

# A Review - Assessment of Causes and Effects of Time and Cost Overruns on Housing Construction Project

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**Abstract** - One of the most significant industrial sectors in India and the primary driver of the nation's economy is the building industry. Overruns are a common occurrence in the construction industry worldwide. Time and expense overruns cause many projects to surpass their initial budget and schedule. In India, the development of residential buildings is growing more and more popular. However, it becomes difficult to complete the tasks within the allocated funds and time. The project's success will be determined by three primary factors: quality, money, and time. Completing the project within the budget and timeline allocated has become the most significant and challenging task for the managers, architects, engineers, and contractors. In the construction industry, project management is essential. When managing projects, management faces the most important problems with staff, equipment, scheduling, funds, and execution techniques. Finding the most effective mitigation techniques to get around the schedule and budget overrun constraints requires careful examination, analysis, and assessment of the common sources of these limitations. The construction projects for residential buildings covered in the literature study take up most of this article.

**Key Words:** construction project, cost overrun, time overrun,

## 1. INTRODUCTION

One of the riskiest and most dynamic industrial sectors is the construction business. Due to inherent risks and uncertainties, many building projects fall short of their full potential. Making sure the project doesn't go beyond budget and schedule in spite of assertions is one of the primary responsibilities of the construction project management. The actual cost of the project is unknown to the managers in advance due to a variety of uncertainties, including those pertaining to the client, the consultant, the design parameters, the contractor, the project characteristics, the contract procedures and procurement methods, external factors, the state of the market, etc. As a result, these risks may cause the project's overall cost to differ dramatically.

One of the most important jobs in the early phases of a building project's life cycle is conceptual cost estimating. Cost estimators must have the experience and knowledge to

minimise the risks brought on by the uncertainties to a manageable level in conceptual cost estimates because they have to deal with a lot of variables in the project. As a result, clients of building projects have inquired about the validity of these estimates in addition to the conceptual cost estimates. If the conceptual cost estimates are of a high quality, then the results in this context can be considered reliable. Evaluating the quality of conceptual cost estimates is thought to be one technique to gauge the dependability of the estimates for a project. Quality is defined as the predicted cost having the expected accuracy range. The amount and quality of construction work is currently expanding quickly in developing nations. A construction project's success characteristics include not going over budget and not overrunning its timeframe. Prior research has concurred that meeting the project's budget and timeline are essential components of a construction project's success. Regretfully, the primary issue encountered by the majority of building projects in developing nations has been the incidence of project cost overruns. The majority of infrastructure projects in Jordan experienced delays and overspending. Similar issues with cost overruns were encountered during the development of projects in Iran and India. The impact of financial risk is typically the cause of cost overrun. Non-financial issues as well as more complicated causes can contribute to cost overruns.

The causes of cost overruns in construction projects have been examined in a number of prior studies. Research on cost overruns in Indonesian building projects is, nevertheless, lacking. This is the context for the goal of this research. In order to identify cost overrun factors and determine which factor, according to owners and contractors, is most influential in causing delays in construction projects, this research will analyse factors that lead to cost overruns in construction projects in Indonesia. The research yielded two key findings: (1) a list of elements that contribute to building project cost overruns, and (2) a perception of the most important component by both sides.

## 2. LITERATURE REVIEW

**1. Ahmed Osama Daoud, Mohammed El Hefnawy, Hossam Wefki, [2023]** Construction projects are vulnerable to delays and cost overruns, which can have a

big effect on their quality and profitability. Finding workable answers to these problems requires determining their underlying causes. The primary six reasons that cause cost overruns and delays in large-scale building projects are identified in this study, which focuses on the Egyptian construction industry. These include inadequate project scheduling, ineffective coordination and communication, scope changes in the project, a shortage of trained workers, an inadequate budget, and payment delays. The research suggests methods to lessen the impact of these variables, like include all interested parties in the planning stage, employing project management software, and establishing reasonable deadlines to enhance project scheduling and planning. Efficient communication and coordination can be attained through regular meetings and well-defined lines of communication. The report also recommends allocating enough funds for the budget by performing precise cost estimates and allocating contingency funds, as well as managing scope changes in projects using efficient change management procedures. These suggestions can offer legislators and industry professionals useful information on how to lessen the effects of delays and cost overruns in the construction sector. Overall, the study underlines how critical it is to pinpoint and solve the major causes of delays and cost overruns in large-scale building projects.

