A Study Of Factors Resulting In Time And Cost Overrun In Construction Projects And It's Remedial Measures

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Abstract- *The subject of project cost and time over-run has presently dragged a widespread attention of project managers and the other project related personnel. An in-depth study and critical analysis of cost-time figures might be able to decide whether the outwardly appearing over-runs are really serious lapses to the extent they are felt. It might reveal the true causes behind these over-runs. It is noticed that the period of completion of a project is decided at lower level of technical hierarchy. Also, it is usually seen that time is underestimated initially; several case histories would show that the engineering authority succumbs to pressure and underestimate the completion period. In large construction projects, undue haste imposed by administration has led to disasters. The aspect of optimized completion time is not given the attention it deserves. Although a lot of studies are being made and various methods are evolved to check the over-runs, yet it is experienced that most of the project are exceeding the scheduled budget and time. The reasons are many and vary from project to project. A critical analysis of time and cost over-runs of a project might help to improve the management dynamism in general and increase 'cost and time' consciousness, in particular. It might also lead to an understanding of the vivacity of the problems and thus curb the destructive tendency of irrationally arriving at a sensational conclusion on these over-runs.*

Keywords- Cos toverruns; Cost time figures ;hierarchy.

I. INTRODUCTION

Successful management of construction projects is based on three major factors i.e. time, cost and quality. The successful completion of construction projects within the specified program has become the most valuable and challenging task for the Managers, Architects and Engineers. How to achieve this task is a problem, which should be solved. Time and cost are the lifelines of any and every project. The success or failure of any project depends largely on these two factors apart from its quality. They are vital, still they are neglected. India is the tenth largest country in the World and yet her record of implementing major projects has been far from satisfactory. It has been observed very frequently that most of the projects in India ended with extra involvement of time, money and resources. It's a rare scene in construction industry, that a project is completed well within the estimated budget and time and with desired quality.

Technological advances are fast making their inroads into construction as a result of the process of global sharing of experience and wider networking. The New World order has impressed upon us the need for a paradigm shift in approach in construction management and the constituent processes. The involvement of multiple skills, equipment, machineries and materials dependency on number of interrelated activities makes construction a complicated process. And if the industry is largely unorganized as well, the problem is compounded. That is why to manage and successfully coordinate and complete a project is a formidable problem. The client and contractor in a project, although, have a common objective i.e. to complete the project on time. The client in order to utilize the end result of the project, which has a value to him, the contractor in order to terminate indirect expenditure on it as early as possible in order to start further projects. Still, most of the projects cross the limits of time. Delay in completion results in definite increase in cost, because of immense sums held up, which bring no income. In fact, some projects often become uneconomical due to the time and cost overrun. Time or Money used unnecessarily is of course 'time' and 'money' wasted. Hence, an efficient control system must be employed to achieve desired results. Effective and meaningful control must begin at design stage and should be backed up by proper and scientific estimation and data analysis.

II. OBJECTIVES

1. To identify the factors causing time and cost overrun in residential projects.
2. To identify the most influencing factors causing time and cost overrun in residential projects.
3. To compare the results with SPSS software.

4. To find the reliability and to check accuracy of data.
5. Suggest remedial measures to avoid time and cost overrun.

III. METHODOLOGY

The following section presents the steps to achieve the mentioned objectives.

1. In the case study, we will be studying the causes responsible for overruns of a construction project and suggest the probable measures.
2. Analysis of data collected through Literature Review.
3. Data Collection from project authorities. :
   - Key personals involved in Planning, Design & Engineering, Finance, Project Management, Procurement & Materials Management, Contracts Management and Construction.
   - Consultants, Clients, Contractors.
   - Talk with Engineers, Supervisors and sub-contractors.
4. Analysis of the collected data:
   - Tracking the reasons for variances of the project under study, and suggesting measures.
   - Analyse data collected from literatures and projects.

IV. THEORETICAL CONTENTS

Overruns

Whenever, any idea of project is being conceived, it has with it certain concrete advantages and a certain impact on social and economic conditions of the people of our nation. Any type of overrun be it in the form of time or cost, has a negative effect on the socio-economic environment of the society.

Construction projects involve croers of rupees and invaluable human skills. It becomes very important to complete a project in a budgeted cost and fixed time. But in most cases this does not happen. There are so many factors governing a project and it requires very high degree of professionalism and friendly socio-economic conditions to complete a project as per planned. Incidentally, the conditions are not so good in our country and professionalism is in its infant stage. No wonder, our projects are invariably delayed. Cost overruns are very common and so are the wastage of human resources and their time, which are valuable. Thus, benefit stream is also delayed resulting in adverse economic conditions. This is a social crime, which should not happen. All the problems pertaining to such overruns have to be tackled and solved. Any project of national importance involves large resources in terms of men, machinery, materials and money. It is utmost important that these resources are invested with great care in order to create assets not only at the least possible cost in terms of 'money' but also in least possible cost in terms of 'time' in order to produce the goods and services needed so urgently and desperately to Improve the lives of people.

Absence of effective project construction management has been the major factor contributing to serious cost and time overruns for the projects under construction. Considerably inadequacy of delegation of authority at different levels has fed to dilution of responsibility. The intensive motivation, which is essential for competent project management, will have to be generated.

Time And Cost Overruns In Project Implementation

The delays in project implementation, unlike the delays in approval process, results in direct additional costs to the project enterprise raising its capital output ratio. This may not be only due to the price escalation due to delays in investments but also because expenditure once made have to continue throughout the implementation phase. This might result in “dead weight loss” in form of assets licked in the project, it is important to mention that this dead weight loss is not internal to the society because it is not accruing any returns in any form in the economy, but is rather external and thus the society at large has to pay the price of all such assets locked up in the project due to delays. Further, pervasive delays can cause deterioration both physically and economically in the value of such assets and the final landed cost of the project may not only include the cost of completing the project but also cost of restoring the damages caused to the project assets in the years when no construction activity took place.

