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AN EMPRICAL STUDY ON FACTORS AFFECTING THE CONSTRUCTION DELAY

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ABSTRACT

***Purpose**: The aim of this study is to identify the major delay factors in the construction company.*

***Design methodology /Approach**: the scope of the study is to find which factor influences more time delay in a construction company. The researcher used questionnaire method for collecting data from construction companies.*

***Findings:** The study noticed the main causes of delay in construction are design changes, delay in payment to contractors, funding problems, poor project management, and disagreement on the valuation of work done.*

***Research implication**: The identified factors may help the construction company in particular.*

Key Words: Delay Factors

I INTRODUCTION

It has been researched, that delay is a major setback in the construction industry in IndiaConstruction project delays have an adverse effect on promoters, contractors, and consultants.Leading to success is highly critical factor in a construction project . Also due to huge competition in construction industry it is essential to study the causes and critical factors which control the project success.The construction industry is one of the main sectors that provide important ingredients for the development of an economy.Delays in construction can cause a number of changes in a project such as late completion, lost productivity, acceleration, increased costs, and contract termination. The party experiencing damages and the parties responsible for them in order to recover time and cost.Delays caused by the client such as late submission of drawings and specifications, frequent change orders, and inadequate site information.It is essential to identify the actual causes of delay in order to minimize and avoid the delays and their corresponding expenses."Modernizing Construction", revealed that 70% of the project undertaken by Government department and agencies were delivered late, and a recent research by Building Cost Information Service (BCIS) found that nearly 40% of all studied project had overrun the contract period.Infrastructure plays a superlative role in the economic development of a country. The annual spending on infrastructure in India has been rising year by year. The five major causes of delays were: poor site

management and supervision, unforeseen ground conditions, low speed of decision making involving all project teams, client initiated variations and necessary variations of works.

II AIM AND OBJECTIVES OF THE STUDY

- ✓ Identify delay factors in construction projects
- ✓ Discuss about the case study in construction projects
- ✓ Make recommendations in order to minimize or control delays in construction projects.

III LITERATURE REVIEW

The literature review process was conducted by studying the various books, journals, papers published, various websites and conference proceedings published in this matter.

Doloi H. et al.(2012) [4] did research to analyze factors affecting delays in Indian construction projects. They selected set of 45 attributes. Their research first identified the key factors impacting delay in Indian construction industry and then established the relationship between the critical attributes for developing prediction models for assessing the impacts of these factors on delay. A questionnaire and personal interviews have formed the basis of their research. Factor analysis and regression modelling were used to examine the significance of the delay factors. From the factor analysis, most critical factors of construction delay were identified as lack of commitment followed by inefficient site management and poor site coordination ranked third.

Al-Momani[2] investigated causes of delay in 130 public projects in Jordan. The main causes of delay were related to design, user changes, weather, site conditions, and late deliveries, economic conditions and increase in quantity. The study suggested that special attention to factors will help industry practitioners in minimizing contract disputes. Delays have strong relationship with failure and in effective performance of contractors.

Chan and Kumaraswamy[10] conducted a survey to evaluate the relative importance of 83 potential delay factors in Hong Kong construction projects and found five principal factors: poor risk management and supervision, unforeseen site conditions, slow decision making, client-initiated variations, and work variations. They also found that there was a difference in perceptions as to causes of delays by different groups of participants in building and civil engineering works. They suggested that biases of different industry groups might direct blame for delays to other groups.

Sanders and Eagles (2001) define delay as an event that causes extended time to complete all or part of a project. Delay may also be defined as the time overrun, either beyond the date for completion specified by the contract or beyond the extended contract period where an extension of time has been granted. The type of delay we focus on in this study is the time overrun beyond the date for completion specified by the contract not considering whether an extension of time has been granted.

Delay in construction is a global phenomenon **(Sambasivan and Soon, 2007)** affecting not only the construction industry but the overall economy of countries as well (Faradi and El-Sayegh, (2006). Delay involves multiple complex issues all of which are invariably of critical importance to the parties to the construction contract. These issues concern entitlement to recover costs of delay or the necessity to prolong the project with the consequential entitlement to recovery costs for adjustments to the contract schedules. Questions arise as to the causes of delay and the assigning of fault often evolves into disputes and litigation (Bolton, 1990).

