

AN ANALYSIS ON TIME OVERRUN AND COST OVERRUN IN CONSTRUCTION PROJECTS

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ABSTRACT

Activity delays are a common issue in the construction industry and can increase project schedules and costs. Recent research efforts have focused on the quantitative evaluation of delay impacts. The literature suggests that the construction industry is in need of additional research to systematically relate the causes of delays to their impacts. To overcome this limitation, this paper will analyze delay causes in activities that were not completed as scheduled. The study will recommend owners, contractors, and consultants to hold their responsibilities to avoid any delay or cost overrun which could be achieved by good management of the project and finding new methods for storing the needed materials from the beginning of the project. In the present study, possible reasons for the overruns are identified and verified through a questionnaire survey with construction officials to identify the critical reasons for the cost and time overruns. Statistical study used in the proposed study involves multivariate analysis. From the study the factors affecting the cost and the time overruns will be analyzed. Based on the study, recommendations will be given to the construction industry personnel.

I INTRODUCTION

GENERAL

Project success can be defined as meeting goals and objectives as prescribed in the project plan. A construction project is usually considered successful if it is completed within its time, budget, and quality targets. One of the main duties of the construction project manager is to ensure that the project does not exceed its allotted cost and time frames despite claims. A successful project means that the project has accomplished its technical performance, maintained its schedule, and remained within budgetary costs. Delays and cost overruns have significant implications from economic as well as political point of view.

Due to delays in project implementation, the people and the economy have to wait for the provisions of public goods and services longer than is necessary. Thus, delays limit the growth potential of the economy. Similarly, cost overruns reduce competitiveness of the economy. Services provided by infrastructure projects serve as input for other sectors of the economy.

Cost overruns in these projects lead to an increase in the capital-output-ratio for the entire economy. Simply put, delays and cost overruns reduce the efficiency of available economic resources and limit the growth potential of the entire economy. Moreover, at least as of now, most projects in India are funded by taxpayers' money. Therefore, taxpayers have right to know about how efficiently their money is utilized by officials while making provisions of public goods and services. In the absence of proper identification and understanding of the

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underlying causes behind delays and cost overruns, there is a risk that the perceptions will take over and misguide the policy making. For instance, the perception that the public sector is incapable of delivering public goods in time and on cost, may lead to excessive privatization of infrastructure and other public services. Indeed, inadequacy of research on the subject is somewhat surprising and a gross neglect of an important public policy subject.

Activity delays can negatively affect several dimensions of construction-project performance. Delays can lengthen schedules, increase project costs, and jeopardize quality and safety. Delays are one of the most common problems that affect the competitiveness of construction companies and the interests of all stakeholders, including owners, designers, general contractors, subcontractors, users, and others.

Project management tools and techniques play an important role in the effective management of a project. Therefore, a good project management lies in the management tools and techniques used to manage the project. Project management involves managing the resources—workers, machines, money, materials and methods used [1]. Some projects are effectively and efficiently managed while others are mismanaged, incurring much delay and cost overruns.

II REASONS FOR DELAYS

- Lack of knowledge and awareness about project performance
- The distribution of delay and cost overruns responsibilities between the three parties (contractors, consultants and owners);
- They believe that the political condition is the main reason of this problem.
- Mathematical errors-transcribing, pressing wrong keys, omissions and miscalculations
- Plans and specifications-errors, omissions, vague drawings and scope in the plans and specifications
- Estimators inexperienced in the field of expertise, estimating programs and unique bid requests by the client
- Lack of knowledge by the contractor in new locations
- Conditions unknown to the contractor
- Requests by client clearly not within the scope of work
- Client failure to fulfill commitments according to specifications

Time overruns

Time overruns is defined as the extension of time beyond planned completion dates Traceable to the contractors. Time overruns is the difference between the actual completion time and the estimated completion time. It was measured in number of days. Thus Time overruns is defined as the time increased to complete the project after planned date which caused by internal and external factors surrounded the project.

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Cost overruns

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

III OBJECTIVE OF THE STUDY

- The aim of the research is to investigate the causes of delays and cost overruns on construction projects.
- To identify variables influencing construction time and cost overruns and to evaluate their relative importance.
- To find out the impact of overruns on the stakeholders, especially the client.
- To investigate the collective group perspectives on the relative significance of these factors from owner, consultant, and contractor point view.
- To identify the various factors influencing cost overrun at pre-construction and construction phases of projects.
- To suggest remedial measures in terms of modifying strategies, practices and procedures, organizational structure, contract agreement.

IV LITERATURE REVIEW

General

This chapter describes the literature review on time overrun and cost overrun in construction projects.

Causes of time overruns (delay)

Time overruns (delays) can be divided into three categories:

1. Those over which neither party to the contract has any control;
2. Those over which the owner (or his/her representative) has control;
3. Those over which the contractor (or any subcontractor) has control.

The predominant factors influencing time overruns/delays are design changes, poor labour productivity, inadequate planning and resource shortages.

