

# Factors Affecting Cost Overrun in Real Estate Industry in India

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**ABSTRACT:** Indian real estate sector is one of the fastest growing and globally recognized sectors. The real estate sector is projected to spearhead the Indian economy by doubling its GDP contribution by 2025. Increasing urbanization is the factor which is likely to be a pivot for the growth of real estate construction activity in the country. As the number of building construction projects is increasing, these projects are not completed in allocated time and cost. In order to accomplish the successful completion of construction projects on specified time and within planned cost, there are various factors that should be given serious attention so that issues such as cost overrun can be addressed. This research paper enlightens upon the factors which are the drivers of cost overrun in real estate projects. The methodology used for this study is secondary research. Based on the relevant literature review, causative factors of cost overrun in Indian construction projects are summarized and the theoretical frameworks of the causes cost overrun is constructed. In conclusion, this research will assist the construction practitioners to plan the efficient approaches for achieving successful completion of the projects. These findings are expected to be significant contributions to Indian construction industry in controlling the cost overruns in construction.

**KEYWORDS:** GDP, Globally Recognized Sector, Time and Cost, Cost Overrun.

## I.INTRODUCTION

Construction is an important front for solidifying the foundations of a thriving country. The construction industry has a great impact on the economy of all countries. The Construction Industry in India is the second largest after agriculture. It accounts for about 11 % of India as GDP and contributes to the national economy also by providing employment to large number of people.

Broadly construction industry can be classified into 3 segments i.e., Infrastructure, Industrial and Real Estate. The real estate sector is one of the most globally recognized sectors. In India, real estate is slated to grow at **30 %** over the next decade. Real estate sector in India is expected to reach **US\$ 650 billion** and its share in India's Gross Domestic Product (GDP) is projected increase to **17 %** by 2040. Rapid urbanization in the country is pushing the growth of real estate. A large number of building projects and new infrastructures are being built on a great scale which contributes to the economic growth of country. Apart from the economy aspect, the speed with which construction is carried out is also an important factor.

Like other countries, India is also facing a serious issue of cost overruns in construction projects. The unfortunate part is that very few projects get delivered on cost. Cost overruns have become the hallmark of construction projects in India. The current status report (2017-2018) published by the Ministry of Statistics and Programme Implementation (MOSPI) highlighted that there is **8.56%** of cost overrun in urban development of the country [1]. With this growing volume, cost performance of the Indian construction sector is a certainly significant topic for investigation. While many studies have published on causes and factors affecting cost performance. Applicability of such research in Indian construction context still remains unexplored. There is a strong need to understand the attributes that cause the delays, understand the impact of these attributes, combine them into factors, and decipher the interdependencies between these factors. Thus, the primary objectives of this research are to identify the relationship between these attributes by statistical methods and to predict the impact of these identified attributes on construction cost overrun using a regression model in the Indian construction sector [2].

### A.OBJECTIVE OF THE STUDY

1. To identify the factors and reasons causing cost overruns for real estate sector in India through literature review.
2. To rank the causes of cost overrun based on RII.
3. To find the relation between different factors of cost overruns by correlation analysis.

### **PROBLEM STATEMENT**

The identification of research problem was intensively done by brainstorming and guidance particularly for real estate industry, the identified problem were stated:

1. The critical reasons lead to cost overrun in real estate projects.
2. The problem faced by real estate projects in achieving its deliverables throughout its life cycle.
3. The present severity of real estate projects in cost overruns in metro cities.
4. The comparisons wise analysis towards the reasons which are affecting most in various metro cities.

### **RESEARCH PROBLEM**

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- 5.

