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Investigation and Analysis of Factor Affecting Cost Overrun For Bridge Construction

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Abstract: ***Construction duration and the cost of project at the closing date are the two important criteria to describe a construction project as successful. Most civil engineering large projects, regularly, have delays and cost overruns. Also most of the construction projects are facing with low quality, and health and safety accidents during construction. A questionnaire was undertaken to investigate factor affecting cost overrun for construction. In this project the result of the questionnaire was summarized and discussed. Major factors affecting the success of a construction project categories in the questionnaire and they were ranked with respect to the frequency and importance indices separately. It was obtained that, inadequate contractor experience, poor supervision and site management, shortage of skilled labor, financial difficulties of contractor were the most important causes of delay, cost overrun, low quality, and health & safety problems on the construction sites.***
Keywords: BRIDGE, COST OVERRUN, CONSTRUCTION, FINANCE, SPSS

I. INTRODUCTION

The Indian construction industry contributes more than five percent (5%) to the country's GDP. Construction industry includes railways, highways, ports, bridges, tunnels, power plants, municipal facilities etc. Timely completion of construction projects is a display of efficient planning, management and construction. A project is measured to be successful if it is complete on time and within budget.

Bridges construction industry is considered as one of the most dynamic and risky industrial sector. Also, an important key parameter to make a project successful is considered to be the budget required for the project. Many authors have suggested that risk cost should be adopted as an evaluation scale. In unkindness of the importance of this factor, construction industry is full of projects that functionally operate with extensive cost flooded. Considerable financial loss to project participant is generated by cost overflow in construction project.

II. OBJECTIVES

1) To perform questionnaire survey to obtain factors affecting the cost overrunsfor bridge construction projects.
2) Ranking of cost overrun factors for the bridge construction projects.
3) To formulate recommendations for improving cost performance in bridge construction projects

III. DATA COLLECTION

A. Research Methodology

The research methodology contains two stages. The primary stage included a literature search and interviews. The literature review was conducted through internet and project management journals, gathering procedures, books. As the result of this stage, 30 factors affecting cost overrun for bridge construction were identified. These factors were categories in nine groups as: Finance related, Contract related, Planning related, Design related, Material, Labour and equipment related, Owner related, Contractor related, Consultant related and Miscellaneous.

B. Questionnaire Design

Likert interval Scale is used for preparing the questionnaire survey is being implemented to determine the view of, clients, consultant, designers and contractors relating the cost overrun factors. This questionnaire is being delivered to contracting, project management consultant and client representatives, who has associated or currently associated with flyover bridge projects.

IV. DATA ANALYSIS

Data analysis is the highly complex work and manipulation analysis with simple instruction SPSS software is uses by market researchers, survey companies, marketing, research education and other

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A. Top 10 Cost Overrun Factors

Table 1 Top 10 Cost Overrun Factors

Sr. No.	Category
1.	Type of project and Complexity of project
2.	High interest rates and penalty charged by banks
3.	Client's interference during construction project decisions and quick construction instead of quality
4.	Technology advancement affect
5.	Buying material on credit affect the project cost.
6.	Survey of the locationaffect the cost
7.	Political communication among different agencies
8.	Site sources and location can affect in overrun cost
9.	Implementing an effective safety, quality assurance program and Communication system among project is important
10.	Fraudulent practices and kickbacks can affect in cost

Table 2 Descriptive Statistics

	Mean	Std. Deviation	N
Experience of respondents	2.0889	1.06221	45
Type of project and Complexity of project affects to the cost. Is it important factor in finance?	1.5556	.72474	45
High interest rates and penalty charged by banks affects to cost overrun.	1.7333	.96295	45
Cost affects in finance liquidity with contractor of project. Are you agree?	1.9111	.79264	45
Are you agree that Contractual relationship affects to the cost?	1.9333	.75076	45
Cost affects in procurement between bidding /tendering time. Are you agree?	1.8667	.72614	45
during construction project decisions and quick construction instead of quality can affect in cost as a factor.	1.7111	.81526	45

Are you agree that changes procurement method affects to the cost?	2.3333	1.12815	45
Technology advancement affect. Is it important factor?	1.8667	1.01354	45
Size of the organization and involvement of the project progress affect. Are you agree?	1.9111	.84805	45
Buying material on credit affect the project cost. Are you agree?	1.6444	.80214	45
Are you agree that planning and processing should not late which can affect in overall cost?	1.8889	.88478	45
Survey of the location can affect the cost. Are you agree?	1.8444	.95240	45
Escalation of material and labour price affect in the cost. Is it important factor?	2.0889	.94922	45
Progress monitoring, planning effort affect to the cost . Are you agree?	2.0444	.82450	45
shortage of equipment labour and material affects in cost. Are you agree?	1.8889	.83182	45
High Mobilization & maintance cost of equipment affect in cost. Is it important factor?	1.8444	.82450	45
Control mechanism of the project on contract affects in overall cost. Are you agree?	1.9556	.95240	45
Poor site management and supervision can affect in cost. Is this important factor?	1.8667	.96766	45
Unnecessary techniques used for construction can affects cost. Are you agree?	1.9111	.90006	45
Site sources and location can affect in overrun cost. Are you agree?	1.9111	1.01852	45
consultant in late reviewing and approving running bill (RA) can affect in overrun cost. Is it important as a factor?	1.8222	.88649	45
Different consultant for design, supervision and contract affects in cost. Are you agree?	1.8000	.84208	45
Implementing an effective safety, quality assurance program and Communication system among project is important . Are you Agree?	1.9556	.97597	45
Unexpected geological /season conditions affect in cost. Is it important as a factor to notice at earlier stage?	1.8889	.91010	45