Contractor's responsibility

The factors that related to contractor's responsibility are; delay in delivery of materials to site; shortage of materials on site; construction mistakes and defective work; poor skills and experience of labour; shortage of site labour; low productivity of labour; financial problems; coordination problems with others; lack of

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subcontractor's skills; lack of site contractor's staff; poor site management; and equipments and tool shortage on site.

Consultant's responsibility

The factors that related to consultant's responsibility are; absence of consultant's site staff; lack of experience on the part of the consultant; lack of experience on the part of the consultant's site staff; (managerial and supervisory personnel); delayed and slow supervision in making decisions; incomplete documents; and slowness in giving instructions.

Owner's responsibility

The factors that related to owner's responsibility are; lack of working knowledge; slowness in making decisions; lack of coordination with contractors; contract modifications (replacement and addition of new work to the project and change in specifications); and financial problems (delayed payments, financial difficulties, and economic problems).

Pablo Gonzalez et al (2013) conducted a study of "Analysis of causes of delay and time performance in construction projects". Author(s) analyzed that Planning and subcontracts reason for non compliance was the most frequent delay causes and has also the larger impact in terms of time performance. The analysis carried out by conducting case studies on two different projects and listed the quantitative (time performance) and qualitative (delay causes). The case study results suggested that the two indicators RNC and DI are plotted in a graph and the average weight of the RNC gives the relationship of delay and its time performance. By this methodology we can improve the time performance and reduce the causes of delay. Further research should focus on improvement of methodology and evaluate assumptions related to estimating delays for more dynamic planning processes.

Yaw Frimpong et al (2003) conducted a case study on "causes of delay and cost overruns in construction of groundwater projects in a developing countries; Ghana". Author(s) conducted a questionnaire survey to identify and evaluate the relative importance of the significant factors contributing to delay and cost overruns in Ghana groundwater construction projects. Three different groups conducted the survey and results were ranked. According to the survey results monthly payment difficulties were ranked first and it leads to both cost and time overruns. Other factors are material procurement, poor management, bad weather, unexpected natural events etc and recommendations were developed according to the factors to reduce the cost and time overruns in projects.

Long Le- Hoai, Young Dai Lee and Jun Yong Lee(2008) did work on "Delay and cost overrun in Vietnam large construction projects: a comparison with other selected countries" This research has employed a questionnaire survey to elicit the causes of this situation by interviewing 87 Vietnamese construction experts. Twenty one causes of delay and cost overruns appropriate with building and industrial construction project were inferred and ranked with respect to frequency, severity and importance indices. Factor analysis technique was applied to categorize the causes, which yielded 7 factors: Slowness and Lack of constraint; Incompetence; Design; Market and Estimate; Financial capability; Government; and Worker. By administering and analyzing a

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questionnaire survey, this research has identified problems related to delays and cost overruns during construction phase and then ranked them from different viewpoints of parties with respect to three types of indices. In overall context, poor site management and supervision, poor project management assistance, financial difficulties of owner, financial difficulties of contractor; design changes are five most frequent, severe and important causes. From these results, again, it is noted that most causes of delay and cost overrun of construction project relate to the human and management problems. Improving ability of managers, engineers working in VCI is necessary and emergent.

V Data collection and Analysis

The data collection is nothing but identifying the data's required for the project from literature reviewed. The data's are collected according to the factors affecting the time and cost overruns in several types of construction projects. The data's are analyzed and are shortlisted according to the hierarchy order.

Design of questionnaires

From literature review it has been assembled around of (30) factors which affect the time and cost overruns in engineering projects in various countries around the world and at intervals of time, but not all of these factors are consistent with the conditions and circumstances from economic level, the type of projects, geographical region and occupation factors which experienced the location of the project. Modifications and new questions then added as a result of interview of experienced construction managers to suit the local construction industry.

Questionnaire approach

A questionnaire was developed to assess the perceptions of owners, consultants, and contractors due to the importance index of causes and effects of delay in construction industry. Factors influencing time and cost overruns in construction projects in were first examined and identified through a relevant literature review and by conducting a pilot study that sought advice from experienced construction practitioners.

Distribution of questionnaires

Questions are distributed for fill the questionnaires. The demolition companies are selected randomly based on the availability of contractor, owner and consultant.

Based on literature this project needs to attain minimum of 80 respondents. So around 30 companies will be selected and approached for distribute the questions. Later the questionnaires are collected from company and thus analyzed.

VICONCLUSION

The problems for the causes of overruns in cost and time in construction projects are identified through literatures reviews. Also the factors affecting the delays and costs are examined. The resulted data from literature reviews are ordered and formed a questionnaire. Thus the questions will be helpful in conducting

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survey in construction industries and the respondents. From the questionnaire survey the data's are collected and analyzed by multivariate analysis.

Future work

- ▶ Approaching company for survey
- ▶ Validation for questionnaires
- ▶ Distribution of questionnaires to companies.
- ▶ Collection of answered questionnaires will take place.
- ▶ Analysis by multivariate method will be done.
- ▶ Result and discussion will be made.
- ▶ Recommendations will be given

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