

Imperative Causes of Delays in Construction Projects from Developers' Outlook

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Abstract. Project delays in the construction industry are a universal or large-scale observable fact affecting not only the construction industry but the overall economy of countries as well. As far as the Malaysian construction industry is concerned, project delays are common problems in the construction industry, particularly in housing development. The objective of this study is to evaluate and identify the causes and the consequences of project delays in private housing development projects in Malaysia, and the remedies that can minimize these delays. The top ten causes of delays are weather conditions, poor site conditions, poor site management, incomplete documents, lack of experience, financial problems, contract modifications, delay in the approval of major variations, contractor coordination problems with other parties, and construction mistakes and defective works. It has been analysed that the causes of the delays point to the contractor factors, which contribute to the major factors that cause project delays in private housing development projects. The consequences of the delays include time overrun, cost overrun, differences in opinion, negotiations, legal actions and total abandonment. Herewith are presented some recommendations to minimize these project delays.

1 Introduction

A project delay can be defined as an incident that causes an extension in the time for the completion of all or part of a particular project [1]. The delay can also be defined as the time overrun, either ahead of the date for the completion of the project as specified by the contract or further than the extended contract period, where additional time has been granted [2]. Project delays in the construction industry are a universal or large-scale observable fact affecting not only the construction industry but the overall economy of countries as well. Project delays involve manifold, multifaceted issues, all of which are perpetually of decisive magnitude to the parties to the construction contract [3]. These issues concern the right to recover the costs for the project delay or the need to extend the project with the substantial right to recover costs for adjustments to the contract schedules [4]. One of the main objectives and policies of any public or private sector implementation of projects is to upgrade the performance process of the projects through the reduction of costs, completion of the construction projects within their contracted sum and time limit, and improvement of quality. Private housing project delays are often caused by circumstances that create barriers to the launching and further implementation of project activities [5].

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When project delays are unexpected, they are unmanageable and have a rather negative impact on the activities and outcomes of the project. An unexpected delay will extend the overall duration of the project activities and entails an increase in project costs. It produces time-associated cost effects that will increase the resource consumption and will require extra time to reach project success. In the private housing sector, a developer can just be a project owner or both the owner and contractor of the development project itself [6]. In either capacity, a developer has to meet certain requirements that need to be addressed and must be stated clearly in the contract document. If this is done, the probability of a successful completion of the project is enhanced. If the preliminary step is omitted, the chances of delay and disagreement will increase [7].

Many researchers have investigated the causes and effects of project delays. These studies tend to focus attention on explaining the causes, which in turn would help to guide practitioners in identifying possible measures for mitigating delays in construction projects [8]. A study by Kumaraswamy and Chan [9] on the causes of construction delays in Hong Kong suggested that the biases of different industry groups might direct blame for delays to other groups.

2 Methodology

An online questionnaire was developed in order to obtain the perspective from several developers in Malaysia. 28 causes were identified from the literature review and these were divided into four factors, that is, client, contractor, consultant and external factors. The next part was the consequences of project delays. Six consequences of delays were also identified, that is, time overrun, cost overrun, differences in opinion, negotiation, legal action and total abandonment.

This research was based on the purposive sampling technique. The alternative use of probability sampling was not considered due to limited time and resources. The researcher made contact with potential respondents based on the statistics of private housing delay projects all around Malaysia that had been provided by the Ministry of Housing and Local Government of Malaysia. Based on the information that had been gathered from the Ministry of Housing and Local Government of Malaysia, it was learned that around 220 developers were involved in private housing projects around Malaysia that had some delay problems in their projects. A total of 220 sets of questionnaires were distributed for this survey, but only 76 sets were returned.

3 Data Analysis and Discussion

3.1 Causes of Delays

The data collected from the questionnaires were analysed from the perspective of the developers. Every cause of delay based on the client, contractor, consultant and external factors, was computed for the overall analysis. The mean score was computed for each cause to identify the most significant causes and later the causes of delays were ranked based on the mean score. Based on Table 2, the ranking that had been given to each cause of delay was used to identify the most important factors or causes of delay in the Malaysian private housing industry. Therefore, based on the ranking of the causes of delays from Figure 1, the top 10 causes of delays in private housing projects were identified as follows:

- (1) The weather conditions on the site (external factors), where the mean score calculated was 4.41. This shows that unpredictable weathers conditions can really have a big effect on the progress of construction as to whether the project proceeds quickly or slowly. This implies that the environment is a very important factor for construction projects.
- (2) Poor site conditions (mean value score= 4.26) can cause delays in private housing projects. A poor site condition will decrease the productivity on the site
- (3) The poor site management of the contractor (mean value score= 4.09),

