

Time Delays in Highways Construction Projects in Kuwait

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Abstract: It is generally accepted that the major objectives of any infrastructure project are budget, schedule and quality, although there are other more specific objectives, such as safety consideration and market entry, depending on the nature of the project and company. The problem of delays in the construction industry for infrastructure projects is a global phenomenon. Thirty reasons of delay during different phases of the project were identified, described and combined into the five stages of highways construction projects: Pre-prepared documents, the stage of preparation documents, the process of preparing bid documents, stage award, and the implementation phase. The rating of agreed were calculated for the reasons of delay. In addition to this research presents relationships between the reasons of time delay variables during different project stages. The findings of this research can be used as a preliminary guide for highways construction companies that are unfamiliar with working with the highways Construction Projects in Kuwait.

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1. Introduction

“Time is money” is one often heard statement in construction industry, a statement that drives and motivate every player engaged in the construction industry. Ironically it is the dual elements of time and money that cause some of the most time and money consuming disputes (Dip, 2005). In the construction projects, there are some problems faced such as delays in the completion or delivery of the project. The delay in completion of construction projects is a worldwide problem. In construction industry, construction delay refers to the time overrun in specified completion data or time overrun in the delivery of the construction project on which all parties agreed. For the client, construction delay refers to the loss of revenue, lack of productivity, dependency on existing facilities, lack of rentable facilities etc. For the contractor, construction delay refers to the higher costs, longer work duration, increased labor cost, higher material and equipment costs etc. Completion of construction projects on specified time or time agreed within parties indicates the work and construction efficiency. The 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. There are many large construction projects in Kuwait, which suffered delay or in some cases suffered suspension or abandonment.

Literature review

Construction management focuses on best practices of managing resources such as materials, equipment, and labor. The challenge that faces managers in the construction industry is how to balance time, cost, and quality. Time delays are very clear measurements of project success as a simple comparison between actual and planned time could provide managers with project status. According to an earlier work by the author related to project schedule and project delay classification Al-Humaidi (2002), classification of delay causes can follow different logic. Based on the topical literature about project delay topic, we can classify project delays according to their origin, timing, and compensability. According to Antill and Woodhead (1989) delays are classified according to their origin and the party responsible for the delay. They divide delays into the following categories:

- Those over which neither party to the contract has any control.
- Those over which the owner has control.
- Those over which the designer has control.
- Those over which the contractor has control.

Excusable delays are “delays that entitle the contractor to additional time for completion of the contract work, arising from causes beyond the contractor control” (Popescu, 1994). Excusable delays may be further classified as excusable compensatory or non-compensatory delays, depending on contract terms and conditions. Excusable delays occur due to various factors that can be classified as:

- Beyond the control of either party.

- Within owner or architect/engineer control.

The first case results in time extension to avoid any liquidated damages, whereas the latter case results in time extension and compensation to the contractor. Owners are liable to contractors for delay damages only if the delay was caused solely by compensable delays. This type of causation is sometimes referred to as “but for” causation; that is, “but for” the compensable cause of delay, the delay would not have occurred Finke (1999). Excusable non-compensatory delays entitle the contractor to additional time but not additional compensation. Neither party causes this type of delay. Examples of excusable non-compensatory delays (Type 1 delays) are acts of God, acts of public enemy, and unusual delays in transportation, such as freight embargo, unusual weather conditions, and strikes. Excusable compensatory delay is one that entitles the contractor to extend direct costs, indirect costs, and project time. Excusable compensatory delays are usually due to acts or omissions of the owner or the designer. Compensatory delays are attributable to change orders. Examples of owner’s excusable compensatory delays (Type 2 delays) are late notice to proceed, failure to provide proper financing, failure to provide owner furnished materials or components, interfering with or obstruction of work on the project, and delay in change orders. Examples of designer’s excusable compensatory delays (Type 3 delays) are defective plans and specifications, failure to provide drawings on schedule, delay in review or approval of shop drawings, stop-work order, conflicts in drawings, and defective design.

