COST OVERRUNS AND DELAYS OCCURED IN CONSTRUCTION PROJECTS

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Abstract:
Now a days projects are more complicated involving huge contract values, participants from multi-discipline, more specialized works, tighter schedule, stringent quality standards, etc. Ultimately, cost and time are the two key parameters that plays significant role in a project success. The study focuses on multiple Design and Build project which has complicated risk and is governed by fixed contract sum (Lump sum). As such, there is no such specific study to address this problem faced in Indian construction industry. Qualitative research was applied at three stages of projects for time delay and two aspects for cost overrun. One aspect each for time delay and cost overrun. This benefits the industry in managing projects proactively with appropriate risk response plan to the respective region. Projects delay and cost overrun have become general facts in the construction industry. Project cost risk analysis considers the different costs associated with a project and focuses on the uncertainties and risks that may affect these costs. An implementation of project risk management (PRM) process on regional construction project has been carried out to maximize the likelihood of project meeting its objectives within its constraints. Qualitative and quantitative risk analyses have been carried out.

Keywords: *Cost Overrun, Delays, Construction Projects.*

INTRODUCTION

The construction industry plays an important role in achieving fully developed nation status. Completing projects on time are an indicator of efficient construction industry. In fact, a project is considered 'successful' if it is completed on time, within budget and to the specified quality. Normally, when the projects are delayed, they are either extended or accelerated and therefore, incur additional cost. To the dislike of owners, contractors and consultants many projects experience extensive delays and thereby exceed initial time and cost estimates. The construction process is subject to many variables and unpredictable factors. Delivering a project on time does not occur by hoping that the required completion date will be met. To plan and manage a successful project, the three parameters of time, cost and quality should be considered. The clients in the construction industry are primarily concerned with quality, time and cost. But majority of construction projects are procured on the basis of the constraints time and cost. Cost escalation and time overruns are typically associated with poor management practices.

Construction Industries In India

The construction industry is the total through which physical development id achieved and that is truly the locomotive of the national economy. The more resources, engineering labour, materials, equipment, and capital market exchange are provided form within the national economy, the higher the factor of the extent of self-reliance. The increasing complexity of infrastructure projects and the environment within which they are constructed place greater demand on construction manager to deliver projects on time

within the planned budget and with high quality. The successful execution of construction projects and keeping them within estimated cost and prescribed schedules depend on a methodology that requires sound engineering judgment. To the dislike of owners, contractors and consultants, however, many projects experience extensive delays and thereby exceed initial time and cost estimates. This problem is more evident in the traditional or adversarial type of contracts in which the contract is awarded to the lowest bidder-the awarding strategy of the majority of public projects in developing countries like India. Although the construction industry in the our country has suffered ever since last decade, recent events in the region coupled with the restructuring of economies, joining regional and global free trade organizations, and attracting foreign investment are expected to yield an unprecedented growth in the construction activities. Therefore, improving construction efficiency by means of cost-effectiveness and timeliness would certainly contribute to cost savings for the country as a whole. Efforts directed to cost and time effectiveness were associated with managing time and cost, which in this study were approached via investigating time and cost overruns of construction projects in India. The formal sector consists of public and private contractors. The Construction industry of India is an important indicator of the development as it creates investmentopportunitiesacrossvariousrelatedsectors.Theindustryisfragmented,withahandfulo fmajor companies involved in the construction activities across all segments, medium-sized companies specializing in activities; and small and medium contractors who work on the subcontractor basis and carry out the work in the field. In 2011, there were slightly over 500 construction equipment manufacturing companies in all of India.

Delays

A construction project is basically a temporary endeavor with specified time & cost, initiated to create a unique product, service or result, tend to be limited edition. The project-team comes together to create that unique development on a particular site under circumstances that will never be repeated. They may be complex, demanding high level of co-ordination of permissions, people, goods, plant and materials and construction can begin despite many uncertainties, and as a consequence, delays are common.

Furthermore, the involvement of advanced technologies and owner-desired-changes makes it even more difficult to keep a project on the scheduled track. Coupled with this state are innate uncertainties and sophistication in the physical, financial, and economic environment in which most projects are performed.

