

Cost Overrun in Construction Projects in Malaysia: A Study on Contractor Related Factors

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Abstract

In construction industry, the key to a successful project lies on the quality of works, completed within the stipulated time with the planned budget. However, unexpected situations from different parties involved may lead to the delay of the works that eventually affect the whole cost of the project. The contractor is always been the main party who is dealing with the actual construction scenario that may affect the overall process of the construction project. Hence, this paper aim to investigate the contractor related factors that lead to cost overrun in the Malaysian construction project in Malaysia. A quantitative method was employed in this research by obtaining the data from questionnaire survey to G7 contractors in Selangor. The data were analysed using statistic method and Relative Importance Index (RII) method. The results indicate that improper planning and poor site management ranked the main factors that affect the cost overrun in construction project. Therefore, the results of this study will be beneficial to the contractors in achieving effective cost performance in construction projects in Malaysia.

Keywords

Construction industry, Contractor, Cost overrun

Introduction

Nowadays, construction industry in Malaysia is develop rapidly (Ali & Kamaruzzaman, 2010). It plays an important role in the economy, and the activities of the industry is vital to the achievement of national socio-economic development (Oladinrin et.al, 2012). The increasing complexity of the construction projects shows a greater demand on construction managers to deliver projects on time, within planned budget, high quality and achieve project objective (Sindhu Vaardini et.al., 2016; and Olawale 2010). Unfortunately, complete the project the within the estimated cost has become a serious challenges for the parties in the construction industry.

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Cost overrun is one of the most critical issue encountered during the execution of the construction projects (Arcila & Newton, 2012). Cost overrun involves unexpected cost incurred in excess of the budget amount due to the underestimation of the actual cost during budgeting (Azis et al., 2013). In recent years, there are numerous studies mentioned that the cost overrun is a chronic problem worldwide and is worsening in the construction industry (Cindrela Devi & Ananthanarayanan, 2017). According to a very comprehensive research done by Flyvbjerg (2002) in global construction project found that, 9 out of 10 projects experience with cost overrun. This scenario continue with 17.3% from 417 government projects in Malaysia considered as sick and abandoned in the year 2005 (Sambasivan & Soon, 2007).

The Kuala Lumpur International Airport 2 (KLIA 2) is a very famous case study of cost overrun in Malaysia. Public Accounts Committee (PAC) found that the KLIA 2 project did not follow its original concept as a replacement for the Low Cost Carrier Terminal (LCCT) ended with 'hybrid concept terminal' that cause the construction cost to increase from RM1.7 billion to RM4 billion which contribute to 71% cost overrun (National Audit Department, 2014). Cost overrun may encumber projects progress that will eventually over-extend the client financially, reduce the contractor's profit leading to enormous losses, and leaving the project in great troubles (Sindhu Vaardini et al., 2016). The study of MARA large project (Memon et.al., 2010) stated that financial difficulties faced by the contractor, contractor's poor site management, miscommunication with the parties, shortage of site worker, incorrect planning, poorly established cost control system and inadequate contractor experience were severe factors. Azis et. Al (2013) also highlighted that "contractor" is the major factor that lead to cost overrun incurred in the construction project due to poor contractor management. Thus, this lead to the serious attention to study on the detail factors that may affect the cost overrun in construction project.

Factors that Affect Cost Overrun in Construction Project

Malaysia is facing chronic problems of cost overrun in construction project (Sambasivan & Soon, 2007). The factors of cost overrun might become risky and lead to adverse effects on the projects (Ali & Kamaruzzaman, 2010). An in-depth literature review identifies more than 69 causes of project cost overruns (Niazi & Painting, 2017). Among the factors are poor estimation of original cost, improper planning, poor project management, lack of experience, poor contract management, inflation of project costs, high cost of machineries, and fluctuation in price of raw materials, unforeseen site conditions, insufficient fund, unsuitable construction equipment and methods and mistake in design. Patil (2017) also revealed that the financial difficulties of contractors often occur in the construction industry where most of the contractors are not checking on their financial capabilities before bidding for new projects that eventually cause financial problem during construction stage.

Main contractors need to establish dynamic management systems that facilitate the coordination of activities and control the actions of their members. Abdullah et al. (2013) mentioned that the smooth management at the site plays important role for the successful of the project and the failure in managing the daily routine at the project may contribute to the cost overrun significantly. A study by Patil (2017) also stated that many contractor are poor in planning on site, organizing labour, monitoring and controlling the progress of work on site.

Communication plays a vital role in all stages of construction such as design, production, organization and management Mohammed et al. (2016). Azis et al. (2013) highlighted that the effective communication is able to provide faster data sharing and proper decision-making to solve the possible problem in development progress. This statement also agreed by Memon et.al (2014) and Patil (2017) that poor communication between contractors and others parties during the construction project is the major factor that affect the project cost overrun.