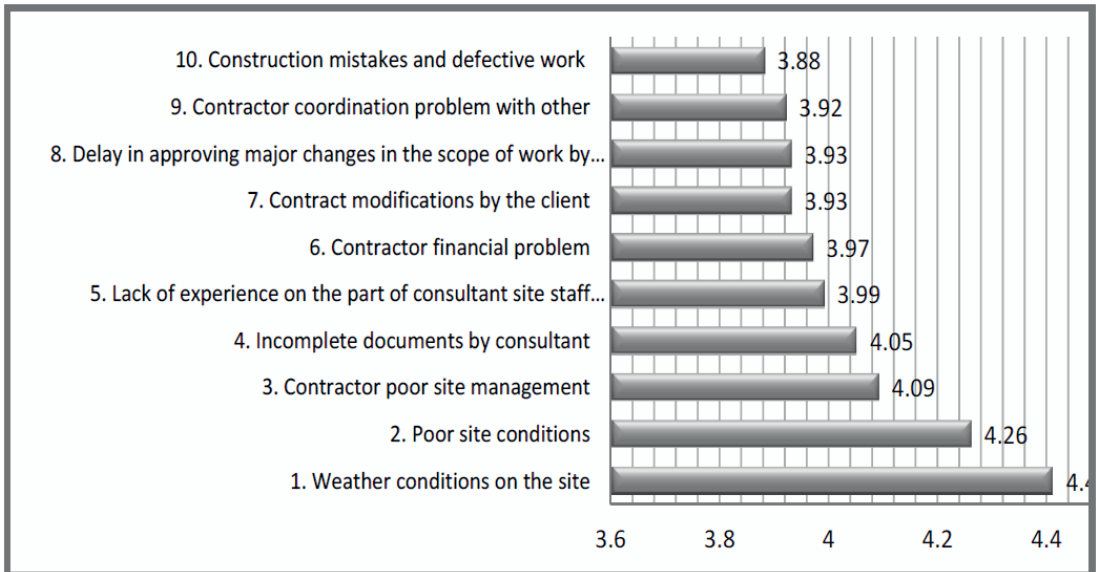


Figure 1 Top 10 Causes of Private Housing Project Delays in Malaysia

(4) Incomplete documents by the consultant (mean value score= 4.05). The consultant has the full authority to issue changes, correct mistakes in the drawings and discrepancies in the contract document on behalf of the client. However, the consultant's site staff do not always have the confidence to issue instructions until they have discussed with their top managers. Thus, the contractors often cannot receive instructions about those discrepancies in time.

(5) Lack of experience on the part of the consultant's site staff (managerial and supervisory personnel) (mean value score= 3.99). Some of the consultant's site staff do not have enough experience in the construction industry. Some problems in the design cannot be found until the contractor enquires about them during the construction. Therefore, it takes extra time in order to approve a new design solution.

(6) Financial problems (mean value score= 3.97) of the contractor are the cause of delay in private housing projects and have been ranked sixth in this analysis based on the mean score value of 3.97. This delay occurs because when contractors receive advance or monthly payments from the client, many of them may use the money to finance other urgent or more profitable projects.

(7) Contract modifications (replacement and addition of new work and change in specifications) by the client (mean value score= 3.93)

(8) Delay in approving major changes within the scope of work by the consultant (mean value score= 3.93). It is a time consuming and complex process for consultants to approve documents submitted by contractors.

(9) Contractor coordination problems with other parties (mean value score= 3.92) can cause delays. A total of 76 percent of the respondents agreed with this type of delays. The contractors have to frequently communicate with the other project participants.

(10) Construction mistakes and defective work (mean value score= 3.88). With the high demand for workers in the local construction market, the majority of the labourers, who are from other countries like Indonesia, Myanmar, Bangladesh and others, are without adequate training.

3.2 Effects of Delays

Based on Table 1, (1) time overrun and (2) cost overrun were the top two effects of project delays in private housing construction. Based on Table 2, time overrun (mean value score= 4.43) is one of the highest consequences of delays. Time overrun occurs when the construction process is delayed and takes longer than expected. Client and contractor related factors of delays are responsible for time overrun.

