

# A Review on “Delays in Construction Projects & Its Resolution”

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**Abstract**— Building construction project in Amravati construction industry are experiencing a wide spread of delays. Delays are unique one in every of the largest issues construction companies are facing today. Delay analysis is either ignored or done subjectively by simply adding a contingency as a result to meet schedule deadlines many projects fails and which ultimately slow down the national development. For the development of an economy it is one of the sectors that provides important ingredient. It is considered one of the recurring problems and has an adverse effect in terms of time, cost and quality. The causes and effects of delays in residential construction projects are identified in this report. The causes of delays assessed using Relative Importance Index (RII) so as to rank the factors. Questionnaire was prepared to collect the data and circulated to Client, Contractor and Consultant. Analysis of data collected is done by SPSS Statistics V24 and results, conclusion are stated in this report.

**Keywords:** Causes Of Delays, Time Overrun, Cost Overrun, Relative Importance Index (RII), Statistical Package for Social Science (SPSS), Cronbach's Alpha, Spearman's Correlation

## I. INTRODUCTION

Civil engineering projects are prolonged and complicated for planning, implementation & execution besides this the project is stood for quality and economy. The project has two faces one is internal project team and another is surrounding of project. Surrounding of projects includes contracting, procurement and social issues.

Project as the whole is said to be sound when it tolerates the surrounding face. The project internal face is entirely depending upon the managerial team and their work. The objectives of the project are interrelated to each other along with facing surrounding face. Besides this the time is one of the most important factor responsible for project performance and efficiency and employer and the contractor are to separate bodies stick with the time performance success of project is directly proportional to gain of project objectives and those are achieved only by completing projects in the time along with assuring the economy and quality thus it's the terminating results that the time planning and awareness is important in construction projects however most of the construction projects fail to recover time related issues and mostly delayed thus delays in construction projects are often said common but it affects the projects incur along with the interference of disputes and claims effectively causing disruption of work and loss of productivity sound project demands for good managerial team which is co-operated with surrounding and internal face and thus the sound project merely cause delay and overrun. The good practice for such sound project only requires well planned programs and absolutely perfect execution.

## II. OBJECTIVES OF STUDY

- The main Aim of this study is to know about delay in some types of construction projects & to prepare preventive resolution system.
- Identifying the main causes of delay in construction projects from the point of view of contractor and consultant.
- Develop a model to evaluate the top five causes of delay in construction projects.
- Publish the developed model for further fine turning.
- Improvisation of the developed model by adopting the feedback received.
- Summarize the results & descriptions of factor causing delay.
- Study and apply techniques of resolution by management and recommendations.

## III. LITERATURE REVIEW

Assaf and AlHejji (2006) conducted a time performance survey of different type of construction projects in Saudi Arabia to determine the causes of delay. They identified 73 causes of delay during their research.

Fugar, F.D.K et al. (2010) have identified 32 major delays in Ghana and calculated rank of delay using Relative Importance Index (RII) and grouped in to 9 categories. The result shows that financial group factors ranked highest among the major factors causing delay in construction project.

Aedwin Warghese (2015) with the pilot survey response. Cronbach's alpha ( $\alpha$ ) is the most common measure of internal consistency or reliability. The test was conducted with the help of SPSS software and  $\alpha$  value obtained was 0.99 which is 0.7 and proved questionnaire is to be reliable.

Desai Megha (2013) has done data accuracy check using non parametric test by calculating Spearman's rank correlation coefficient and results shows that it imply good correlation between the rankings of two parties for the single cause of the delay.

Ayman (2000) investigated the causes of delays on 130 public projects in Jordan. The projects included residential, office and administration buildings, school buildings, medical centres, and communication facilities. The results indicated that the main causes of delay in construction of public projects relate to designers, user changes, weather, site conditions, late deliveries, economic conditions, and increase in quantity.

Odeh and Battaineth (2001) reported that among the top ten most important causes of delays in construction projects with traditional type contracts in Jordan were, from the view point of contractors and consultants: owner

interference, inadequate contractor experience, financing and payments, labour productivity, slow decision making, improper planning, and subcontractors.

Sambasvian and Soon (2007) identified the delay factors and their impact on project completion in the Malaysian construction industry. The results indicated that the ten from a list of 28 different causes of delay were: (1) contractor's improper planning, (2) contractor's poor site management, (3) inadequate contractor experience, (4) client's inadequate financial resources and payments for completed work, (5) problems with subcontractors, (6) shortage in material, (7) labour supply, (8) equipment availability and failure, (9) lack of communication between parties, and (10) mistakes during the construction stage.

