International Journal On Engineering Technology and Sciences – IJETS
ISSN (P):2349-3968, ISSN (O): 2349-3976 Volume XI - Issue II, February - 2024

Time Impact Assessment For Educational Building Construction Projects

[1]SHAMIYA.UK, [2]NIVETHA JOHN, [3]D.A. ANILA DANI, [4]Dr. BHUVANESWARI
[1,2,3,4]Department of Civil Engineering, R.V.S TECHNICAL CAMPUS, COIMBATORE, INDIA

Abstract— Common construction project issues, particularly delays, are closely linked. Delays, defined as late completion compared to the planned schedule, can arise from various factors such as client issues, contractor challenges, acts of God, or third-party involvement. Identifying and minimizing delays requires pinpointing their causes. This study focused on identifying major causes and analyzing delays in both private firms and the public sector through literature review and a questionnaire survey

Keywords—Delay factors, RII method, Private projects, Government projects

INTRODUCTION

The construction industry, a crucial contributor to economic development, encounters significant challenges. Numerous projects confront prolonged delays, surpassing initial time and cost estimates, impacting project success in terms of time, cost, quality, and safety. In India, construction projects face diverse issues, with construction delays standing out as a prevalent problem. The commonality of delays in construction projects is acknowledged, and their impact varies based on factors like the project's nature, type, and importance. When projects experience delays, there's a dilemma between extending delivery times or heavily accelerating progress to meet deadlines. The former may result in arbitration, litigation, and penalties, while the latter incurs additional costs, ultimately leading to financial losses. In the worst case, accelerated processes may compromise the quality of the output, sacrificing client satisfaction.

The financial aspect of a construction project is a pivotal determinant in the construction industry. The total project cost often undergoes significant variations from the initial estimate for various reasons, including alterations in the scope of work, specifications, or other contract documents. In response to changes, the construction industry employs variation orders, official documents that articulate modifications to the original agreement between the client and the contractor. However, the creation of a variation order can introduce several adverse effects for both the client and the contractor. The primary goal of this study was to discern the major causes of construction delays specifically within educational building construction projects.

OBJECTIVES OF THE STUDY

1) To identify the major causes of delays in construction projects of educational buildings
2) To analyze the delay that comes in the private firm and the delay that comes in the public sector
3) To recommend strategies for minimizing delay in the project based on the findings of study.

SCOPE OF THE STUDY

1) Time management
2) Managing the budget
3) Analysing the workloads
4) reducing the non productivity loss

RESEARCH METHODOLOGY

The research methodology delineates the processes and techniques employed in this study:

1) Identification of factors
2) Preparation of questionnaire
3) Questionnaire and field survey
4) Data collection
5) Analysis of data
6) Ranking by RII techniques
7) Results

DATA COLLECTION

A Questionnaire survey was carried out in offline mode, that is, on site survey was conducted among construction an expert who works public sector and private firm.

A. Structure of Questionnaire

The questionnaire is divided into three parts [Appendix A] Part A, Part B, and Part C.

Part A-First part included details about the project.
Part B- The second part included relative importance of the causes of delay
Part C- This part included the additional comments from the respondents about the projects.

B. Measurements of Data

Twenty sites were designated for the survey, evenly split between government (10) and private (10) projects. The participants encompassed various roles, including owners, contractors, supervisors, consultants, laborers, site

engineers, junior engineers, assistant engineers, and overseers. Projects were intentionally chosen to represent varying delay levels: high, medium, and low.

DATA ANALYSIS

A. RII method

The analysis utilized the Relative Importance Index method to assess the data. This study employed a 4-point Likert scale (1 being "not important" and 4 being "extremely important"), transforming responses into RII using the formula:

$RII = \sum W / A*N,$

where W is the weighting (1-4), A is the highest weight (4), and N is the total respondents. The resulting RII ranges from 0 to 1, with higher values indicating greater importance for the identified causes of delay.

CONCLUSION

The above review of literature explains the systematic processing framework for analyzing the factors of construction project delays and to sum up the delay analysis in the construction project, a comprehensive examination of the various contributing factors has been listed. This insight is invaluable for stakeholders in understanding the causes, assessing accountability, and implementing strategies for better project management in future endeavors. by the detailed study of the literature, methodology has prepared and need to follow the methodology for the successful completion of the project. Project to be continued in Phase II.

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