

EFFECT OF PRE-PLANNING IN CONSTRUCTION FOR TIME MANAGEMENT

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Abstract -In India, several construction projects experiencing more delays which results in exceeding the initially fixed delivery time and cost. "Delay can be defined as the time overrun or the extension of time to complete the project". This project aims to find out the most significant factors causing delays in Indian construction projects through literature review and questionnaire survey. From the literature review 103 causes of delays categorized into 8 different groups, 8 effects of delays were found and also rankings given by each authors for the delaying factors are not the same due to varying native and context. Further, the Questionnaire survey is conducted with the participants (contractors, owners, consultants and others) of Indian construction industry in order to shortlist the top 20 significant factors with respect to Indian context and finally recommendations are given to avoid delays in construction project.

1. It is during the pre-planning stage that a lot many things can be planned, so that project moves in right direction from the start itself.

2. The purpose of this study is to identify different parameters which treated properly or handled properly during planning stage can help to deliver.

Key Words: Tread; operation; management.

1. INTRODUCTION

This Construction industry is the second largest and basic input for socio-economic development of our country after agriculture, This page provides - India GDP From Construction- actual values, historical data, forecast, chart, statistics, economic calendar and news. India GDP From Construction - actual data, historical chart and calendar releases - was last updated on May of 2018.

development projects in India, China, Bangladesh, and Thailand, in which they reported that construction projects in India showed the worst schedule performance. The study found that in India average schedule overrun is the highest (55% of actual schedule) compared to the other nations. Shebob.A, Dawood.N and Xu.Q (2011) made a Comparative study b/w Libya and UK construction project through questionnaire survey. The delay factors were ranked using the frequency of occurrence and severity scale. The survey result exposed that the construction projects in the developing countries suffers more delay than the developed countries due to lack of technology in the developing countries. TowhidPourroostam and Amiruddin Ismail (2012) related the field of causes of delay in construction projects has

been reviewed over the last decade through a questionnaire survey conducted in Iranian to solicit the causes of delay from consultants and contractors' viewpoint. Ibrahim Mahamid (2013) conducted a survey on time performance of different types of construction projects in Saudi Arabia to determine the causes of delay and their importance according to each of the project participants, i.e, the owner, consultant and the contractor. Then finally he concluded that 76% of the contractors and 56% of the consultants indicated that average of time overrun is between 10% and 30% of the original duration and also found 70% of the projects experienced time overrun in Saudi (i.e. 53 out of 76 projects). J.RajBharath& Prof Siddesh K Pai (2013) have mentioned that recently commissioned, Bandra-worli sea link amply demonstrates the state of project delivery system in the

Sr No.	Toipc	Quantity
1	Actual	2379.51
2	Previous	2198.68
3	Highest	2379.51
4	Lowest	1855.78
5	Dates	2011 - 2017
6	Frequency	Quarterly

2. Literature Review

Ahsan and Gunawan (2010) made a separate study comparing the performance of international

country. It was planned as Rs300 crore project to be completed by 2004, but had actually cost of Rs1600 crores with the delay of five years. Ruth apolot, henry alinaitwe&dantindiwensi (2013) made a case study and concluded that the stakeholders in the construction industry are advised to minimize the change in scope of work as it has the most effect on cost and time overrun and recommended there should be change from the traditional contract type to the design-build type and improved cash flow on the part of the client so as to reduce payment delays. Ghulam Abbas Niazi and KassimGidado (2013) reported that contract with less than 12 months highly contributes to delays. They concluded that two causes of delay are common between all parties, which are 'security' and 'corruption'. Poor security is the most difficult challenges that stakeholders face in implementing construction projects. It has delayed projects and increased costs. Corruption constitutes a serious threat to Afghanistan Construction Industry improvement as it has significant effects on construction delays. There is an urgent need for developing a legal framework for fighting corruption, whereas the current framework has been outdated and unclear. Anu V. Thomas and J. Sudhakumar (2014) mentioned that low productivity leads to delays in construction and reported the results of questionnaire survey made to identify the factors influencing construction labour productivity with the project managers, site engineers, supervisors and craftsmen, in the state of Kerala, India, and also mentioned timely availability of materials at the worksite, delayed material delivery by the supplier, strikes called by political parties or hartals, frequent revisions of drawings/design, resulting in additional work/rework and timely availability of drawings at the worksite as a significant impact on labour productivity. Nitin Chaphalkar and K. C. Iyer (2014) said, in some cases disputes may raise b/w the stakeholders during the construction phase, in which if it's not handled properly,