.**Wilson [15]** examined the role of the owner and architect/engineer's roles in the prevention and resolution of construction claims. Wilson also summarized the causes of construction claims which include: extra work, project delays and acceleration, lack of management, limited site access and change in work schedule. and assessing their contributions to project delay. The method consisted of a set of 17 equations, which could be easily coded into a computer program that would allow speedy access to project delay information and activity contributions.

Battaineh [2] evaluated the progress reports of 164 building and 28 highway projects constructed during the period 1996¯1999 in Jordan. The results indicate that delays are extensive: the average ratio of actual completion time to the planned contract duration is 160.5% for road projects and 120.3% for building projects.

IV RESEARCH METHODOLOGY

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V IDENTIFICATION OF DELAY FACTORS

1. Shortage / lack of equipment
2. Delays in payment to contractors,
3. Unexpected ground conditions
4. Funding problems
5. Poor project management
6. Lack of communication between parties
7. Project schedule changes
8. Information delays
9. Design changes
10. Unskilled equipment operators
11. Bank loan non availability
12. approval of drawings
13. Strike
14. Unskilled labours
15. Rework due to errors
16. Slowness in decision making
17. Poor weather conditions
18. Late delivery of matreials
19. Inadequate modern equipment
20. Changes in government regulations
21. Insufficient of data in drawings
22. Complexity of project design
23. Delays in obtaining approval from municipality
24. Equipment failure or breakdown

VI RESPONDENCE RATE

No. of companies = 200
no. of companies responded= 60
respondence rate = 30%

VII DEMOGRAPHIC PROFILE OF THE RESPONDENT

S.No	Demographic profile variable	Category	No. of Respondence	Percentage

1	Gender	Male	40	66%
		Female	20	34%
2	Age	21-30 years	10	17%
		31-40 years	16	27%
		40-50 years	21	35%
		Above 50 years	13	21%
3	Experience in construction field	Less than 2 years	3	5%
		2 years to 5 years	10	17%
		6 years to 10 years	30	50%
		11 years to 15 years	8	13%
		Above 15 years	9	15%
4	Work type	Quality engineer	6	10%
		Project engineer	20	33%
		Proclamation engineer	8	13%
		Site engineer	26	44%
5	Education qualification	Diploma	0	0%
		B.E	31	51%
		M.E	26	44%
		Dual degree	3	5%

VIII RELIABILITY OF DATA

To Establish Internal Consistency,Cronbach Alpha value was used to assess the reliability of the scale,considering the minimum value of 0.7 (Cronbach 1970,Nunnally ,1978). The calculator value was 0.78 which exceeds the threshold limit.

8.1 Most Critical Factors and Their Solutions

RANK	MEAN VALUE	FACTORS	SOLUTIONS
1	4.88	lack of equipment	To provide modern and more equipment

2	4.80	Insufficient of data in drawings	Entry the sufficient data in the drawings
3	4.73	Unskilled labors	Employ experienced labors or give sufficient training.
4	4.60	Design changes	Make proper designs before starting the project
5	4.58	Project schedule changes	Proper schedule should be followed
6	4.51	Equipment failure or breakdown	The operator appointed should know how to repair the equipment
7	4.41	Poor project management	Engineer has to done his work in time
8	4.19	Rework due to errors	Occurring of errors should be avoided
9	3.90	Strike	If the requirements of the labors were correct it should be fullfilled
10	3.88	Project schedule changes	A proper schedule should be laid by the site engineer.

IX CONCLUSION

In every construction project delay occurs. But it varies from one project to another. Some projects are only completed few days behind the schedule. Most of the projects completed beyond the schedule. So it is essential to define the actual causes of delay in order to minimize and avoid the delays in any construction project. A literature review was conducted to identify the various factors influencing construction delay were identified. The solution for the critical delay factors will help the company to develop their economy rate.

X LIMITATION AND SCOPE FOR FURTHER RESEARCH

Even though the study achieved its objectives, the researchers found some problems. First ,this study considered only few factors. In further, similar studies more number of factors were considered. This study has been conducted in india. Similarly this study can be extended to other countries. In addition to this, comparative study can also be conducted with regard to different companies.

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