Non-excusable delays are delays that do not entitle the contractor to either time extension or cost compensation. This type of delay occurs due to the contractor’s failure to meet contractual obligations. Non-excusable delays are usually identified when disputes arise, since it is difficult for the owner to identify this type of delay at early stages of the project since the construction schedule is seldom maintained with sufficient details. Examples of non-excusable delays (Type 4 delays) are slow mobilization, inadequate labor force, strikes caused by unfair labor practices, poor workmanship, late delivery of materials and components, and failure to coordinate multiple subcontractors.

Concurrent delay is defined as “the occurrence of two or more delays arising from independent causes and affecting a project during the same or overlapping time period” (Popescu *et al.*, 1994). Courts examine this type of delay by determining the responsibility for concurrent delay and determining whether parties are seeking compensation or time extension. Rubin *et al.* (1983) suggested the following guidelines for classifying these kinds of concurrent delays:

- If excusable and non-excusable delays occur concurrently, only a time extension is granted to the contractor.
- If excusable compensable and excusable non-compensable delays occur concurrently, the contractor is entitled to time extension but not to damages.
- If two excusable compensable delays occur concurrently, the contractor is entitled to both time extension and damages.

Research Scope and objectives

The scope of this research includes identification of the reason of time delay in highways projects in Kuwait, during all phases of the project, the total budget varying from 25,000,00 \$ to 100,000,000\$, the main objective of this study is To identify main factors which cause time delay in highways projects in Kuwait during all project phases, and To evaluate the degree of agreement /disagreement regarding the ranking of these factors.

Research Methodology

The research methodology selected for this purpose comprised an extensive relevant literature review has been provided, a questionnaire with a list of factors that were considered to have effects on delay in highways projects in Kuwait during all project phases was developed and a statistical analysis of the survey data. The questionnaire consisted of two sections. Section 1 solicited general information about the respondents. Section 2 carried a total of 30 causes which effects delay in highways projects in Kuwait during all project phases and asked respondents to review and determine the degree of agreement /disagreement regarding the ranking of these factors. The survey was performed in eighteen weeks. The questionnaire was distributed to 60 construction practitioners in Kuwait. All respondents were contacted beforehand to make sure that they were familiar with high way construction projects and were willing to join this survey.

Change Orders Identification and Assessment

General Causes:

To determine the general causes for nearly all change orders, an extensive review on the previous attempts and several interviews were conducted with twenty experts in the construction field to comply the general causes for nearly the most changes which effect on the cost and time. The general causes were covered in the questionnaire are listed and described below,

Stage (1): Pre-prepared documents

- 1- Commitment of some government organization chart on the needs of those projects.

- 2- Coordination between the ministries in the implementation of projects.
- 3- The presence of environmental studies and traffic preconceptions of places proposed projects.
- 4- Specialties entanglement between government entities such as municipal, financial, and oil ... Etc.
- 5- Commitment to the priorities of projects after each change in government agencies.

Stage (2): The stage of preparation documents

- 6- The presence of a uniform standard of requirements and requirements for each type of project or work or contracts.
- 7- Unification of the body that defines or modifies the conditions or requirements of the items or work or contracts.
- 8- Accounted for by the central committee of homes both in the advisory is in acceptance or classification or rehabilitation of companies and advisers.
- 9- Intervention of the Ministry of Finance to amend the requirements of the authorities for contracts at the expense of the owner of the project.
- 10- Classification of consulting offices on the basis of jurisdiction.

Stage (3): The process of preparing bid documents

- 11- A brochure on the items of uniform conditions, projects or similar business.
- 12- Multiplicity of agencies should be to obtain approval or to obtain its permission before you start.
- 13- The multiplicity of the relevant committees to decide on the deployment of the project between the Technical Committee and Finance and the acceptance of offers.
- 14- The multiplicity of procedures, appointments and approvals by the Central Tenders Committee in the case of responding to inquiries.
- 15- The rising cost of projects and items.

Stage (4): Stage award

- 16- Central in the process of awarding accounted for by the Central Committee of Tenders.
- 17- Session procedural documentary long process of awarding.
- 18- The multiplicity of insurance and financial guarantees and warranties that are binding for the contractor.
- 19- The absence of an independent, technical statement and determine market prices and fundamental value and the actual cost of the work.
- 20- Pre-qualification of the companies executing the project.

21- Some contractors do not have the raw materials for factories.

22- Awarding contracts to lower prices.

Stage (5): The implementation phase

23- Twice the experience of a consultant.

24- Weak technical staff to the contractor.