## **II.LITERATURE REVIEW**

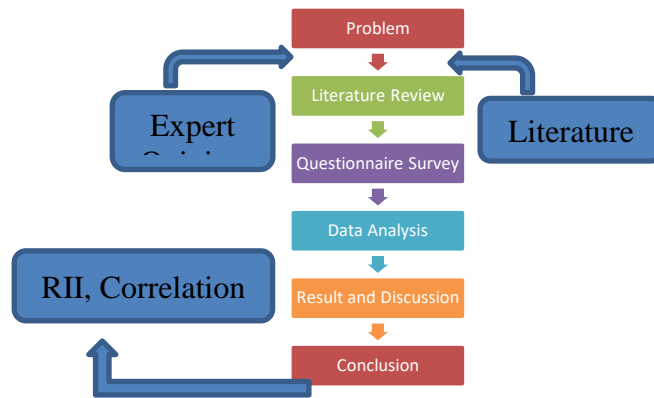
**Ayman A. Abu Hammad, Souma M. Alhaj Ali, Ghaleb J. Sweis, Rateb J. Sweis** shows that a probabilistic model is proposed to predict the risk effects on time and cost of public building projects. Statistical regression models and sample tests are developed using real data of 113 public projects. Regression models were developed to model project cost and time. The regression analysis showed that the project budgeted cost and planned project duration provide a good basis for estimating the cost and duration. The regression model results were validated by estimating the prediction error in percent and through conducting out-of-sample tests. In conclusion, the models were validated at a probability of 95%, at which the proposed models predict the project cost and duration at an error margin of \_0.035% of the actual cost and time.

**Hyukchun Kwon and Chang Wook Kang** proposes an approach for estimating reserves for both identified and unidentified risks separately. The study also suggests using the three-point estimation technique and R-value determination for estimating risk costs, which can improve budget accuracy and precision. The construction of residential building projects to demonstrates the advantages of the proposed approach compared with previous methods. The completion percentage technique was applied to forecast the EAC. The accuracy of PE, RC, and the total preliminary budget against EAC is -1.72, 24.34, and 0.78, with variance (precision) 1.85, 20.97, and 1.15, respectively, whereas the re-budgets are 0.25, 0.24, and 0.23, with variance (precision) 1.02, 19.53, and 0.35, respectively. The results show that budget accuracy and precision on risk cost improved by 24.10 and 1.44, while improving by 0.55 and 0.48 percentage points in total, respectively.

**Naveenkumar.G.V, Prabhu.V** has studied and clarified that "Low productivity of labor", "Delaying in Bill settlement", "Lack of maintenance of the equipment" "Poor procurement programming of materials, Strikes, riots and other external factors was the most critical factor that influence project delay. The study illustrated that "delay in preliminary handing over the site" was one of the most important factors that may lead to cost overrun. Also, it clarified that contractor's delay of material delivery and equipment has led to cost overrun. The study also clarified that prices inflation highly contributes to cost overrun.

## **III.RESEARCH METHODOLOGY**

The research is the study of the cost overruns of the real estate projects in metro cities. The design supported for this research is exploratory, non-experimental. The data for the following research will be carried out on the basis of questionnaire survey.



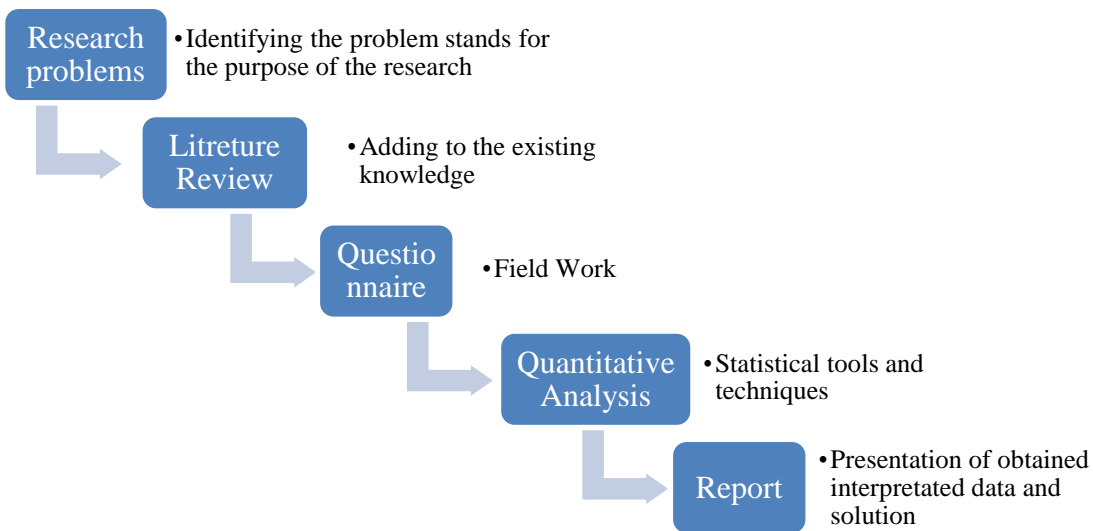
Methodology Flow Chart

#### IV. RESEARCH DESIGN

The research is based on the response gathered from various respondents of the stakeholders of various real estate projects. The design of research is

- Exploratory
- Non-experimental
- Quantitative

The data extracted will be analysed and interpreted which will produce the results in regards of cost overrun.