**2. A. M. Faten Albtoush, S. I. Doh, [2022]** Many building projects have encountered difficulties in the past few years, even if management efforts have been made with great effort. Uncertainty surrounding project data during the design phase is known to cause cost overruns in the majority of construction projects. Inadequate design can also lead to construction failures and lower the quality of the construction work during the project development phase. To minimise the causes of cost overruns associated with design flaws, preemptive action is therefore essential. With the help of this study, construction project cost overruns should be lessened during the planning phase. In order to achieve this goal, information was gathered via an analysis of a survey that was aimed at construction project engineers and covered two key topics. The database created by this study helps academics and professionals in the field create new methods for cutting building project costs. It is anticipated that the research's findings will lower cost overruns and increase the efficiency of building projects.

**3. Taher Ammar, Mohamed Abdel-Monem, Karim El-Dash, [2022]** Around the world, construction projects frequently experience cost overruns. One of the major problems facing the construction sector is overstretched budgets, which has a direct impact on the GDP (gross domestic product) of the nation. The purpose of this study is to determine the key variables that lead to cost overruns for road network projects in Egypt when they

are being implemented. The most important variables influencing the cost overrun for road network building projects were identified through a survey. Based on the findings, it was determined that the primary causes of cost overruns are erroneous cost estimates, design modifications, quantity changes, variation orders, political intervention, inflation, and changes in the scope of work. In addition to offering recommendations to lessen the negative effects noticed during the implementation stage, this study will assist decision-makers in identifying the variables that can influence the price of next road projects.

**4. Benjamin Varghese Roy, Sriram, K.V, et. al [2018]** Considered one of India's fastest-growing industries is the building sector. Contemporary construction projects are susceptible to delays in both budget and schedule, or perhaps both, as a result of the notable proliferation of construction companies and the shifting political landscape in Kerala. These developments also affect the advancement of related industry projects. The goal of this research is to identify the variables that lead to time and expense overruns in Kerala building projects. Project owners, clients, and contractors participated in a questionnaire survey. The primary factors that caused delays in the construction projects were ranked after data was examined using a variety of indices and correlation analyses. The most contributing reason to the project delay, according to the data, was "payment delay by the client," which was followed by "clients' financial availability to pass the running bill" and "delay in payment to the contractor." All three construction parties agreed upon these three primary causes that caused delays. According to the study, owners, contractors, and clients should assume responsibility for preventing or reducing project time and cost overruns. This can be done by managing construction projects well and by implementing innovative techniques for storing materials from the project's start to prevent needless delays in work.

**5. Ahmed Senouci, Alaa Ismail, Neil Eldin, [2016]** The present study examined instances of cost overruns and delays in public construction projects in Qatar. To have a better knowledge of the issue and the many approaches taken in its analysis, a thorough assessment of local, national, and worldwide literature was undertaken. 122 public road, building and drainage projects were included in the data gathered from the Qatari public work authority, ASHGHAL. For data analysis and inference, the ANOVA method was applied. To determine the correlations between project contract pricing and cost overruns and to create prediction models for cost overrun estimation, a regression analysis was also carried out. To forecast cost overruns for public building and drainage projects, two linear regression models were created, respectively Construction project

cost overruns rose as contract costs rose. However, when contract costs increased, the amount of cost overruns for drainage projects dropped. Data on delays and cost overruns in public construction projects was gathered with great effort. However, data secrecy did make it possible to gather enough information to guarantee the reliability of the regression prediction models that were created..

#### **6. Zayyana Shehu, Intan Rohani Endut, *et al*, [2014]**

Unfortunately, Malaysia's construction sector is a major contributor to the country's economic growth and development. Negative cost variances, or final project costs that are higher than agreed upon, are a common occurrence in this sector. At worst, initiatives might even be shelved as a result of this, causing strife and legal action. A survey was conducted among Malaysian quantity-surveying consultants to gather information on project features and cost performance related to 359 recently concluded construction projects, with the goal of better comprehending this phenomena. The following factors were taken into consideration while analysing data about project financial outcomes: contract values, project sector, project type, procurement channel, project nature, and method of tendering. Stakeholders can use the data to obtain descriptive statistical cost performance information on these attributes.

