



Causes of Delays in Construction Projects

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Abstract:

The Indian construction project has experienced significant delays. The construction industry is large, volatile and requires high investment. Delays occur in almost all construction projects, and the importance of these delays varies widely from project to project. During construction, the delay may be defined as exceeding the completion date specified in the contract or exceeding the date on which the parties agreed to the delivery of the project. Delay means loss of revenue due to lack of production facilities and rental space, as well as dependency on current facilities. Project delays are directly related to the total construction costs. The delay can only be minimized if the cause is identified. The purpose of this paper is to examine ways to minimize the cause of build delays. Project delays include several factors such as missing funds, changes in the drawings, lack of effective communication and inadequate project management.

Keywords: causes of delays, effects of delays, construction project

I. INTRODUCTION

The construction industry is one of the most important economic sectors that play an important role in economic development. However, many projects had significant delays that exceeded the initial time and cost estimates. Construction delay is applied in terms of time, cost, quality, and safety as the success of the project.

The construction industry is large, volatile and requires high investment. Road construction is an important element of the construction industry for the economies of developing countries. This means that much of the national budget for infrastructure development is linked to road construction projects. The main reason for the cost increase in the road construction project is inflation and pressure from local governments. On the other hand, there are delays in payment, financial processes and difficulties of contractors and customers, contract changes, economic problems, material procurement, drafting changes, staff shortages, equipment deficiencies, lack of oversight, design flaws, inappropriate site customization. Labor disputes and strikes were the main causes of the delay in planning road construction projects.

In construction, the delay can be defined as either timeout over the date beyond which it has been agreed for the delivery of the project stakeholder through the set at contract end date. It is a project that overcomes the planned schedule and is regarded as a common problem of construction projects. It means production and rentable area attributable to the owner of the delay or loss of income due to lack of existing plant function. In some cases, it means that the delay is due to high overhead costs associated with long working hours, high material costs due to inflation and labor costs for contractors. Timely completion of a project is an indicator of efficiency, but the construction process is subject to many variables and unpredictable factors arising from many sources. These sources include involvement of parties' performance, resource availability, environmental conditions, and contractual relationships with other parties.

II. OBJECTIVE OF STUDY

There are many ways to complete the project on the current site in a timely manner, but delays are unavoidable and

ultimately affect the efficiency of the project. There has probably been a lot of research to minimize the delayed discovery and the negative impact of project delays. Nevertheless, there are many projects that delay planning and suffer heavy losses. Construction is constantly changing the challenging and dynamic industry. This research aims to identify the main causes of the delay. To reach the goal, it is identified as follows:

- Identify delay sources from construction projects.
- Investigation of the effects of delays in construction projects.
- Analysis of the live project data collection regarding the activity delay.
- Discuss and make suggestions to minimize the impact of construction delay

III. LITERATURE REVIEW

1. **Prakash Rao and Joseph CamronCulas (2014)** concludes that poor project planning and planning, delays in on-site transfers and delays in the work of subcontractors are the three most critical factors that the contractor causes, which has an impact on project performance, followed by delays on delivery and delivery. Factors that occurred too late when changing and approving design documents. The survey found that 51% of the delays were caused by customers, followed by 36% of contractors and 13% of consultants. Research from ARC File Solutions (2015) shows that file management issues are the main cause of delays and timeouts on construction projects.
2. **Ghulam Abbas Niazai and KassimGidado (2013)** reported that contracts under 12 months contributed to the delay. They concluded that there were two reasons for the delay between all parties of "security" and "corruption". Inadequacy of security is the most difficult task for implementation of construction project. It led to project delay and increased cost. Corruption has a serious impact on construction delay, which poses a serious threat to the improvement of the construction industry.

3. **J.RajBharath & Prof Siddesh K Pai (2013)** recently said that the traditional Bandra-worli ocean link shows sufficiently the state of the project delivery system in the country. It was planned as an Rs 300 crore project to be completed by 2004, but in reality it cost 1600 rupees with a delay of 5 years. Ruth apolot, henry alinaitwe and dantindiwensi (2013) conducted a case study and construction industry lobbyists have the biggest impact on cost and time overrun, so we recommend minimizing the change in workload. We switched from contract type to design build type and improved customer cash flow to reduce payment delays.
4. **Anu V. Thomas and J. Sudhakumar (2014)** reported that the results of the questionnaire survey resulted in delays in productivity due to productivity decline to identify factors affecting the labor productivity of project managers, site engineers, inspectors and craftsmen in Kerala Said. There are timely acquisitions of materials on the site, delayed delivery of materials by suppliers' blows and blows by political parties, frequent revision of drawings and designs productivity. NitinChaphalkar and KC Iyer (2014) says that when inappropriate handling is done, the parties' time and funds are in conflict, and conflicts may create stakeholder concerns at the construction stage leading the project for a long stay.

IV. METHODOLOGY

The project methodology from this review was made to find out the factors that causing delay in the construction project. The following process is carried out to identify the causes of delays.

- Collection of literature
- Literature review
- Identify the factors
- Collection of data
- Data analysis

Project methodology is a process based upon the phases of the project (i.e.) literature review of the delays.

V. TYPES OF DELAYS

The type of delay can also have impact activities which need a more detailed analysis to determine whether additional time extension is warranted or not. There are four basic ways to categorize type of delays:

Critical or noncritical

Excusable or non-excusable

- i. Excusable delay with compensation
- ii. Excusable delay without compensation
- iii. Non-excusable delay

Compensable or non-compensable

Concurrent or non-concurrent

Critical or Non-Critical Delays

Delays that affect the project completion, or in some cases a milestone date, are considered as critical delays, and delays that do not affect the project completion, or a milestone date, are noncritical delays. If these activities are delayed, the project completion date or a milestone date will be delayed. The determining which activities truly control the project completion date depends on the following:

- The project itself
- The contractor's plan and schedule (particularly the critical path)
- The requirement of the contract for sequence and phasing
- The physical constraint of the project, i.e. how to build the job from a practical perspective.