Research Design

#### A. PRIMARY METHODS

The steps adopted before obtaining the data through questionnaire, were stated below

1. Identifying the research problem
2. Literature Review
3. Selecting the appropriate reasons for questionnaire



**Primary methods adopted for research**

***B. REASERCH PROBLEM***

The identification of research problem was intensively done by brainstorming and guidance particularly for real estate industry, the identified problems were stated:

- 6. The critical reasons lead to cost overrun in real estate projects.
- 7. The problem faced by real estate projects in achieving its deliverables throughout its life cycle.
- 8. The present severity of real estate projects in cost overruns in metro cities.
- 9. The comparisons wise analysis towards the reasons which are affecting most in various metro cities.

***C. SELECTION OF REASONS***

The various reasons were identified from the literature review and to enlist the appropriate reasons for the questionnaire, opinions were taken from the experts in the particular fields and as per the opinions the final reasons for cost overruns were selected.

**Table (a)**

**Reasons for Cost Overruns from Literature Review**

Sr No.	Factors	Stage
1	Inaccurate estimation	Planning
2	Improper project appraisal	Planning
3	High cost for new technology, safety & equipment	Planning
4	Lack of proper risk assessment	Planning
5	Land acquisition and environmental clearances	Planning
6	Poor contract management	Planning
7	Changes/errors in design & drawings	Execution
8	Contractual disputes	Execution
9	Price escalation	Execution
10	Force majeure conditions	Execution
11	Scope creep	Execution
12	Unforeseen ground condition	Execution
13	Maintenance and repair cost	Execution
14	Inadequate monitoring and control system	Execution
15	Human resource management	Execution
16	Fraudulent practises and kickbacks	Execution
17	Improper site works	Execution
18	Materials management	Execution

***D. QUESTIONNAIRE***

The questionnaire is prepared containing:

- Personal data of respondent
- Questions on cost overruns
- Cost overrun in various stages of projects

The personal data of the respondents will be asked for the authenticity of the data and the respondents will be kept confidential.

The questionnaire as formed on the reasons causing cost overruns in real estate industry. The Ranking will be provided from 1 to 5 where

1 stands for Rare, 2 stands for Low, 3 stands for Medium, 4 stands for Frequent and 5 stands for Very Frequent. This will make respondents an ease to mark the responses according to their experience.



The questionnaire as categorised in 2 ways according to the respondents which are:

1. Based on experience
2. Based on type of organizations

**E.FIELD WORK**

The data was collected through exploratory questionnaire survey. The questionnaire was distributed by to mediums:

1. Direct Medium
2. Online Medium

The questionnaire was floated to all the concerned stakeholder of Real Estate Industry. The questionnaire is prepared and sent to the key stakeholders of the real estate projects

- Clients
- Contractors
- Consultants
- Construction Academicians

The online distribution of questionnaire was done with intensive useful application of Google Forms and the responses were recorded in the excel spreadsheet.