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Political communication among different agencies can affect in cost. Is it important factor?	1.9556	1.06506	45
Fraudulent practices and kickbacks can affect in cost. Are you agree in this factor?	1.9111	.90006	45
local traffic issues affect to the cost overrun while constructing flyover Bridge . Are you agree?	1.9778	.96505	45
land acquisition for construction affects in cost overrun. Are you agree with this factor?	1.7778	.76541	45
Idle labour, machinery and daily supply of the material affect Cost overrun. Are you agree with this factor?	2.2889	1.01404	45
Strike, regulation, accident, global pandemic affects in cost overrun. Are you agree with this factor?	1.8222	.96032	45

V. CONCLUSION

A structured questionnaire survey approach was used to study the impact of various attributes and factors affecting construction projects performance for the factors analysis in flyover bridge construction industry. thirty (30) factors were considered in this study and were listed under groups based on relevant literature review and data collected. 58 questionnaires were distributed as follows: (58 Forms were distributed among different engineer who were releated to flyover bridge construction were received as respondents. Among them 44 forms were respondent. The results were analyzed, discussed to identify the most important factors, in which Likert 5-point Scale was used for preparing the feedback form spss tool was used for the analysis to determine clients, consultants and contractors perception of construction projects of flyover bridge According to the questionnaire was prepared send to clients, consultants and contractors, engineers and data was collected to analysis the factors for flyover bridge construction

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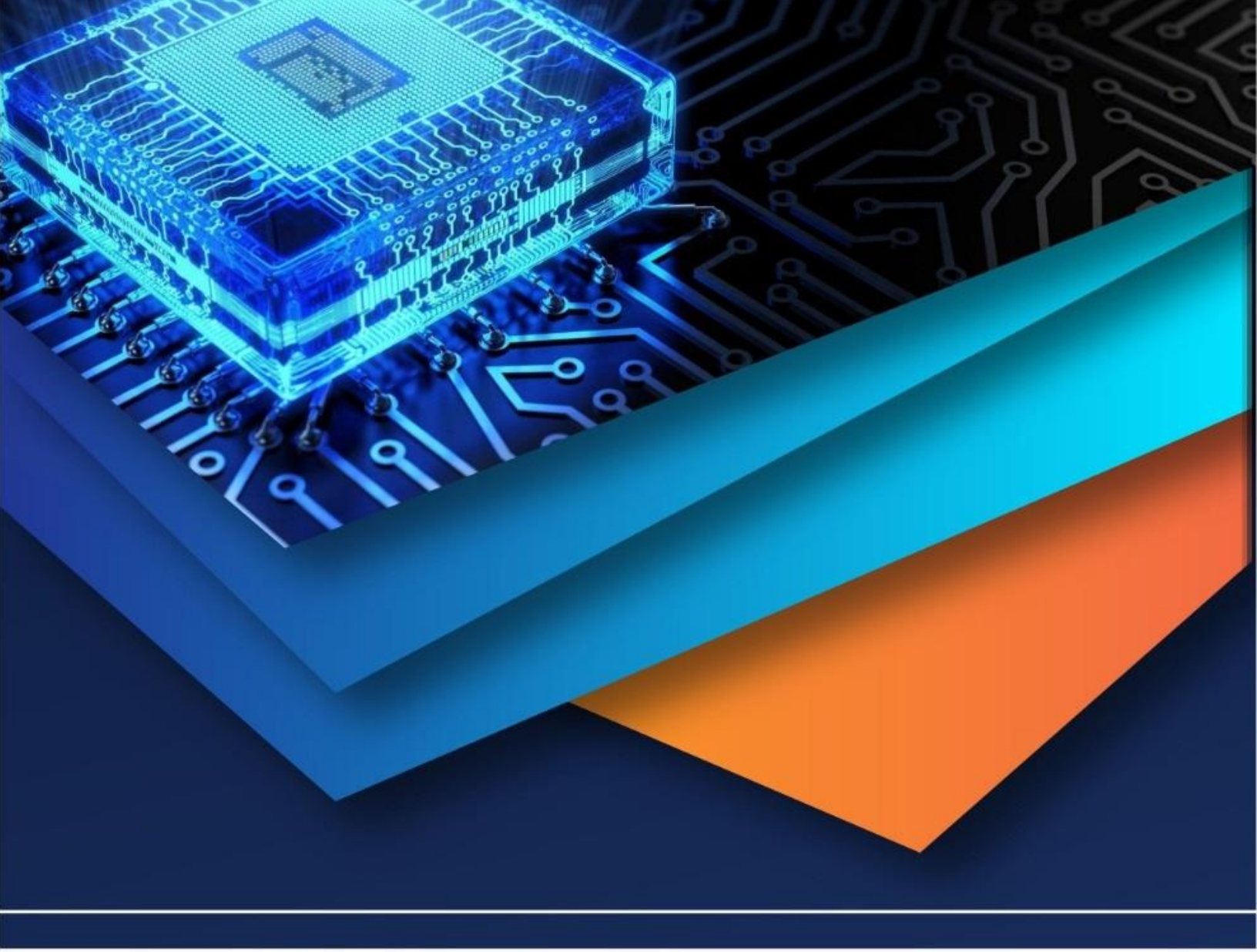
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