tend to consume time and money of the parties disputing, which leads the project to extended stay.

Prakash Rao and Joseph Camron Culas (2014) had concluded that, ineffective planning & scheduling of project, delays in site mobilization and delay in sub-contractor's work are three most critical factors caused by the contractor, affecting the project performance, followed by client's contributing factors such as delay to furnish & deliver the site, late in revising & approving design documents. Owolabi James et.al (2014) used random sampling technique to list out the most significant causes of delays in construction project. From the survey they observed that 51% of the delays are caused by the client, followed by the contractor with 36% and the consultant with 13%. ARC document solutions (2015) study shows that the problems with document management is a major source of delays and time overrun on construction projects. The client and contractor in their own approach first of all visualize what the end product or project delivery would look like, consisting of different features and uses and facilities, leading to a chalk out plan to identify all activities and tasks that would be performed or followed in sequential fashion to reach the final outcome, the desired end project or goal. It also includes working out the time requirement for activities along with their resource estimates for same (Friblick et al., 2009). Risk can be defined as "An uncertain event or condition that, if it occurs has a positive or a negative effect on a projects objectives" (PMI, 2013). Plan is a detailed layout for doing or achieving the project objectives or deliverables. Plan can be related to project drawings, detailed project related specifications, material specifications and schedule and others. It is road map of doing things or performing tasks to meet the desired final goal or result ("Laufer et al 1994). The pre-planning also called as pre-construction planning, Pre-project planning, conceptual planning, early project planning (Gibson, GE, Wang, YR, Cho, CS & Pappas, 2006) is the planning process that is done before the start of project. It includes all the activities from

initiation to detailed design development (Gibson, GE, & Cho, 2001). It is being proved that, it is very vital for the successful project completion (Laufer, A. & Tucker, 1987).

There is different perspective when such scenario are to be considered for a project. Tasks that are performed in pre-planning phase are:

- Information about projects drawings, specifications and description.
- Work breakdown structure consisting of different activities and tasks of a project with marked milestones
- Quantities are calculated with reference of WBS
- NIT is floated.
- Type and Number of Contracts are to be identified
- Sequencing, co-ordination and overlapping to be considered
- Specific materials, technology, if any considered , to be included
- Type of methodology to be used is worked out and finalized among the best suited one.
- Time estimate for labor requirement is worked out and sub-contractors time estimates are prepared.
- Resource allocation is prepared according to time estimates for activities.

3. Demographic Information

The demographic profile of respondents is as follow in below.

Table 2: Demographic Experience of Respondents

Working experiences in yaers	Number ofsample received	Number of sample for this experience	Percentage of sample for this experience
2	26	1	3.8 %
3	26	1	3.8 %
6	26	3	11.54%
7	26	11	42.31%
8	26	5	19.23%
9	26	2	7.69%

10	26	2	7.69%
12	26	1	3.8%

A total of 26 responses were received, that represented about 72 % as the response rate. According to survey the demographic characteristics showed about 13.89% (n=5) responses were received from General Manager, 27.78% (n=10) were PM, 11.11% (n=4) were Planning Engineer, 19.44% (n=7) were Project Engineer, 11.11% (n=4) were Senior Engineer, 16.67% (n=6) were Site Engineer.