Sr.NO	NAME	Experience (In years) in construction field	Type of Organisation	Number of projects worked on	Number Cost overrun/issue raised	1. Inaccurate Estimation	2. Improper Project Approval (Draw & Engg. Form. Finance Purposes)	3. High Cost For New Technology, Safety System & Equipment	4. Lack Of Proper Risk Assessment, Tools & Techniques	5. Land Acquisition/ Environmental Clearance (Prior Govt. Approval)	6. Non Availability of Water/Electricity/ Basic facility at sites	7. Poor Contract Management	8. Changes/Errors in Design & Drawings
1	Aniket Dhal	7	Client	4	4.5	3	3	4	2	4	2	3	3
2	Rajeev Bhatnagar	2	Contractor	1	1	3	3	3	4	3	3	3	3
3	Bunji	2	Contractor	3	2.3	2	3	2	2	2	1	2	1
4	Gaurav Bhatnagar	1	Client	1	1	2	3	1	1	2	4	1	1
5	Tejash Singh	2.5	Construction Finance	2	13	1	1	1	2	5	5	1	1
6	Vijay V. Muthakar	17	Consultant and Academicians	Cost > 2.5 crore-12 projects Cost < 1 crore-15 projects	15	2	3	5	2	1	1	1	3
7	Mandeep Adhul	2	Contractor	1	1	4	2	2	3	1	3	2	2
8	MANJEET PUNDEY	28	Contractor	15	5	3	4	2	3	5	4	4	3
9	Sudhakar	7	Contractor	10	4	4	4	4	4	4	4	4	3
10	DIPANJAN MUKHERJEE	1	Construction academicians	1	1	1	2	4	2	1	4	1	4
11	Debanjan Chakraborty	2	Consultant	5	3	5	5	3	2	1	4	2	2
12	Sudh Bhatia	30	Contractor	130	4	3	2	3	3	4	4	3	3
13	Dharmajyoti	30	Contractor	52	20,22	4	2	3	3	5	5	5	5
14	Sanjay Maniar	26	Contractor	20	10	2	2	2	1	1	1	3	3
15	Chandraprakash	4	Contractor	4	15	3	3	4	5	2	5	5	4
16	Kabir Ganguly	3	Client	4	3	2	3	4	2	3	3	2	1
17	Shashank PUNDEY	3	Contractor	3	2	1	2	3	4	1	2	2	1
18	Puneetreddy	5	Contractor	14,25	4.5	1	2	3	3	1	4	2	1
19	Puneetreddy	2	Contractor	3	1	2	3	5	4	1	3	2	1
20	Shivaji Ramakrishna	24	Contractor	22	18	5	3	1	2	4	4	5	5
21	Tanmay Choudhary	3	Consultant	7	2	1	2	5	5	2	2	3	1
22	Sandeep Choudhary	16	Consultant	19	7	3	4	5	4	1	3	4	2
23	Rohit KUMAR	3	Contractor	4	5.6	4	3	4	2	5	4	2	5

Image (a) Spreadsheet generated for online responses

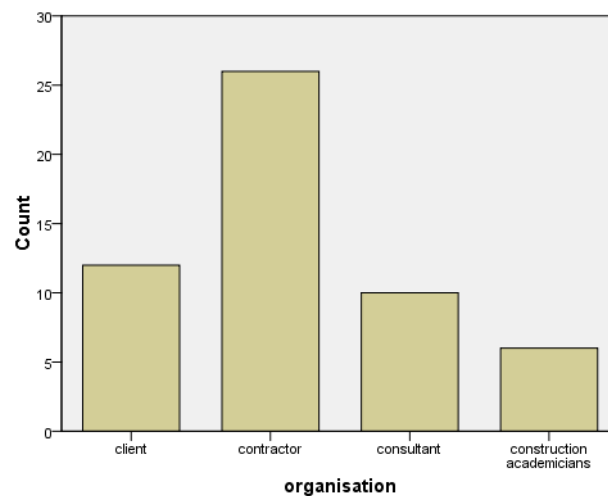


Image (b) Responses from online medium

The responses from the online medium & direct medium are entered in excel spreadsheet for the better presentation and analysis of the data.

#### IV. EXPECTED CONCLUSION

The successful completion of construction projects within the specified cost has become the most valuable and challenging task for the Managers, Architects, Engineers and Contractors. Study of previous literature revealed that cost overrun is a very common phenomenon and it affects projects greatly. Based upon the various literatures reviews various factors causing cost overrun can be identified. And with the appropriate method of data analysis the most significant factors influencing the cost overruns can be analysed. The respondents were asked about the probability of occurrence and severity of impact of the listed factors causes in the questionnaire. So, these are the causes which needs to be monitored to avoid cost overruns

#### V. FUTURE SCOPE

1. The results from the study will enable industry to identify the critical reasons for cost overrun.
2. The risk response plan can be made according to the identified reasons.
3. The study can be further use to develop a quantitative as well as qualitative model.

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