Causes of Cost and Time Overrun in Construction Projects – A Literature Review

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Abstract

Construction projects are becoming increasingly common in developing countries. The need for rapid infrastructure development has resulted in the design and implementation of large scope and size projects in terms of complexity and costs. Time and cost are the lifelines of every project in the construction industry. The project managers and other project professionals aim to control the time and cost and ensure that the projects finish on time without any time overrun and without any cost overruns, with perfect management principles to complete the project. In this context, a qualitative research study has been undertaken in this work, to analyse the reasons for time and cost overrun in construction projects. It is most important to study, analyses and evaluate the causes and effects of the common factors leading to the cost and time overruns constraints and suggest the best and suitable mitigation measures to overcome time and cost overrun constraints.

Keywords: - *Time overrun, Cost overrun, Delay factors, Cost overrun Factors, Construction Projects*

INTRODUCTION

The construction industry has a greater impact on the economy of all countries. It is one of the sectors that provide decisive ingredients for the development of the economy. Due to poor cost and time management these days, the construction industry is facing a huge amount of cost overrun and time overrun. This has become quite a problem for the construction industry.

The lifetime cycle of construction projects comprises different phases, including planning, initiation, and procurement, which involves constantly measuring progress, evaluating plans, and taking the correct actions when required by the project managers. Every minute and every penny (paisa) are important in very construction projects, not only construction each and every project which are economy-related the delay of cost and time result to the loss of potential profit of the project.

Most Construction projects in this country suffer time and cost overruns. The study contributes knowledge on cost overrun and time overrun, their

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causes and their overall effects. Methodology and literature review together with the distribution of questionnaire and desk study on public construction projects. as Stakeholders in the construction industry. Literature review, distribution of questionnaires, and desk study on public building construction projects.

The research and studies found that the most variable causing the construction delays are the cost and time overruns. The factors relating to these are the project size, project type, weather conditions, inflation of the prices, irregular policies by the government, un-skilled labour, changes in design, poor contract management, financing and delays in payment for completed works, material shortage, machine and equipment difficulties. While the cost overruns than the time overrun were revealed are the insufficient number of staff, poor site management, mistakes during construction, equipment and tool shortage on-site, poor inspection, quality assurance/ control, variations (design/extra works).

It is a known fact that a larger number of infrastructure projects in India have been delayed due to various issues. Infrastructure plays a paramount role in the economic growth of our country. Today, India is one of the leading outsourcing hubs in the world.

Definition of cost overrun

The difference or deviations between the originally estimated cost during the design stage and the actual cost incurred during the construction phase is a cost overrun. This is the most important parameter for the successful completion of a project. If the actual cost exceeds the budgeted cost estimated during the design stage, it will drastically affect the project completion time and causes many issues also. So, it is essential to control the cost for getting better performance. An attempt has been made to study the causes of cost overrun so that unnecessary costs may be avoided.

Definition of time overrun

Time overrun is defined as "a condition where a construction project does not complete within the designed time period". It happens when the work of the contract does not complete in its prescribed time. Time overrun is the most common incident which occurs nearly in all the projects related to the construction industry. Time delay is critical in developing countries that exceed 100 % of the estimated time while constructing a project. Time Overrun is the phenomenon in which the project gets delayed beyond its expected completion time due to certain difficulties, i.e., more time is required to finish the project than initially planned.

Objective and scope of the study:

- They are identifying the main causes of cost overrun and time overrun and their overall effects on construction projects.
- They are identifying the related responsible party to the causes of cost overrun and time overrun.
- To identify the causes and effects of cost and time overrun in construction projects work and complexity in construction projects.
- To identify the complexity in Construction project work
- Proper use of time & cost management techniques.
- To identify the causes that lead to cost overrun and to evaluate their relative importance.

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LITERATURE REVIEW

Murali et al. (2016) in this research paper carried out a questionnaire survey of contractors, consultants and number of professional staff of different companies by interview. by collecting the data and analyse that rarely use cost control techniques than time control techniques and inadequate use of software in construction due to that identify the top inhibiting factors that directly affect on cost and time overrun.