Reasons for Time and Cost Over-Runs

An Analysis of all the cases shows that the main reasons for the time and cost overrun in construction projects are mostly known and are controllable to a great

The main reasons for time and cost over-runs of projects can be considered in three major groups.

1. Inadequate Formulation

This group coves aspects such as:

- Poor field investigations
- Incomplete and inadequate information

- Bad or deliberately wrong estimation
- Lack of expertise and experience
- Inadequate project analysis
- Omission of project linkages
- Poor appraisal and investment decisions

2. Lack of Proper Implementation Planning

After the investment decision is taken (and in many cases, even while appraisal is underway) but before actual implementation starts, it is necessary to undertake detailed implementation planning covering aspects such as:

- Physical work (activities, quantities)
- Time plan
- Input resources - manpower, materials construction equipment utilities, funds
- Inter-linkages
- Organization and management systems
- Output generation

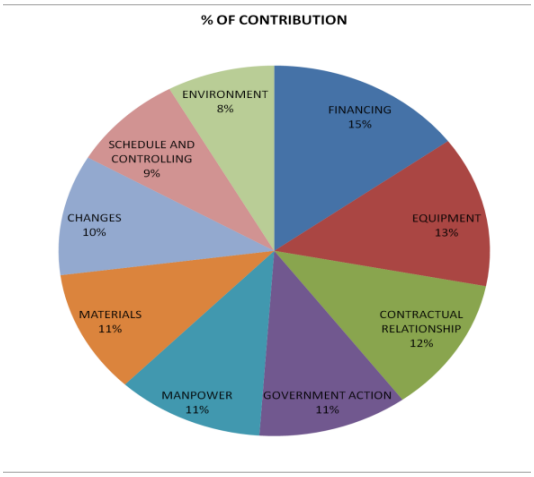
3. Poor Management of Implementation

After detailed implementation planning, the effectiveness of project management lies in execution in accordance with the implementation plan, overcoming the problems coming in the way by necessary corrective action.
The problem areas generally include:

- Delays - actual activity time more than that estimated (e.g. in land acquisition, approvals, clearances from various agencies, design and engineering, civil works, equipment supply, etc.)
- Changes in scope, location, technology, etc.
- Law and order, labour problems
- Failure of inter-linked agencies
- Unforeseeable problems such as natural calamities, excessive rains, draughty'

V. DISSCUSIONS

The following brief discussion is focused on the nine groups of delays:



The study analysed the different aspects of the time and cost overruns in construction projects. Most of the construction projects are facing this problem. The delay in the project execution is not only from the side of the contractor but, it relates to all the parties of the project. Time and cost overrun can occur in any project. It can happen to projects of any type, size, at any place. Any project, if it is left to itself, will overrun. The owner and contractor can then be silent spectators. At least, they may well be silent to begin with, but at the end of the day, when the position is not only apparent but irretrievable, they may well shout a lot: but by then it is too late.

Time and cost overruns can be controlled, but the process is neither a defined nor ready-made for construction projects. There are solutions to every problem, but since construction is a very complex process as it involves a variety of resources and agencies, it makes the task not only complicated but it requires a unique solution every time depending upon the nature, size, location and criticality of the problem. Also the interfaces, the amount of resources involved and required will also have its effect on the control process. Small projects can go wrong in the same way and as easily as large projects. It is only that, the later the project, the higher the stakes. There are more things to go wrong with a large project. There will be a greater number of suppliers, a bigger workforce on the site, complex coordination problems. Small or large, the project will suffer the same fate if the proper approach to project cost control is not adopted.

To control cost and time overrun an effective and meaningful project cost control is required, which should begin even before the design stage and should be maintained by proper and scientific cost estimation and data analysis. A project, which starts with an inaccurate estimate of either time or money, is doomed. Bad estimating in these areas will negate the most painstaking efforts at cost control during

design and construction. Attempts to save money on the estimating and cost control efforts in the early stages of a project will only give renewed force to the old adage: Penny wise, pound foolish. Project cost and time control is not an easy task. It calls for conscientious and consistent effort from the beginning to the bitter end: from the day the project is conceived to the day the last invoicing is cleared and paid. Something easier said than done. With most of the so-called cost and time control procedures, the time and cost that are being incurred are carefully recorded, but not controlled. Recording is of course vital to control, but if that is all that is being done, those running the project the project management team - are in fact blind and helpless, although they may have masses of cost and time information. Effective control of time and cost requires both reporting status a few days after the event and then interpreting the trends. This if well done, results in early warning signals.

VI. CONCLUSION

- This paper identified 50 attributes responsible for impacting performance of the projects. These attributes were then presented to construction professionals in the form of a questionnaire. The study sought the views of clients, consultants, and contractors on the relative importance of the factors that cause delays in residential projects in Pune.
- From the Study most influencing factors causing time and cost overruns are as follows: Shortage of materials , Obtaining permit from municipality , Irregular flow of finance, Delay in decision making, Late deliveries of materials, Legal disputes, Shortage of skilled labor, Delay in releasing payment, Poor design, Poor site management, Poor professional management.
- After comparing the results with SPSS Software, the Cronbach's Alpha value obtained is 0.917 which is well above 0.7. Thus the questionnaire is proved to be reliable.
- The Strong correlation is observed between two parties using SPSS software.
- However the better formulation and appraisal of projects, sound implementation planning, timely decision making, advance action, good coordination between different parties, deliveries of materials on time, assurance of funds resources, better contract management, penalties and incentives, good monitoring and management techniques and definitely provides some clues for the remedial steps.

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