Table 1 Consequences of Private Housing Project Delays

Description	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean Score	Ranked
	1	2	3	4	5		
Time overrun	0	0	0	48	29	4.43	1
Cost overrun	0	1	0	47	29	4.40	2
Differences in opinion	1	3	3	61	9	4.01	3
Negotiation	0	9	4	60	4	3.82	4
Legal action	2	7	15	50	2	3.56	5
Total abandonment	7	14	11	43	2	3.30	6

At least half of the causes of project delays contribute to time overrun in the construction project, such as slowness of the client in making decisions, construction mistakes and defective works, shortage of materials on site, delay in delivering materials to the site, weather conditions, and delays in the manufacturing of building materials, etc. Based on Figure 3, a total of 61 percent of the respondents agreed and 38 percent strongly agreed that project delays result in cost overrun. It was the second highest consequence of delays chosen by the respondents based on the mean score of about 4.40. The cost overrun happens because of contractual factors such as contract modifications (replacement and addition of new work and change in specifications), poor communications and site management, and lack of working knowledge of the parties involved.

The third consequence of delay that had been ranked based on the opinion of the respondents was (3) differences in opinion or what is known as disputes. The mean score for this consequence was about 4.01, and 79 percent of the respondents agreed that differences in opinion are one of the consequences of delays in the private housing industry.

Disputes frequently arise in respect of delays and who should bear responsibility for them. A combination of environmental and behavioural factors can lead to construction disputes. Projects are usually long-term transactions with high uncertainty and complexity, and it is impossible to resolve every detail and unforeseen contingency at the outset.

(4) Negotiation (mean value score= 3.82) is ranked fourth in the analysis that was carried out in this research to determine the consequences of delays. Therefore, if any of the parties do not accept the solution provided by the mediator, they can appeal to an arbitrator. Negotiation is a complex process that is mainly used to resolve conflicts and disagreements. Negotiation plays an important role in resolving claims, preventing disputes and maintaining a good relationship between the project participants, but prolonged negotiations may lead to consequences for delays in private housing projects.

Another consequence of delays is (5) legal action (mean value score= 3.56) or what is also known as litigation, which is ranked fifth, where a total of 66 percent of the respondents agreed with it.

The last consequence of delays is (6) total abandonment (mean value score= 3.30). The four factors, that is, client, contractor, consultant and external factors contribute to total abandonment. About 56 percent of the respondent agreed, while another 18 percent disagreed with this, and another 14 percent of the respondents stated that they were undecided. Total abandonment happens because of the financial problems of the client or the contractor, and cash flow problems will bring the construction process to a halt.

4 Recommendations

Some recommendations are made to minimize project delays in private housing projects. The recommendations are:

1. Proper planning before commencement of the project.
2. Approval and confirmation of the design concept, construction drawings, material selection, logistics planning, etc., prior to construction.
3. Improvement in communications, e.g. regular and fruitful meetings and site visits with the relevant parties in order to solve problems in time.
4. Effective control and monitoring of site workers to improve productivity.
5. New rules and regulations should be relayed to the developers / contractors as soon as possible so that the developers /contractors are aware of changes to the rules and regulations.
6. Client to stick to the original plan and to allocate an adequate budget for any contract modifications.
7. Site management and proper award on time are important to avoid project delays.
8. Close monitoring of the progress of work.
9. Counter-check the accuracy of data on the work-in-progress with the actual physical completion versus the cost expended.
10. Propose a "Bonus" scheme for early completion.
11. Effective planning and scheduling would overcome the problem.

The project management team (client & consultants) should be more professional and responsible in handling their respective fields and not depend on the contractor to solve their problems, especially in matters involving the local authorities. Also, the client or the project team should minimise internal protocols or lengthy procedures for obtaining approvals and confirmation, which normally interrupt construction planning on the site.

5 Conclusions

From this study, it can be concluded that the top ten major factors that contribute to project delays are weather conditions, poor site conditions, poor site management by the contractor, incomplete documents from the consultant, lack of experience on the part of the consultant's site staff, financial problems of the contractor, contract modifications by the client, delay in approving major changes in the scope of work by the consultant, contractor having coordination problems with other parties, and lastly, construction mistakes and defective work by the contractor. The factors have been divided into four groups based on the causes of delays. Delays due to contractor factors were ranked as the most significant, followed by delays due to consultant factors, client factors, and external delays. In terms of the consequences of project delays, it was found that six factors affect delays in private housing projects. These include: time overrun, cost overrun, differences in opinion or disputes, negotiation or arbitration, legal action or litigation, and total abandonment. From the analysis that was carried out, it has been shown that time overrun and cost overrun are the two most frequent consequences of delays in construction projects.

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