Prajapati et al. (2008) In this paper carried out a questionnaire of 30 consultants about the factors affecting cost overrun of building construction projects and analyse each factor of severity index and frequency index. Severity and frequency were categorised on a five-point scale: very high, high, moderate, little and very little, to identify the most affected cost estimating factors in building construction projects.

Abusafiya & Suliman (2017)In this paper, they carried out a questionnaire survey and risk mapping of several factors affecting cost overrun by examining 40 actual construction projects in Bahrain. We ranked them in severity index, frequency index, importance index (II) and ranking of top 10 cost overrun factors analysis.

Salunkhe (2014) carried out a time delays survey of the year 2011 and 2012 by percentage time and cost overrun Ongoing on and completed projects. According to MOSPI. They carried out five project surveys of (source of data: MOSPI 2012) project, experiencing maximum delay and cost overrun.

Al-Hazim et al.,(2017)In this paper, a carried-out data collection of infrastructure projects in Jordan. There are 20 major causes of cost overrun factors identified by the final report of 40 public infrastructure projects in Jordan in 2000-2008. The results show that Terrain and Weather conditions are the top factors causing completion delay and cost overrun in infrastructure projects in Jordan.

Mevada & Devkar (2017) In this research paper, qualitative research of delays in mega projects was carried out by reports of the Ministry of statistics and project implementation (MoSPI). And by-Word frequency query analysis get the reason behind the delay in the megaproject. And Cluster analysis shows a correlation of overruns and complexity.

Shete et al. (2016) this study is descriptive, designed to obtain views from consulting firms, regulatory boards and construction firms regarding causes and effects of cost and time overruns in construction projects in India. For this, the existing literature is reviewed, and critical success factors are identified. Based on them, survey questions and interview questions are prepared by doing severity, and frequency analysis author found that the top five factors affecting cost overrun in building construction projects are: political situation, fluctuation of prices of materials, level of competitors, currency exchange, and economic instability.

Subramani (2014) Causes of Cost Overrun in Construction‖ The industry plays a pivotal role in developing the country's infrastructure, a prerequisite for high levels of economic growth. Most construction projects experience cost overrun, and it put a 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 a questionnaire survey was used to identify

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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 a 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 the long period between design and time of bidding/tendering are the major causes of cost overrun.

R. Singh(2016)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 the 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 and the causes behind delays and cost overruns have remained under-researched. This study investigates the various issues related to delays and cost overruns in publicly funded infrastructure projects.

James et al.,(2014)A total sample of ninety-three (93) was deployed. A structured questionnaire in the Likert scale was used in data collection. Many factors induce delays in construction projects. Here are some of the factors identified by the author are: lack of funds to finance the project to completion, changes in drawings, lack of effective communication among the parties involved, lack of adequate information from consultants, slow decision making and contractor's insolvency, variations among others. Also, project management problems, mistakes and discrepancies in contract documents, equipment availability and failure, mistakes during construction, bad weather, fluctuation in prices of building materials, inappropriate overall organisational structure linking to the project and labour.

Ismailet al.,(2013)This research work involved 35 common time and cost overrun factors identified from reviewing previous studies published worldwide. This research work involved 35 common time and cost overrun factors identified from reviewing previous studies published worldwide. Experts were asked about the occurrence and by doing of severity level, index calculation and risk matrix level of each factor along with each phase. The findings revealed that five factors have a high risk of time overrun while 6 factors have a high risk of cost overrun. The findings of this study give a better understanding to construction practitioners for the risk level of the factors causing time and cost overrun in each phase of construction projects.

OBSERVATION

Cost overrun are time overrun is the most common factor and predominant in all construction projects. And during this study, efforts were taken to find out the most critical factor, which was mostly influencing the construction of metro and mega projects. The study observed that many respondents mainly focused on completing the

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project within time and the budget to control the Cost and Time overrun. The most predominant factors from the study are based on respondents perspective which includes Increasing of prices(Inflation), Land acquisition, Irregular/Un-stable government policies, Lack of proper regulations in work control, Un-even weather conditions, Material Procurement, Un-skilled labour (manpower), Unstable interest rates, Poor project management/Construction management, lack of proper professional software, Inaccurate evaluation of projects time/duration, lack of communication between parties, i.e. (project client project contractor/sub-contractor)., Project fraud and corruption, Frequent design changes.

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