Such conditions have made completing projects on schedule and on budget a difficult task to accomplish, often leading to claims on cost compensations and time extensions.

Cost Overrun

Cost overrun is defined as excess of actual cost over budget. Cost overrun is also sometimes called "cost escalation", "cost increase or budget overrun." Cost overrun is defined as the change in contract amount divided by the original contract award amount. This calculation can be converted to a percentage for ease of comparison. The difference between the actual cost and the initially projectedcost.

$$\text{Cost Overrun} = \frac{\text{Final Contract Amount} - \text{Original Contract Amount}}{\text{Original Contract Amount}}$$

LITERATUREREVIEW :

- **Doloi H.et al**.(2012)conducted research to analyze the factors affecting the construction

delay project in India. They chose a set of 45 attributes. Their study initially identified critical factors that influence the delay in the Indian construction industry and established relationships between key attributes to develop predictive models to assess the impact of these factors on the delay. I did it. Questionnaires and personal interviews form the basis of their research. We investigated the importance of delay factors using factor analysis and regression modeling. From the factor analysis, the main elements of the construction delay were the lack of commitment, the subsequent inefficient site management and the poor site coordination in third place.

- **Ghulam Abbas Niazai and KassimGidado** (2013) reported that contracts under 12 months contributed to the delay. They concluded that there were two reasons for the delay between all parties of "security" and "corruption". Inadequacy of security is the most difficult task for implementation of construction project. It led to project delay and increased cost. Corruption has a serious impact on construction delay, which poses a serious threat to the improvement of the construction industry.

- **Ram Singh**(2009), "Delays and Cost Overruns in Infrastructure Projects: An Enquiry into Extents, Causes and Remedies" Ram Singh say media reports abound on instances of prolonged delays and excessive cost overruns in infrastructure projects. Only a small number of projects get delivered in time and within the budget. Examples of successful project implementation, like construction of the Delhi Metro Rail, are few and appear only far in between. Indeed, the problem of time and cost overruns in India is widespread and severe. Yet, very few empirical studies exist on the subject. Even rarer are the studies based on completed projects. As a result, the extents as well as the causes behind delays and cost overruns have remained under- researched. This study investigates the various issues related to delays and cost overruns in publically funded infrastructure projects.

- **Ramanathan Chidambaram and Narayanan Sambu Potty**(2014), "Qualitative analysis of Time delay and Cost overrun in Multiple Design and Build Projects" Projects are more complicated involving huge contract values, participants from multi-discipline, more specialized works, tighter schedule, stringent quality standards, etc. Ultimately, cost and time are the two key parameters that plays significant role in a project success. The study focuses on multiple Design and Build project which has complicated risk and is governed by fixed contract sum (Lump sum). As such, there is no such specific study to address this problem faced in Malaysia construction industry. Qualitative research was applied at three stages of projects for time delay and two aspects for cost overrun. This paper presents one aspect each for time delay

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- **T. Subramani, et al** (2014), "Causes of Cost Overrun in Construction" The industry plays a pivotal role in developing the country's infrastructure, a pre-requisite for high levels of economic growth. Most construction projects experience cost overrun and it put massive financial burden on the client or owner. Therefore this research was carried out to identify the causes leading to cost overrun in construction projects. Desk study along with questionnaire survey was used to identify the causes of cost overrun. A total of 30 filled questionnaires were collected from clients, consultants and contractors. From the analysis of the results it was found that consensus of opinion exists between

respondents on the causes of cost overrun. The results showed that, slow decision making, poor schedule management, increase in material/machine prices, poor contract management, poor design/ delay in providing design, rework due to wrong work, problems in land acquisition, wrong estimation/ estimation method, and long period between design and time of bidding/tendering are the major causes of costoverrun.

OBJECTIVE AND PROBLEMSTATEMENT :

A. Objective :

There are many ways to complete the project on the current site in a timely manner, but delays are unavoidable and ultimately affect the efficiency of the project. There has probably been a lot of research to minimize the delayed discovery and the negative impact of project delays. Nevertheless, there are many projects that delay planning and suffer heavy losses.

