

# Introduction to Cost Overrun in Residential Building: Its Causes and Solutions

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**Abstract** -In India the number of building construction projects is increasing however, these projects are not completed in allocated time and cost this is because of the financial condition of the country ,hence cost overrun is one of the major problems. Through this project we tried to find information on the factors that cause cost, overrun during construction and their effects on building construction projects.

The important causes of cost overrun were found to be inflation or increase in the cost of construction materials, poor planning and coordination, change orders due to enhancement required by clients, excess quantity during construction. With the help of available literature we found out major causes of cost overrun.

This project attempts to provide broader understanding of the frequent causes of cost overrun. The study is important as it sheds light on how construction professionals can implement cost control measures in place to avoid recurrence of these problems. The attainment of effective cost control measures for development projects is a prerequisite for the successful completion of such projects, which are vital for the country's socio-economic advancement.

Questionnaire survey will be carried out in the phase of project and with the help of above study we will be able to find out major causes of cost overrun. Here, we have provided the literature review and the proposed questionnaire that will be used to obtain data from various practitioners. This data then will be used to find out the major reasons causing Cost Overruns.

**Keywords**— Costoverrun, Questionnaire,residential building

## CHAPTER 1 INTRODUCTION

### 1.1. The Study Overview

The construction industry has a great impact on the economy of all countries. It is one of the sectors that provide crucial ingredients for the development of an economy. The construction industry in many countries accounts for 6-9 % of the Gross Domestic Product (GDP) it reaches up to 10 % of the GDP of most countries. The construction industry is a vital element of the economy and has a significant effect on the efficiency and productivity of other industry sectors. One cannot think of widespread investment in manufacturing, agriculture, or service sectors unless the construction results of infrastructure facilities are in place. In some of the developing countries, the growth rate of construction activity outstrips that of population and of GDP.

### 1.2. Research Aim

To identify the major cost overrun factors in the construction sector and the effective remedial cost control measures, generate and recommend possible solutions.

### 1.3. Objective of the research

The initiation for the study of this research is largely due to personal observation and low performance of the construction projects in terms of cost and time. These include construction projects owned by the government and the private sectors. However, due to the limitation with regard to accessibility of data on private construction projects this thesis will focus on public building construction projects.

This study will be undertaken with the following main objectives.

- 1) Identifying the main causes of cost overrun and their overall effects for building construction projects.
- 2) To prepare a questionnaire to understand the actual causes of cost overrun.
- 3) Identifying the related responsible party to the causes of cost overrun.
- 4) Forwarding recommendations to minimize or to avoid cost overrun and frequency of its occurrence; and hence to reduce its consequential effects on public building construction projects in India.
- 5) To prepare an application based on android platform so as to manage the building construction activities thus reducing cost overrun effect.

### 1.4. The Research Motivations

The initiation for the study of this project is largely due to personal observation and low performance of the construction projects in terms of cost and time. These include construction projects owned by the government and the private sectors. However, due to the limitation with regard to accessibility of data on all construction projects this project will focus on building construction projects.

### 1.5. Significance of Study:

This project attempts to provide broader understanding of the frequent causes of cost overrun. The study is important as it sheds light on how construction professionals can implement cost control measures in place to avoid recurrence of these problems. The attainment of effective cost control measures for development projects is a prerequisite for the successful completion of such projects, which are vital for the country's socio-economic advancement.

## CHAPTER 2

### LITERATURE REVIEW

In order to find plausible causes of cost overrun and to prepare a valid questionnaire few papers were reviewed.

**Sai Murali Krishna Reddy, Raya and S.S Bhanu Prakash (1)** : this paper discusses common factors leading to cost overruns and suggest the best mitigation measures to overcome them. **Ram Singh (2)**: this paper presents media reports on instances of delays in infrastructure projects which are publically funded. **Ramanathan Chidambaram and Narayanan Sambu Potty (3)** : The paper focuses on multiple Design and Build project which has complicated risk and is governed by fixed contract sum (Lump sum).also Qualitative research was applied at three stages of projects for time delay and two aspects for cost overrun **T.Subramani (4)**:this paper focused on various cost such as labour cost ,material cost, machinery cost, administration cost, hence it classified costs into two types direct cost and indirect cost and hence tried to find which factors lead to cost overrun. **Gul Polat, Erin okay (5)**: This paper presents one aspect each for time delay and cost overrun. This benefits the industry in managing projects proactively with application appropriate risk response plan to the respective region. They divided the factors in 7 different groups Contract related factors, Time related factors, Cost related factors, Quality related factors, Human resource related factors, Communication related factors, Risk related factors.**Abhimanyu S. Rathi, Pravin V.Khandve(6)**:They analysed the time and cost overruns in Infrastructure projects in India and explained the typical causes of project cost and time overruns and provided some useful tips and techniques for managing and reducing costs. They derived Principal Component analysis and Relative Importance index (RII). The analysis of response data revealed that there were variables that significantly contributed to the cost and time overruns and had a chance of recurring in future projects.**Mandar Borse, Pranay Khare (7)**: They found that consensus of opinion exists between respondents on the causes of cost overrun. The results showed that, slow decision making, poor schedule management, increase in material, machine prices, poor contract management, poor design, delay in providing design, rework due to wrong work, problems in land acquisition, wrong estimation and estimation method, long period between design and time of bidding, tendering are the major causes of cost overrun **Egwanatum Samuel, Akpokodje Ovie (8)**: This paper did a survey of literatures on cost overruns and showed that research findings are becoming symmetrically identical with transitory or volatile answers to the causes. Construction cost overrun has occupied a sufficient space in construction journals.

