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Escalation Risk Management in Construction Industry a Study

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Abstract -

The construction industry is inherently complex, involving diverse stakeholders, intricate project plans, and significant investments. Within this dynamic environment, cost escalation presents a critical risk capable of influencing project success, budgets, and timelines. This study provides an in-depth analysis of escalation risks in the construction sector, exploring its causes, consequences, and mitigation strategies. Insights from literature and expert analyses reveal key contributors, such as changes in project scope, design variation, unforeseen conditions, inadequate management, and supply chain disruptions. Proactive risk management is emphasized to ensure successful project outcomes.

Keywords: Analysis, Cost Escalation, Risk Management.

1. INTRODUCTION

The construction industry plays a crucial role in the economic development of nations across the globe. However, one of the major challenges faced by construction projects is the risk of cost escalation. Cost escalation refers to the unforeseen and excessive increase in project expenses, which can significantly affect project timelines, profitability, and sustainability. Recognizing the factors that contribute to cost escalation and developing effective strategies to manage these risks are essential for ensuring successful project outcomes.

The phenomenon of risk escalation has increasingly garnered attention in recent years. This refers to situations where relatively minor risks initially grow in scale and severity, ultimately leading to substantial negative impacts on construction projects. Addressing and managing this risk is imperative to achieving project objectives within the planned budgets and timelines.

Despite the critical importance of this subject, limited research has been conducted specifically on risk escalation, with only a few studies addressing its contributing factors and proposing proactive management strategies. The performance of a nation's construction industry is often a key indicator of its economic health and capacity for infrastructure development. However, the financial success of construction projects can be jeopardized by fluctuations in escalation rates during the course of a project.

This study aims to shed light on the complex dynamics of risk escalation, offering insights into its mitigation and exploring ways to strengthen the resilience and competitiveness of the construction industry. One of the primary causes of delays in construction projects is the rise in material costs, often resulting in contractual disputes. Such escalations not only disrupt project schedules but also lead to disputes and compromises in quality, ultimately causing significant financial losses for stakeholders involved in the construction process.

Problem Arising Due to Construction Cost Escalation: Construction cost escalations are, without a doubt, a significant problem for all parties involved in the construction process. However, this issue can be managed through regular cost monitoring and control measures. According to subjective assessments, approximately two-thirds of all construction projects face cost escalations. The impact of these escalations differs depending on whether the owner belongs to the public or private sector.

For private owners, the consequences could lead to severe financial difficulties, potentially resulting in economic ruin. In contrast, for public owners, cost overruns are generally mitigated by supplementary financial assistance. However, this reallocation of funds often diverts resources from other necessary and planned investments. Consequently, the cost-effectiveness of the project, based on a cost-benefit analysis, may turn negative, affecting the overall viability of the investment.

3. OBJECTIVE

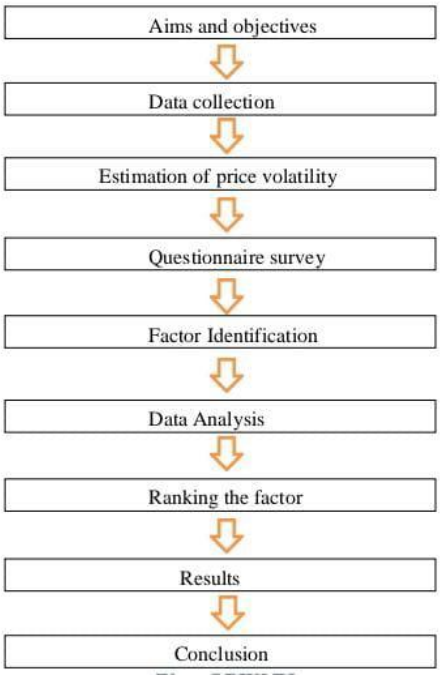
The objectives of this study are to:

1. Analyze material price volatility trends in the Indian construction sector.
2. Examine the patterns of price fluctuations for labour and materials.
3. Assess the impacts of cost escalation on construction project outcomes.

4. METHODOLOGY

This study employs a multi-pronged approach, including:

1. Collection of material and labour price data from industry databases and reports.
2. Analysis of trends in price fluctuations using indicators such as the Whole Price Index (WPI).
3. Consultation with industry professionals to validate findings and propose mitigation strategies.