4. Data Analysis

4.1. To calculate reliability for the five perspective of balanced questionnaire responses, we used the internal consistency method by Nunnally 1978. It is used to calculate cronbach alpha co-efficient. Cronbach’s alpha is the most sort out measure to internal consistency that is reliability. It is widely used in questionnaire survey where likert scale is used and one needs to find whether the scale is reliable. Since the cronbach alpha value for the questionnaire survey done is 0.815.

Table 4: Impact of Contractor on Timely completion of project

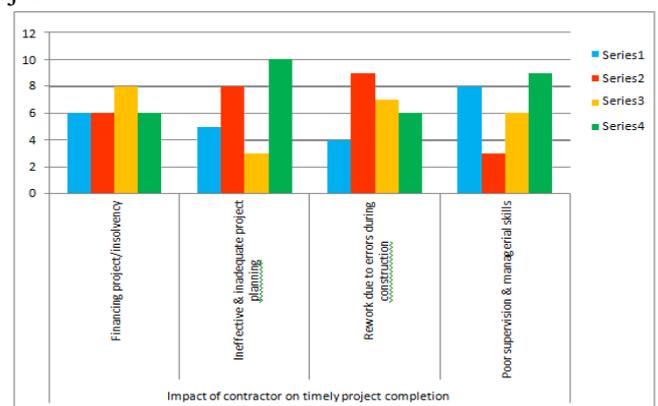


Figure No. Impact of contractor on timely project completion

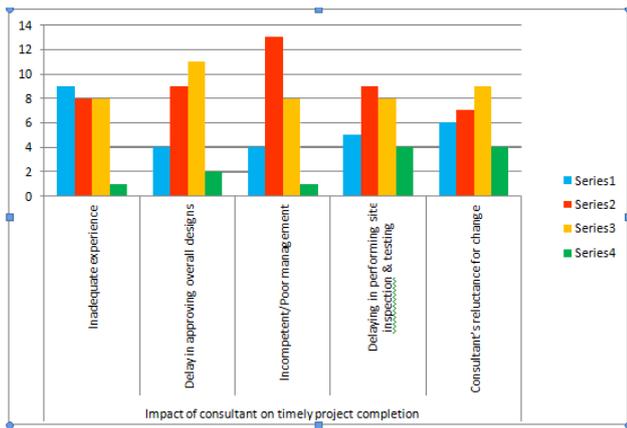


Figure No. Impact of consultant on timely project completion

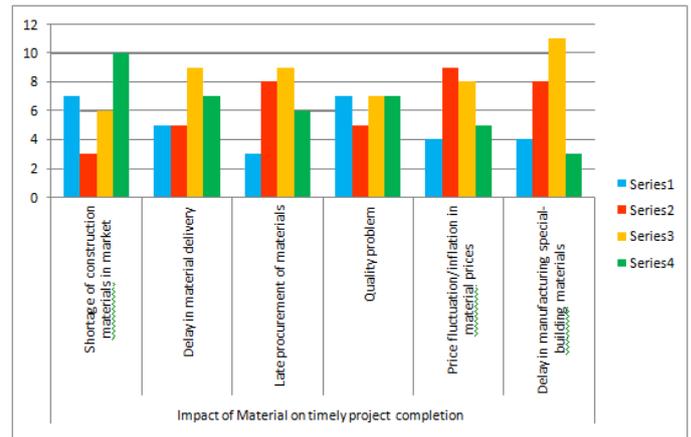


Figure No. Impact of Material on timely project completion

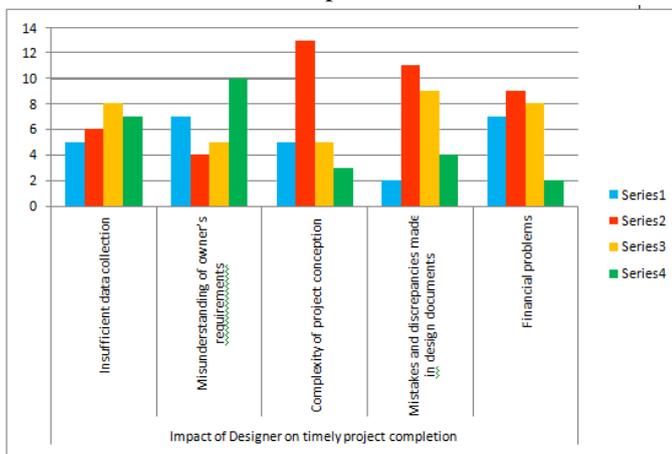


