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Analysis for the Causes of Delay in Construction Projects

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Abstract: Construction Industry has a very important role for the economic development of the country. This industry also contributes for the social development. But in recent time delay in construction project has become major problem to development industry. These delays are most common problem in every type of construction project. Delays are caused by different reasons with different impact on the project. Hence delays can't be avoided thoroughly, but it can be controlled or its effect can be minimized by means of different precautionary steps. The main focus for the study was to find major causes because of which projects are delayed. Almost 48 causes were found by previous studies. The survey was carried by providing questionnaire to different authorities related with construction projects. Such as Owners, Contractors, Project Manager, Consultants etc. The data collected from survey was analyzed by means of RII (Relative Importance Index). According to this information factors were ranked as per their contribution to the delay in project.

Index Terms: Construction Industry, Construction project, Questionnaire, RII (Relative Importance Index), Causes of delay.

I. INTRODUCTION

So many construction projects suffer delays. The delays caused in construction project directly affects efficiency of project. Delays can be reduced by recognition of real causes for the delay. In construction industry delay can be defined as the time overrun more than the accomplishment time as declared in agreement between different parties related to that project. Also it can be defined as the difference between real finish time and estimated finish time. Also it is some period of time which is extended to complete part of project due to unexpected conditions. This delay for the construction project is almost worldwide problem, it affects project overrunning cost, time and efficiency for the project. Also it has an adverse impact on the project team member such as project sponsor, project client, and any other involved participant involved in entire project, which frequently result in to suspicion, financial problem, lawsuit and renegotiation. In recent times Indian construction industry has gained more importance because of the arrival of new infrastructure development projects and opening of Indian markets. A study conducted by Infrastructure and Project Monitoring Division of Ministry of Statistics and Program Implementation reports, which states that out of 646 central sector projects costing around fifty trillion and average duration for project completion of 6 to 7 years, about 40 percent are behind schedule and delay between the range of 1 to 252 months.

II. OBJECTIVES

- A. To identify the major causes for delay in building constructions.
- B. To analyse the effects of construction project delay.
- C. To suggest the ideas and ways to minimize the delay in projects.

III. LITERATURE REVIEW

In 2002, Abadalla M. Odeh, Hussien T. Battaineh carried out the study for finding the most important causes of delay in construction project with traditional type contract from the viewpoint of construction contractors and consultants. Results of this survey indicate that contractor and consultant agreed that owner interference, inadequate contractor experience, financing and payment, labour productivity, slow decision making, improper planning, delay due to subcontractor are among the top ten most important factors (Abadalla M. Odeh, Hussien T. Battaineh, 2002).

In 2011, N. Hamzah, M.A. Khoiry, I. Arshad, N. M. Tawil and A. I. Che Ani studied the delay that happened in public higher learning institution that conducted by Ministry of Higher Education. A numbers of cases are recorded. Recent case is at main campus of University Malaysia Kelantan and second case of delay is a construction of research complex in National University of Malaysia, Bangi. Both cases are experienced delay. They stated that delays give increase to disturbance of work and loss of productivity, late completion of project increased time related costs, and third party claims and abandonment or termination of contract. It is important that general management keep track of project progress to reduce the possibility of delay occurrence or identify it at early stages (N. Hamzah, M.A. Khoiry, I. Arshad, N. M. Tawil and A. I. Che Ani, 2011).

M. E. Abd El-Razek; H. A. Bassioni; and A. M. Mobarak studied the causes of delay in building construction projects in Egypt in 2008. In their study they stated that “Financing by contractor during construction” was identified as the top cause of delay by both the owner and consultant. The view of the consultant can be considered as an intermediate result with a degree of impartiality. Furthermore, the contractor results identified this cause as the third most important, and the first within his responsibility. These results show how this cause can greatly affect a project delay and suggest the importance of using cash flow analysis, based on a realistic schedule on the project level, within the whole contractor organization to coordinate cash requirement among projects (M. E. Abd El-Razek; H. A. Bassioni; and A. M. Mobarak, 2008).

IV. RESEARCH METHODOLOGY

There are two stages for data collection: Primary and Secondary. Primary data collection included collection of information from personal investigation, questionnaire survey, interviews of various respondents and it was collected through interviews and questionnaire of respondents. The respondents were supposed to fill it and return the questionnaire back.

In secondary data collection the data is collected from already published papers, articles, analyzed work from other researchers. This information is used to support the current study topic.

Relative Importance Index (RII), rank of the causes contributing major delays in the construction was found out.

V. DATA ANALYSIS

Data analysis of the questionnaire is to find out the importance of each cause of construction delay, its effects on the construction and the possible ways to minimize the construction delay. The analysis of data obtained is done by using index called as Relative Importance Index (RII). Data analysis consists of following:

1) Calculation of relative importance index of each cause

Relative Importance Index (RII) is calculated by using following formula as $RII = \sum W/A * N$

Where,

RII = Relative Importance Index

W = Weight given to each cause by respondent (1 – 4)

A = Highest weight (i.e. 4)

N = Total number of respondents

2) Ranking of causes of delay depending upon the Relative Importance Index (RII).

TABLE

Sr. No.	Causes for delay	RII Value	Ranking
1.	Major design changes	0.790	9
2.	Improper method of construction by contractor	0.825	8
3.	Contractor with less experience of work	0.727	14
4.	More project assign to one contractor (Excess work load)	0.940	2
5.	Insufficient technical staff for project	0.600	17
6.	Negligence in planning and scheduling	0.636	16
7.	Less supervision on site	0.785	10
8.	Re-creation of work due to improper work during construction	0.869	6
9.	Lack of labor management	0.965	1
10.	Structural drawing errors and insufficient detailing in drawing	0.846	7
11.	Delay in provision of drawing	0.770	12
12.	Shortage of Material	0.705	15
13.	Shortage of equipment	0.886	5
14.	Delay for the legal permissions	0.776	11
15.	Disputes between two or more authorities	0.737	13
16.	Corruption	0.888	3
17.	Less accessibility to the site	0.545	18
18.	Bad weather condition	0.300	23
19.	Changes in law/rules/ regulations in between the project	0.886	4
20.	Shortage of basic utilities on site (water/Electricity)	0.500	22
21.	Surface condition (Soil conditions)	0.540	19
22.	Accidental issues	0.510	20
23.	Social problems / Local public interference	0.504	21

VI. CONCLUSION

The focus of the study was to find the major causes for the delay in construction industry. Total 23 causes of delays were selected based on literature study. Relative Importance Index was used to analyze the results and causes were ranked on the views of contractor, consultant and other industry experts. As per study report lack of labour management was the major cause of delay (Rank-1). To overcome this type of issues some suggestions like estimation of initial planning for man power requirement were shared to the industrial personal. Also use of proper planning to select proper construction method, scheduling can help to achieve timely completion of project.

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