5. RESULTS

Graphical variations are presented alongside price volatility to illustrate trends. The Whole Price Index (WPI) increases and decreases are highlighted for easy comprehension.

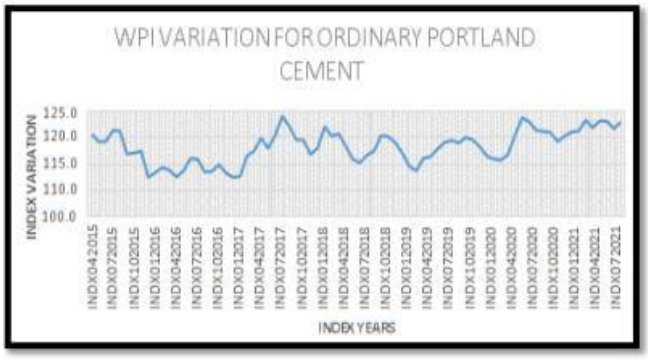


Fig 1: Showing Whole Price Index variation for OPC

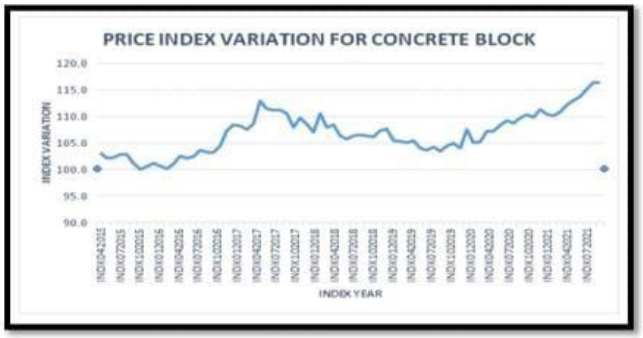


fig 2:- Whole Price Index Variation Of Concrete Block

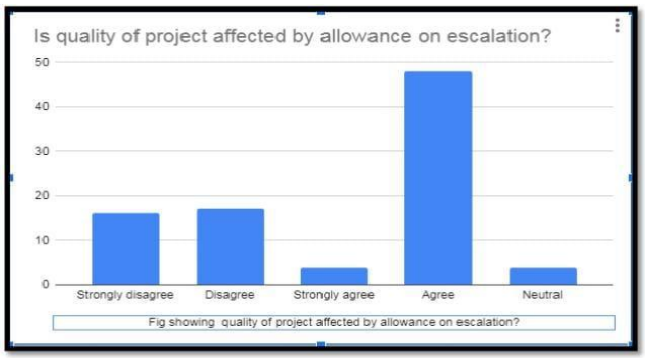


Fig 3:- Quality of project affected by allowance on escalation

The above graph displays data along with price volatility, with the increase or decrease in the Whole Price Index (WPI) highlighted for ease of understanding. From the data, it is evident that the price of materials is subject to fluctuations and does not remain constant.

Similarly, the situation is the same for labor, where price fluctuations are quite significant every six months.

1. For Class A labor, there was an escalation of approximately 42% between October 2016 and April 2017.
2. For Class B labor, the escalation was around 111% between April 2019 and October 2021.
3. For Class C labor, the escalation was approximately 43% between April 2016 and April 2017.
4. From this data analysis, it becomes clear that predicting the volatility of prices for materials and labor in advance is not feasible. To mitigate such escalations—whether due to variations in material or labor performance, or even an increase in equipment prices—it is imperative to include an escalation clause in contracts.

6. CONCLUSIONS

In conclusion, the study of risk escalation in the construction industry has highlighted the complex and multifaceted nature of this phenomenon. The construction industry is characterised by inherent uncertainties, and the potential for cost overruns, delays, and disputes frequently leads to project escalation. By examining various factors contributing to escalation and analyzing their interrelationships, this study has provided valuable insights into effective risk management strategies for construction projects.

A simple and efficient monitoring system is essential to identify effective strategies for managing construction projects. Proper project planning, accurate scheduling, effective site management, and frequent coordination between all parties are crucial to ensuring that projects are completed as per the planned schedule.

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