Excusable or non-excusable Delays

i. Excusable Delay with Compensation

Excusable with compensation are caused by the client's actions or inactions. When contractors encounter this type of delay, they are entitled to time extension as well as monetary compensation due to the delays. An example of an excusable delay with compensation would be when an owner denies access to the site once the notice to proceed is given. This delay is because come sometime unexpected situation and it not from mistake of the contractor. The external factor is something hard to make sure because it refer to the future and event.

ii. Excusable Delay without Compensation

Excusable without compensation are delays where neither the client nor the contractor is deemed responsible. When this type of delay is encountered, only a time extension will be warranted since there are no grounds for damages This delay is allow to the extends of time to finish construction without give any compensation to the contractor. The factor that include of this delay is:

- Protest from the labour
- Unexpected whether
- Unexpected of late delivery equipment
- Unexpected of late delivery material

iii. Non-Excusable Delay

This delay cause by avoid the contract agreement by contractor and itwas identify by construction contract. Client can claim their loss if had in the contract agreement. These delay had to identify by client because they rarely to check the schedule of the construction. The factor that contribute to the non-excusable delay:

- The usual weather and as expected whether
- Delay cause by subcontractor
- The inefficiency of contractor to manage the construction site.
- The financial of contractor.
- The lack of labour.
- Failure to manage their work according to the contract schedule.
- Always make mistake or failure to fulfill of owner specification

Compensable Delays or Non-Compensable Delays

A compensable delay is a delay where the contractor is entitled to a time extension and to additional compensation.

Relating back to the excusable and non-excusable delays, only excusable delays can be compensable. Non-compensable delays mean that although an excusable delay may have occurred, the contractor is not entitled to any added compensation resulting from the excusable delay. Thus, the question of whether a delay is compensable must be answered.

Whether or not a delay is compensable depends primarily on the terms of the contract. In the most cases, a contract specifically notes the kinds of delays that are non-compensable, for which the contractor does not receive any additional money but may be allowed a time extension.

Concurrent Delays

The concept of concurrent delay has become a very common presentation as part of some analysis of construction delays. The concurrency argument is not just from the standpoint of determining the project’s critical delays but from the standpoint of assigning responsibility for damages associated with delays to the critical path. Owners will often cite concurrent delays by the contractor as a reason for issuing a time extension without additional compensation.

Contractors will often cite concurrent delays by the owner as a reason why liquidated damages should not be assessed for its delays. Unfortunately, few contract specifications include a definition of concurrent delay and how concurrent delays affect a contractor’s entitlement to additional compensation for time extension or responsibility for liquidated damages.

In analyzed concurrent delays, each delay is assessed separately and its impact on other activities and the project duration is calculated. There are some guidelines for concurrent delays classification. Firstly, if excusable and non-excusable delays occur concurrently, only a time extension is granted to the contractor. Next, if excusable with compensation and excusable without compensation delays occur concurrently, the contractor is entitled to time extension, but not to damages.

CAUSES AND EFFECT OF DELAYS

The literature review found that there were delays of 8 different participants (contractors, owners, consultants, and others) in the construction industry in India, with 8 delays.

Here are 8 different reasons given:

1. The first owner
2. Contractor
3. Consultant
4. Designer
5. Worker
6. Material
7. Equipment
8. External factors

EFFECTS OF DELAYS

1. Time overrun.
2. The contractor's profit has been greatly reduced due to cost overruns.
3. Non-productivity losses of the owners due to long-term stay during the construction phase.
4. Do not trust the contractor, damaging the reputation of the company.
5. Do not trust the owner to delay the payment that led to the contractor's cash flow.
6. Project participants are in dispute, arbitration or litigation.
7. Exit the project.
8. It is difficult to improve the market value of the contractor's business.

Causes can be elaborated into many specific factors that lead to delay such as

Delays causing factors

<ul style="list-style-type: none"> • Inadequate Fund • Variations • Inadequate planning • Labour Disputes • Inadequate tools and equipment • Unexpected ground conditions • Delay in delivery of materials • Community issues • Design Changes due to project execution • Unclear or Inadequate instructions to operators • Sub contractor incompetency • Incompleteness of technical 	<ul style="list-style-type: none"> • Political instability • Accidents • Poor supervision • Obtaining Building Permits • Lack of Skill • Labors • Tools/ Equipment breakdown • Use of wrong construction method • Delay due to unclear instructions • Inaccurate drawings • Unfriendly working atmosphere or weather conditions • Unbalanced distribution of resources • Correctional Work to improve bad work • Wages • documentation
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VI. CONCLUSION

1. Field investigations are under way to investigate delays in construction projects in India. According to the research, there are many factors that affect the completion time of the project, and its impact has a great impact on the projects that affect the project construction. These include payment of contractor delays, delays in information, poor project management, compensation issues, design changes, weather effects, labor strikes and more.
2. The impact of these delays is cost overruns, overtime, disputes and negative social impacts. Hopefully the results of this article will help stakeholders address important causes and further reduce project delays.
3. In general, the number of time delays and cost increases (spills) increases with the total project cost.
4. Claims for losses and reimbursements due to delays and fluctuations in claims during the extension period have a significant impact on cost overruns.

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