

Analysis of Cost Overrun in Construction Projects

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Abstract - The Construction sector in India is the most integral part of the Country's Economy. This provides employment to about 32 million of people all over the country. It also contributes about 7-8% of GDP (Gross Domestic Product). This industry plays a vital role in the development of the Countries Infrastructural growth. The cost over-run is the major issue found out in the research studies made through the years. It reduces the profit ratio's which is mainly due to the complexity of major projects and inadequate management of the Man, Material, Machinery and other resources required for the projects. The construction cost of the project is increasing constantly which leads to excess financial requirements. That is why the developing countries like India, are facing major problems like cost over-run. The cost over-run occurs in most of the construction projects and the magnitude of cost over-run varies from project to project including different factors for individual concerned projects. It is essential to have an overall control on the factors that influence cost over-runs, which ultimately reduces the performance of the project. It must be ensured that, the cost is within the permissible limits and if not, proper measures to be taken to reduce cost over-runs, very keenly. This study will help us to understand the information of the various research and also from the reviews, we can find out a practical solution on this cost over-run problems which are based on various factors and can be minimized by taking certain precautions as well as performing certain studies.

Key Words: Cost Over-Run, Construction Projects, Construction Cost

1. INTRODUCTION

Indian economy has been on a development curve for years now, posting impressive growth and its growth and a conduit for a substantial part of India's development investment. It is poised for solid growth due to industrialization, urbanization and economic development together with people's expectations of improved living standards. The construction sector employs approximately 32 million people, accounts for some 6-9% of GDP and, after agriculture, is the largest employment sector in the country. In general, it has been growing at 9-12% year on year, primarily due to the strength of increased domestic and international manufacturing activities and industrial growth. The construction industry is primarily driven corporate sector and development activities of real estate/housing sector. The industry plays a pivotal role in developing the country's infrastructure, a pre-requisite for

high levels of infrastructure deficit. Massive investment is being done in the field. Construction sector accounts for nearly 45% of total investment in infrastructure and is expected to be the prime beneficiary of the surge in infrastructure investment in the near to medium term.

1.1 Construction Industry In India

As with construction industry anywhere in the world, the Indian construction sector also face a lot of challenges from land acquisition issues, adverse political and structural changes, shortage of talent, design and constructability issues, and rising material and labour costs. Further, deficiencies in project planning, use of inappropriate procurement contracts and faulty contract management also contribute to delays in project implementation. (ICRA, 2011) Construction-related commodities costs are expected to continue to increase in the future, and these increases will be directly result in higher construction costs. The rate of rise in the prices is unlikely to slow down. Labour costs are also increasing and there is currently a shortage of high end skilled labour/experienced workforce in key city locations. This is likely to have a sizeable impact on tender prices and lead-in times, potentially requiring the use of less skilled labour teams to deliver fast-track projects. The impact could be a reduction in quality. As a result of the current levels of material and labour cost inflation and the buoyant market conditions, contractors are increasing their average margins by between 5% and 7%. These increases are reflected in higher tender prices, particularly on key landmark developments, although on smaller projects contractors are more likely to absorb the increased costs to remain competitive (Harris, 2011).

1.2 Cost overrun

Cost overrun can be defined as when the project objectives are not achieved within estimated budget (Avots 1983). Cost overrun is the excess of actual cost over budget. Cost overrun is the ratio of contract amount to the original contract award amount. This calculation can be converted to a percentage for case of comparison. The ineffective cost management process will influence the performance of the overall project ultimately.

Construction cost estimating is the process of forecasting the cost of building a physical structure. Contractors and clients both concern about the financial impact of cost overruns and failing to complete a construction project. Cost

budgeting covers the understanding of what costs will be incurred, when and why, and clearly follows on from the estimating activities and the award of the project. As with construction industry anywhere in the world, the Indian construction sector also face a lot of challenges from land acquisition issues, adverse political and structural changes, shortage of talent, design and constructability issues, and rising material and labour costs.

2. Statement of Problem

The basic goal in any industry is to achieve the completion of project within time and stipulated budget. It is the same with construction industry. The construction industry being one of the most complex, fragmented, schedule and resource driven industry, is always facing serious problems like low productivity, low quality, delay, cost overrun etc. (Memon et al., 2011). Cost overrun in construction is a worldwide phenomenon, and its effects are normally a source of friction between owners, project managers, and contractors (Creedy et al., 2010). Azhar and Farouqui (2008) observed that the trend of is more severe in developing countries. As the construction industry continues to grow in size, so do planning and budgeting problems. This is because it is common for projects not to be completed on time and within the initial project budget (Apolot et al., 2012) It is noted that there were more cases of cost overruns than time overruns. This makes the problem of cost overruns to be of great significance (Kasimu, 2012). In fact, it is one of the most important challenges facing the construction industry today. An out of control construction cost adds to investment pressure, increases construction cost, affects investment decision-making and wastes the national finance. Hence, it is important to identify the factors that contribute to cost overrun to avoid and reduce the problems (Ali & Kamaruzzaman, 2010). Identifying the reasons is usually the first step when addressing a problem, and then corrective action can be taken.