Material and machineries are very important resources of many project. Materials are considered as the backbone of construction projects, which accounted nearly 70% of the total value of project (Memon, 2010). A survey by Azis et al. (2013) found that 71.5% of respondent ranked the material and machineries issue the major factor that contribute to cost overrun in construction industry as these resources are important in stepping up the efficiency of the study by saving huge amount of time and cost. Hence, adequate and efficient equipment usage is vital as compared to the application of obsolete and inadequate equipment.. (Ali et al, 2010).

Labour plays an important role in construction industry. Construction industry is regarded as labour intensive sector, which is highly dependent on labour for execution of the work (Memon, 2010). A successful project is not only depending on the number of labours but also subjected to efficiency of labour's force. Hence, effective labour management is important area, which needs serious attention in avoiding cost overrun in construction project. (Azis et al., 2013).

Research Methodology

The methodology of this research is quantitative method through questionnaire surveys. The questionnaire were distributed to the contractors in Selangor. The questions of survey were designed in multiple choices format using Five-Points Likert Scale (1=, strongly disagree 2=disagree, 3=agree, 4=strongly agree) for the factors that affect the cost overrun in Malaysia. Relative importance index (RII) are used to analyze data and rank the significant factors of cost overrun in the tabulation format.

Results and Discussion

The results collected from the questionnaire survey were analyzed and interpreted accordingly in order to achieve the research's objectives. Table 1.0 illustrates the ranking and Relative Importance Indices (RII) of each factor of cost overrun in construction project in Selangor.

Table 1. Summary of ranking cost overrun factors

Factors of Cost Overrun	Relative Important Index (RII)	Rank
Improper Planning	0.821	1
Contractor's Poor Site Management	0.800	2
Material and Equipment Issues	0.782	3
Miscommunication with other parties	0.743	4
Labour Related Issues	0.729	5

The improper planning by the contractor ranked the first factor in the evaluation with the highest RII that is 0.821. A proper planning is an important criteria in achieving successful construction project. According to the study of Shah (2016), the improper planning by contractors would affect the estimated targets within the agreed budget and the consequences of this may result in project delay and cost overruns. A study conducted by Patil (2017) revealed that the contractors' improper planning are due to lack of experience, excessive work in hand, poor knowledge on the correct technique, appoint incompetent professional and did not update the work program on time. Both authors also agreed that inadequate contractor's experience in preparing a practical and workable "work programme" in the initial stage is an important reason for improper planning that lead to cost overrun occur in construction project.

The 2nd ranked factor is "contractor's poor site management" with the RII 0.800. The result is agreed by Memon et. al (2010) showing 2nd ranking of most significant factor due to the frequent change of site manager or supervisor that eventually affect the progress of the project. The finding is also consistent with the study conducted by Ali and Kamaruzzaman (2010) that highlighted the inadequate contractor's experience in planning, organizing, staffing, directing and controlling the resources on site, failed to comply the statutory requirement and appointed inability professional to manage the site contribute to the contractor's poor site management.

Material and equipment are very important resources of any project in construction industry. This category has been ranked as 3rd place with the RII 0.782. According to Azis et al (2013), efficient material and mechanical management is critical in achieving a successful project, as any problems associated with the material and machineries resources will significantly lead to cost overruns.. In addition, shortage of material will eventually affect the progress of work in construction site (Cindrela Devi & Ananthanarayanan, 2017).

Miscommunication with other parties rank as 4th in this research. This is due to the lack of coordination in delivering the information and communication between the parties involved in the project (Abdullah et al., 2013). Poor coordination and communication is often seen as a major problem at the construction site, which causes variations of work and rework occurred that resulting in large amounts of construction waste, delays and cost overruns in construction project (Rahman et al., 2012).

Labour related issues is ranked at 5th rank with RII 0.729. According to Azis et al (2013), labour related issues are major problems of cost overrun in construction project in many countries such as in Kuwait, Indonesia, Nigeria and also Malaysia. Labour related issues can be attributed from strike of labour, shortage of labour, lack of experience of labour, weak motivation of labour, high cost of labour, mistake by the labour, and low productivity by labour (Abdullah et al., 2013; Niazi & Painting, 2017).

Conclusions

The findings concluded that the contractor may require proper site planning, site management that include the complete monitoring of the materials and equipment usage to ensure that the cost

overrun can be avoided. As these factors may avoid the performance of the construction project, the statistical results could assist the decision makers in identifying and avoid the factors causing the cost overrun for better project development. This is essential to be considered to ensure that the project is completed on the schedule time. The findings can be used as the guidance to the construction practitioners such clients, consultants and contractors in order to overcome the cost overrun issue in their projects and eventually reduce the conflict among them. Avoiding the cost overrun may be essentials to minimize the possible increase in the construction project cost.

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