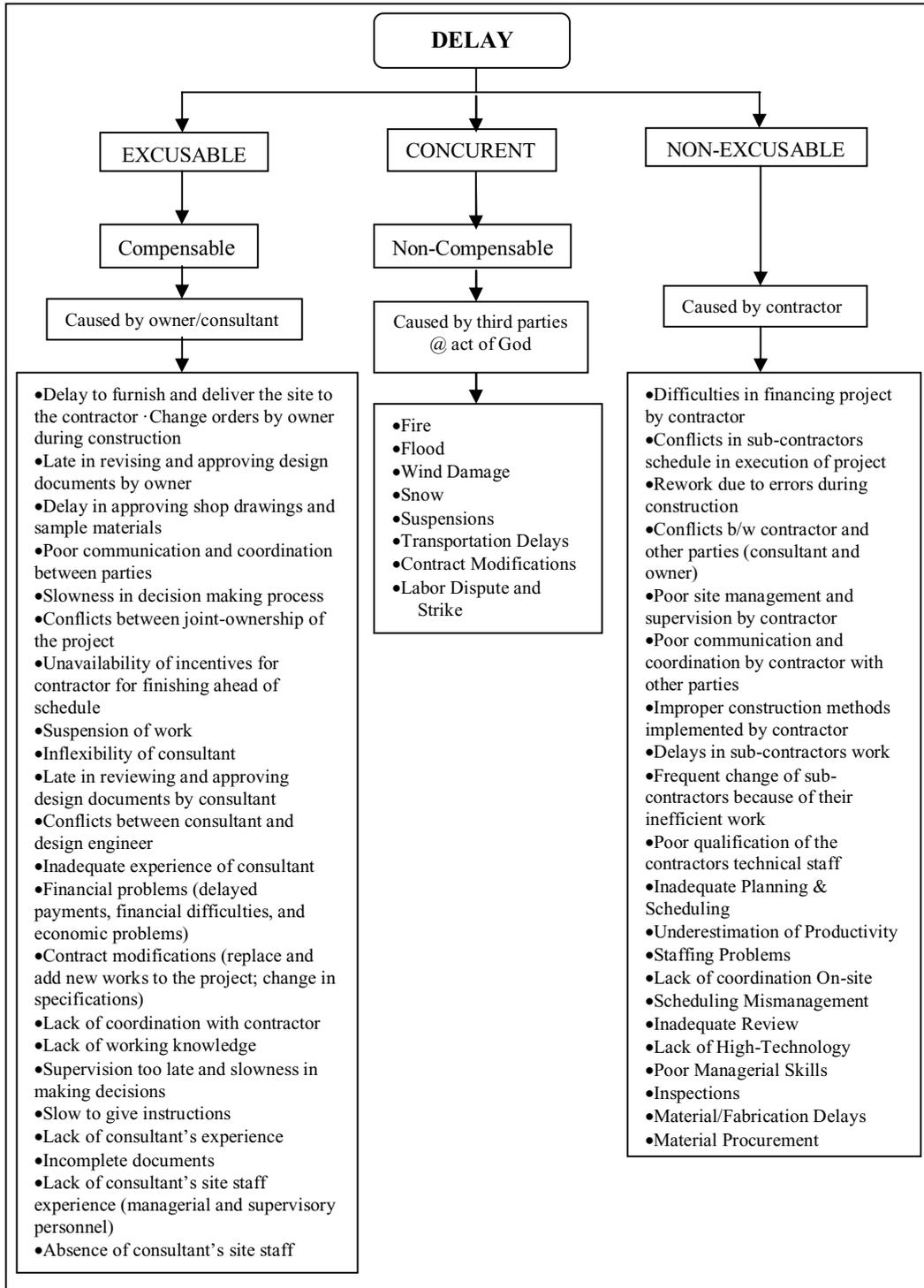


Figure 2 : Construction Delay Theoretical Framework

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