2.1 Background of Research

A construction project is a high value, time bound, special construction mission of creating a construction facility or service, with predetermined performance objectives defined in terms of quality specification, completion time, budgeted cost and other specified constraints (Chitkara, 2011). Cost is one of the five main parameters that can sufficiently define a construction project. Other parameters are scope, quality, resources and completion time. The five parameters are interactive, that is, each parameter is a function of other. The evaluation and balancing of interrelationship among the five project parameters is a complicated process. However, in a given project, the scope and quality of work in terms of quantity and specifications are specified and these parameters are not subjected to change (unless scope changes substantially). Resources and costs are co-related. Therefore, for a given quality, in such

situation, time, cost and scope are core parameters. These parameters are interlinked and must be kept in balance to achieve project objective efficiently and effectively within changing environments (Chitkara, 2011). Nowadays, even a marginal cost overburden can sweep away the profit of a job, and continuous cost overburdens in most of the projects of a firm can lead to bankruptcy (Akinci & Fischer, 1998). Organizations face a major challenge in controlling project budgets over the time span between project initiation and the completion of construction. The development of cost estimates that accurately reflect project scope, economic conditions, and are attuned to community interest and the macroeconomic conditions provide a baseline cost that management can use to impart discipline into the design process. Projects can be delivered on budget but that requires a good starting estimate, project management discipline and an awareness of factors that can cause cost escalation (Shane et al., 2009). This necessitates finding the relevant factors and causes that lead to cost overrun.

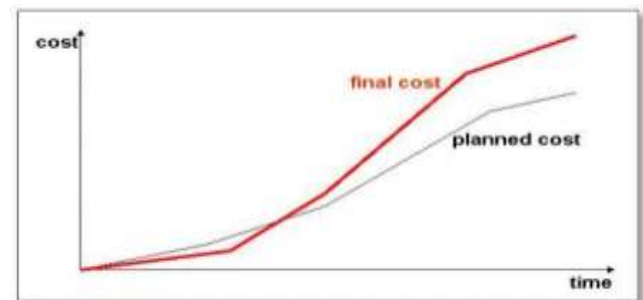


Chart -1: Time v/s Cost

3. METHODOLOGY

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. 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 having 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.

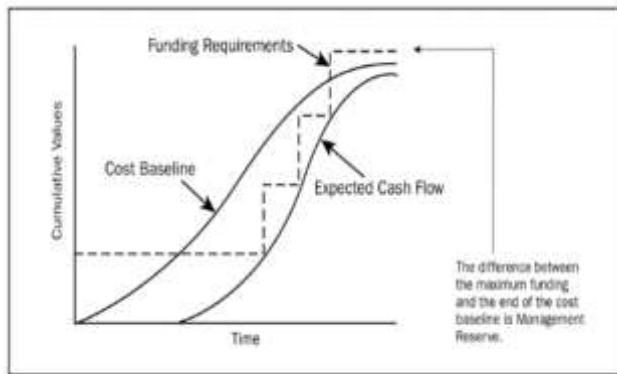


Chart 2. Cash Flow in Project

3.1 DATA COLLECTION

A questionnaire study was designed with 15 prominent questions related to cost overrun in table 2. It was sent to 60 construction professionals across India (northern region, southern region, western region, eastern region and central regions).

Sets of 7 important factors were shortlisted from the references of various literatures around the world related to cost overrun. As a part of preliminary study, advice was taken from experts for shortlisting important factors causing cost overrun in construction industry. Questionnaire studies were conducted to find various factors affecting cost overrun in Indian scenario. Then this could have helped some technocrat and bureaucrat to take corrective action for future project investment in India.

In your professional career, what is average the percentage level of cost overrun in your past projects?
19 responses

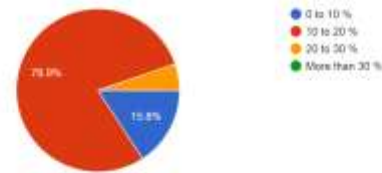


Chart3. Sample question from Questionnaire

4. CONCLUSIONS

This study is conducted to investigate the cost overrun in building construction projects from consultants' perspective through a questionnaire survey. The analysis of the participants' responses reveals that the cost overrun in building construction projects is a severe problem. 100% of the respondents indicated that the average cost overrun 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 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 factors. It also shows that the participants are highly agreed on the impact and frequency of the top affecting factors. Based on the study findings, the following points are suggested in order to minimize and control cost overrun and time overruns in building construction projects.

5. Recommendation

- Project planning should be properly done at starting phase of project.
- Variation of material and labour rate must be considered while finalizing budget.
- Relationship between management /client and consultant should be improved and to be established well, by conducting frequent meetings to avoid claims and disputes.
- Scope of project should be clear before Starting any project to avoid future cost overrun
- Proper resource management should be done at site to avoid Resources should be ideally available on site
- Resources should be properly utilized.

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