25- Non-possession of the contractor's equipment and mechanisms necessary for the implementation of the ideal of the project.

26- Lack of experience I have a project management from the owner.

27- Delay receipt of the Contractor Project Documents by the Owner Advisory.

28- Delays in obtaining the credits of the materials by the Contractor and Owner.

29- Delay in supply of materials by the contractor.

30- Lack of coordination between subcontractors.

Data analysis method

The questionnaire survey was done on the behalf of the delay causes. There were two parts of the questionnaire, Part A Par B. Part A asked about the respondent's personal information, whether he is client, consultant, contractor, subcontractor etc and how much work experiences the respond is, what type of association in which he is working, how much monthly salary of him etc. Part B asked about the information related to causes and factors of delay in highways projects in Kuwait. A survey was conducted through mailed one hundred questionnaire were distributed in Government, and private out of which thirty four were given response and in some organization,. The respondents were asked about the grading and scoring of the causes and factors of delay. After the analysis of these, the recommendations were made to counter these problems.

Survey Results

The main purpose of this investigation is not to identify a list of causes/ of the reasons of delay in highways projects in Kuwait, table1 shows the checklist of the reason of delay for the mean of rating agreed experts of the reason of delay the checklist of the reason of delay for the mean of rating agreed experts of the reason of delay in highways projects in Kuwait ordering descending According to the mean of the rating agreed experts ordering descending According to the mean of the rating agreed experts.

Table 1 the checklist of the reason of delay for the mean of rating agreed experts of the reason of delay in highways projects in Kuwait ordering descending According to the mean of the rating agreed experts.

No.	Mean of Agree Rating	The Reason of Delay In Highways Projects in Kuwait
1	4.15	Coordination between the ministries in the implementation of projects
2	4.03	Multiplicity of agencies should be to obtain approval or to obtain its permission before you start
3	3.82	The rising cost of projects and items.
4	3.82	Delay receipt of the Contractor Project Documents by the Owner Advisory
5	3.79	The presence of environmental studies and traffic preconceptions of places proposed projects
6	3.79	Pre-qualification of the companies executing the project
7	3.76	The absence of an independent, technical statement and determine market prices and fundamental value and the actual cost of the work
8	3.74	Classification of consulting offices on the basis of jurisdiction
9	3.74	Non-possession of the contractor's equipment and mechanisms necessary for the implementation of the ideal of the project.
10	3.71	The multiplicity of procedures, appointments and approvals by the Central Tenders Committee in the case of responding to inquiries
11	3.68	Delay in supply of materials by the contractor
12	3.68	Lack of coordination between subcontractors
13	3.65	Commitment of some government organization chart on the needs of those projects
14	3.65	Specialties entanglement between government entities such as municipal, financial, and oil ... Etc
15	3.65	Unification of the body that defines or modifies the conditions or requirements of the items or work or contracts
16	3.65	Session procedural documentary long process of awarding
17	3.65	Twice the experience of a consultant.
18	3.65	Weak technical staff to the contractor
19	3.62	The multiplicity of the relevant committees to decide on the deployment of the project between the Technical Committee and Finance and the acceptance of offers
20	3.56	Some contractors do not have the raw materials for factories
21	3.56	Delays in obtaining the credits of the materials by the Contractor and Owner
22	3.41	The presence of a uniform standard of requirements and requirements for each type of project or work or contracts
2	3.41	Accounted for by the central committee of homes both in the advisory is in acceptance or classification or rehabilitation of companies and advisers
24	3.32	Commitment to the priorities of projects after each change in government agencies
25	3.32	Intervention of the Ministry of Finance to amend the requirements of the authorities for contracts at the expense of the owner of the project
26	2.71	Central in the process of awarding accounted for by the Central Committee of Tenders
27	2.65	A brochure on the items of uniform conditions, projects or similar business
28	2.50	The multiplicity of insurance and financial guarantees and warranties that are binding for the contractor.
29	2.44	Awarding contracts to lower prices.
30	2.41	Lack of experience I have a project management from the owner

Conclusions

The most important reasons of delay in highway construction projects were not only during the construction stage of the project but also during all stages of the project. Where compiled in a form of checklist. These reasons were identified by analyzing the data collected employing both the descriptive and inferential statistical means.

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