#### **7. Yakubu Adisa Olawale and Ming Sun, [2010]**

The cost and schedule goals of numerous building projects are still unmet, even with the availability of several control strategies and project management tools. The primary focus of this field's research to date has been figuring out what leads to schedule and cost overruns. Studying the elements preventing practitioners from efficiently managing their projects has received little attention in the literature. The UK's 250 construction project organisations were surveyed in order to close this gap, and 15 of these organisations' seasoned practitioners were then interviewed in-person. First, common characteristics were found to impede control over both time and cost in construction projects. For the top five primary restricting factors—design modifications, risks/uncertainties, erroneous project time/duration estimation, complexity, and subcontractor non-performance—90 mitigation solutions have subsequently been devised. The categorization of these mitigating strategies included preventive, predictive, corrective, and organisational actions. They can serve as a good practice checklist and assist project managers in raising the efficiency and effectiveness of project control.

**8. N R Mansfield, O.O. Ugwn, T. Dorun, [1994]** One of the biggest and most populous countries in Africa, Nigeria, is the main topic of this discussion on project management in developing nations. By looking through data related to construction projects, the reasons behind

delays and cost overruns are looked at. Following a succinct overview of the national economy, a breakdown of recently finished roadway projects is provided. This suggests significant cost deviations from the original contract as well as exorbitant project overruns, neither of which have been adequately addressed in progress reports. The current contractual frameworks and project financing arrangements are then briefly reviewed. The findings of a questionnaire survey conducted in 1992 among about fifty construction workers from Nigerian contractor, consultant, and client organisations. A greater range of contracts might be used, and contract phasing could be improved, according to the conclusions. Various factors such as inadequate contract management, faulty estimation, insufficient funds, and unpredictability in prices are blamed for overruns.

#### **9. Daniel W M Chan and Mohan M Kumaraswamy, [1997]**

The survey findings, which were collected in order to assess the relative significance of the major variables contributing to construction project delays in Hong Kong, are presented in this study. There were eight main categories from which the survey's 83 previously known delay factors were categorised. Based on two factors, namely (a) the nature of the projects and (b) the roles of the parties involved in the local construction sector (i.e., contractors, consultants, or clients), the primary causes of delays were categorised and rated. The findings reveal that the following five factors are frequently responsible for delays: inadequate oversight and management of the site; unanticipated ground conditions; slow decision-making by all project teams; client-initiated modifications; and necessary changes to the project. Nigeria and Saudi Arabia, the latter two picked for comparison with other nations, have different opinions about what factors are most responsible for project delays. Hong Kong and Saudi Arabia have different opinions. The goal of this survey is to identify important delay variables that can be used as a foundation for measures to reduce delays. These elements may also be included in a future research program's "construction time" forecasting model for building projects in Hong Kong.

#### **10. Hans Lind, Fredrik Brunes,**

researchers studied in Cost overruns are common in infrastructure projects, and much research has been done on both the causes of these overruns and ways to minimise them. The top researcher in the field, Bent Flyvbjerg, has made ideas that serve as the foundation for this paper. A survey asking seasoned Swedish project managers what they believed could be done to cut down on cost overruns was also sent out, in addition to a review of the literature. The questionnaire and the literature study served as the basis for the suggestions made in this essay.

### 3. CONCLUSIONS

In addition to actively guiding risk decision-makers in the construction companies by prioritising the importance of these factors to be considered in their future tender studies based on the opinions and experience of construction practitioners, this study provided a thorough review of the existing literature concerning the factors affecting cost overrun and delays in mega construction projects. Delays and cost overruns were found to be mostly caused by these variables. These include insufficient experience in the design team, inadequate planning and scheduling of the project, inadequate supervision and site management, and low personnel qualifications. With the construction industry experiencing a boom due to the completion of large-scale projects, it was imperative to identify the primary causes of cost overruns and delays. Estimating cost overruns at the planning phase allows for the adoption of appropriate preventive steps to rectify the situation and avert dire outcomes. In this paper, the contributing elements to the cost increase are outlined. Project to project variations exist in the percentage of things that are affectable. Thus, this model can only be used successfully to diverse projects by assigning the RII value that corresponds to the elements taken into consideration while maintaining the same values for all other parameters.

### 4. FUTURE SCOPE OF THE STUDY

Subsequent research endeavours may involve the identification of cost overrun factors for construction projects in countries that have not been previously examined, an examination of the correlation between cost overrun factors and magnitudes, and an investigation of the precise role played by each cause of cost overrun in a particular road project. These efforts may potentially aid in determining the precise causes of cost overruns and enhance the construction process through the implementation of corrective measures.

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