## CHAPTER 3

### QUESTIONNAIRE

After carrying out the study of various literatures we got know about various reasons leading to cost overruns. After getting to know about the Likert Scale we decided to carry on the research based on the scale. We have proposed the following questionnaire which will be presented to site engineers, consultants and contractors and to get a theoretical view to the various faculty members. The questionnaire is listed below.

List of questions integrated in the questionnaire provided to contractors.

1. Lack of effective site management and supervision
2. Improper project planning and scheduling
3. Lack of effective communication channel
4. Use of inexperienced subcontractors
5. Lack of good suppliers
6. Use of inappropriate construction methods
7. Improper emphasis on past experience
8. Lack of co-ordination between parties
9. No pre construction planning of project tasks

10. No pre planning of resources needed
11. Use of obsolete technology
12. Over reliance on a particular contractor/person
13. Lack of support from the labours
14. Lack of skilled labours
15. Improper communication between contractor and labours
16. Delay in procuring & arrangement of construction equipment by contractors
17. Materials-related delays inefficient communication damage materials poor quality of materials late delivery.
18. No timely payments to labours
19. Ignoring items of abnormal rates during evaluation.
20. Contractual claims, such as, extension of time with cost claims.
21. Delays in issuing information to the contractor during construction stage
22. Additional work at owner's request.
23. Fluctuations in the cost of building materials
24. Unpredictable weather conditions climate factors.
25. Dispute between the owner and contractor
26. Change of suppliers
27. Lack of inventory
28. Change in design at the time of construction
29. Financial delays from the owners end

List of questions integrated in the questionnaire provided to site engineer and faculty members.

1. Lack of effective site management and supervision
2. Delay in material approval by consultants
3. Lack of skilled labours
4. Low productivity by labours
5. Insufficient number of staff(labours/contractors)
6. Lack of subcontractors skill
7. Absence of consultant's site staff
8. Equipment and tool storage on site
9. Equipment availability and failure
10. Lack of material in market
11. Delay of material delay on site
12. Use of poor quality of material initially leading to reconstruction
13. Poor material handling on site
14. Lack of maintenance of equipment
15. Use of inappropriate construction methods
16. Additional work at owner's request.
17. Poor economic conditions
18. Poor soil/land conditions
19. Unpredictable weather conditions climate factors.
20. Lack of inventory
21. Change in design at the time of construction
22. Lack of availability of funds/ poor economic conditions
23. Unrealistic project schedule by the Project Management Team would cause cost overrun of the project
24. Delaying in bill settlement
25. Accidental due to lack of safety precautions
26. Absenteeism of contractors, engineers, consultants
27. Lack of communication between the site engineer and project management team
28. Unrealistic targets set by the project team
29. Location of site

List of questions integrated in the questionnaire provided to project manager and consultant.

1. The confusing and ambiguous requirements of clients.
2. The improper feasibility study providing by the Client.
3. Payment delays by the Client would cause cost overrun of the project.

4. Too many scope changes and constructive changed orders by client.
5. Slow responses from the Client organization would cause cost overrun of the project.
6. The Client's financial availability would have an impact on cost of the project.
7. Delay in possession of site would cause an impact of cost of the project.
8. Inadequate experience staff within the Project Management Team would cause cost overrun of the project
9. Lack of consultation with the Client by the Project Management Team organization would cost overrun of the project
10. Failure utilize tools to manage the Project symmetrically by the Project Management Team organization.
11. Poor Leadership on part of the Project Manager would cause cost overrun of the project
12. Lack of timely decision and corrective actions by the Project Management Team.
13. Large number of participants within the project would cause cost overrun.
14. Unrealistic project schedule by the Project Management Team would cause cost overrun of the project
15. Poor project planning and control by the Project Management Team would cause cost overrun of the project
16. Bureaucracy at the work place by the Project Management Team would cause cost overrun of the project
17. Lack of top management commitment by the Project Management Team would cause cost overrun of the project
18. Unreasonable risk allocation by the Project Management Team would cause cost overrun of the project
19. In viability appraisal, cost data used for estimating purpose would have cost impact of the project
20. Delay in providing required information by the Project Manager for the construction would cause an impact on cost
21. Low constructability of design by the designer would cause impact cost overrun of the project
22. Errors and omission in design documents would cause impact on cost overrun of the project
23. Impractical design by the designer would cause an impact on and cost overrun of the project
24. The cost consultant should prepare and update a cost plan to client with the advance warning on timely manner
25. Poor efficiency of supervision by the contractor's staff would cause an impact on cost overrun of the project
26. Inappropriate construction methods by the contractor would cause an impact on cost overrun of the project
27. Using obsolete technology by the contractor would cause an impact on cost overrun of the project
28. Any Disruption to Contractor's Programme would cause an impact on cost
29. Delay in issuing EOT and TOC would cause an impact on cost.

The response will be taken on a scale of 1-5 where

5- Strongly agree

4- Agree

3- Neutral

- 2- Disagree  
1- Strongly disagree.

## CONCLUSION

The issue of cost overrun in any sort of projects is a longstanding one Researchers, therefore, always pay keen attention through the identification of major causes of cost overruns in order to reduce the impacts. However, most of the projects especially residential projects encounter various issues which delays the project and leads to increase in cost i.e. cost overruns. The purpose of the project is to identify major causes leading to cost overruns in residential building. The study then aims to suggest possible solutions to deal with such concerns.

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