The main objectives of this study are as follows:

- Investigate the increasing frequency of cost overruns and time delays on construction projects, and to provide recommendations for addressing the situation. Identification of the distribution and trends of the cost overruns and schedule delays ofcontracts.
- Investigation of the reasons and the responsibilities for cost overruns and schedule delays by collecting, reviewing, processing and analyzing change order and contract informationdata.
- Analyses for identifying the factors that significantly influence cost overruns and scheduledelays.
- Development of a set of recommendations to help construction industry manage the problem of cost overruns and scheduledelays.
- To assess which causes need the most attention bystakeholders.
- To assess how frequent each of these causesoccur.
- To find out the impact of over-runs on the stakeholders, especially theclient.

B. ProblemStatement

- Unavailability ofmaterials.
- Excessive amendments of design anddrawings
- Poor coordination amongparticipants
- Ineffective monitoring andfeedback
- Lack of project leadershipskills.

METHODOLGY :

The data has been collected by interviewing the officials of the construction industry. The study has been broadly undertaken asfollows:

- Identified the projects, which has undergone time and costover-runs.
- Studied all the available plans, estimates, schedules and work procedures in detail and collected all the relevant data about theproject.
- Analyzed the data obtained and compared the estimated and actual schedules and budget to understand the causes and implications ofoverruns.

- Examined the reasons for the over-runs through either personal interviews orquestionnaires.
- Listed out all theshortcomings.
- Identified the reasons of Time and cost overruns through a general survey of opinion from Architects, Consultants and Contractors and suggest the possible remedialsolutions.

DATACOLLECTION :

Based on the all the projects, this section analyses the main reasons for cost overruns and delays and they have many risk factor. This section is based on the results of all the projects. The interviewees were asked about the main reasons for cost overruns in the poor cost performance projects and the factors which avoided it in good performance projects. The interviewees were explained with the definition of cost overrun, according to this research so as to prevent their own perception from clouding the responses. The data about each case were mainly collected from the interviewees, so it is important to make sure that they knew the definitions of the research. Some information was also collected from Internet.

In this research, two renowned Indian construction companies with similar characteristics were chosen. Four different projects were selected from these companies, two with good cost performance and two with poor

cost performance as shown in Table. Due to confidentiality issues, the name of the companies will not be revealed.

The answers given by the project managers, contractors, consultants, construction managers, and representatives of clients from the survey are analyzed. Some information about the company has been given from the interviewees and the information given has been verified with Internet research. Four case studies were used in the research from the reputed contracting company in India. The interview protocols were sent to various people by the researcher. Four interviewees have acknowledged to have a one-hour semi-organized meeting. Along these lines, the whole research configuration of this thesis was focused around the four meetings which were conveyed by the two task administrators of an organization and the review aftereffects of members. Each of the undertaking administrators was talked with around two separate activities unified with great execution and an alternate with poor execution. According to the necessities of the exploration, the interviewees must be either senior venture pioneers or at the base ought to be working at a managerial level. To guarantee that the interviewees met the necessities, a portion of the inquiries were about the points of interest of interviewees.

CONCLUSION :

This research is made to investigate the cost overrun and delays in construction projects. The analysis of the participants' responses reveals that the cost overrun and delays in building construction projects is a severe problem. 100% of the respondents indicate that the average cost overrun and delays that they have experienced is between 10% and 30% of the project's estimated cost Inputs of the consultants underline that the top five factors affecting

cost overrun and delays in building construction projects are: political situation, fluctuation of prices of materials, level of competitors, currency exchange, and economic instability. There is a good data consistency and agreement between consultants on the severity and frequency of the identified cost overrun and delay factors. It also shows that the participants are highly agreed on the impact and frequency of the top affecting factors.

The following points are suggested in order to minimize and control cost overrun in building construction projects.

- Training courses and workshops should be conducted to improve managerial skills of project participants.
- Material prices and labor rates should be updated continuously.
- Sufficient time should be given for preparing feasibility studies, planning, design, information documentation and tender submission. This helps avoiding or minimizing late changes.
- Progress payment should be paid on time.
- More communication and coordination between project participants during all project phases.
- Top management must react positively to political and environmental changes by means of managerial and financial policies.

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