Figure No. Impact of Designer on timely project completion

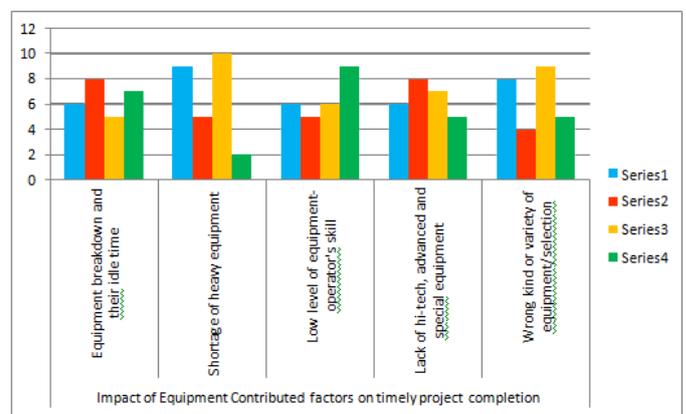


Figure No. Impact of Equipment Contributed factors on timely project completion

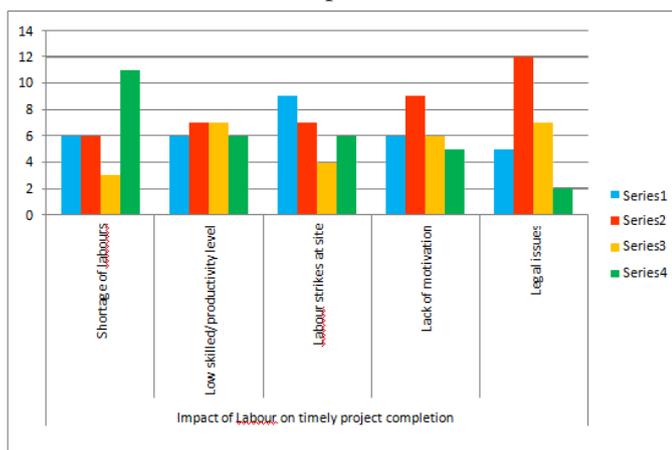


Figure No. Impact of Labour on timely project completion

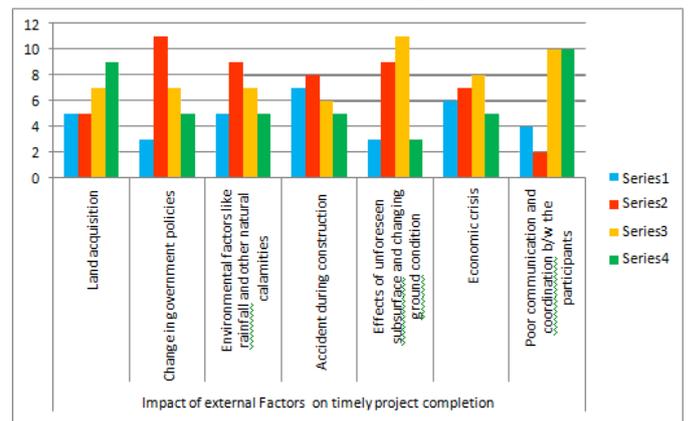


Figure No. Impact of external Factors on timely project completion

5. CONCLUSIONS

This study tried to identify the impact of pre planning in high rise building for time management. A semi structured questionnaire survey was made with help of literature review. The study tried to fill in gaps for critical

pre planning factors that affect the timely completion of high rise building. These factors would help the strategist to make policies and contracts which will help to curb the time overrun for projects, thereby improving the quality of construction business by improved performances.

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