Alaghbari et al. (2007) indicated that from a list of thirty-one (31) factors, clients, contractors and consultants agreed that financial problems were the main factors and coordination problems were the second most important factor causing delay in construction projects in Malaysia. This review has underscored that the factors that cause delay in construction projects are many and vary from country to country and from one circumstance to another.

#### IV. METHODOLOGY

The research methodology contains a literature review and questionnaire survey. The literature review was conducted through paper published books, conference proceedings, internet and international project management journals. As the outcome of this literature review 32 causes of delay for residential projects were identified. Present study suggests different techniques for ranking of causes of delays. In this report, Relative Importance Index (RII) was used to calculate each cause of delay.

The research methodology has been divided into following stages:

- 1) Formulation of objective of study
  - a) Collection of references includes journals, technical reports and books.
- 2) List out the factors causing delay
  - b) a. To address the most contributing factors and effects of delay.
  - c) All factors and effects will be identified by expert advice from professionals.
- 3) Preparation of questionnaire
  - a) Making of questionnaire
  - b) Developed questionnaire then distribute to the targeted respondent.
- 4) Data collection and analysis
  - a) Data collection and analysis based on RII method to rank the factors.
  - b) Spearman's rank correlation to test the agreement between the groups.
- 5) Results and discussion
  - a) To identify the important factors and effects of delay in residential project.
  - b) To identify the relationship between causes and effects of delay in residential projects.
  - c) Methods of minimizing construction delay.

#### V. EXPECTED CONCLUSION

The study can be concluded as:

The study sought the views of clients, consultants, and contractors on the relative importance of the factors that cause delays in residential projects in Amravati. The Cronbach's Alpha value 0.893 is obtained 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. The study showed that all the groups of respondents generally agreed that out of 32 delay factors the top 10 influencing factors in causing delay arranged in descending order of importance are:

- Shortage of materials
- Obtaining permit from municipality
- Late deliveries of materials
- Legal disputes
- Shortage of skilled labor
- Delay in releasing payment
- Poor design
- Underestimation of time for completion by contractors
- Poor site management
- Poor professional management

The 32 factors were categorized into nine major groups and were ranked. The results show that financing group of delay factors was the most influential factor. Equipment factor were second most important factor causing delay in residential construction projects followed by contractual relationship factors.

#### VI. RECOMMENDATION

##### A. Consultant Related Recommendations

Consultants should ensure that all design changes during the execution of the works are handled explicitly while not compromising the desired outcome of the final project.

- Any design errors made by consultants must be immediately rectified to avoid delays in the progress of works.
- The consultants should ensure that adequate site investigations are carried out both during feasibility study and conceptual design so as to ensure that appropriate measures are taken care of during the detailed design so as to avoid suspension of works during the construction phase to address the design challenges.

##### B. Contractor Related Recommendations

- Contractors should pay particular attention to the requirements of the assignment during the pre-contract and bidding period so as to go for works that they have competitive advantage.
- Contractors should ensure that they have enough cash flow to execute the works and desist from the practice of diverting particular project funds to non-project activities to avoid being cash-strapped during the execution of the works.
- The contractors should ensure that they have adequate experience for a required assignment, deploy competent project team and employ appropriate construction methods for the required assignment

C. *Client Related Recommendations*

- Clients must ensure that their demand in design changes during the construction period should have no adverse effects on the critical activities so as to avoid causing delays.
- Clients should ensure that proper planning and costing of the works are made during the pre-contract period so as to avoid intermittent stoppage of works as a result of funding constraints since this not only increases the construction period but also impacts on the contractors overhead costs and costs associated with mobilization and demobilization during the period within which the works were suspended.
- Clients should ensure that interim payment certificates are paid in time within the stipulated time-frame so as not only to avoid having interest penalty clauses invoked, but also to facilitate the progress of works to ensure timely completion.

D. *External Related Recommendations*

- All project stakeholders should work together and ensure that all disputes are mitigated during the construction period so as to avoid prolonging the planned executing time during the litigation process.
- All stakeholders should ensure that proper planning must be done to cater for unforeseen events that may prolong the construction period, increase cost and cause damage to property and injury to project participants. Such risks should be transferred to competent stakeholders like insurance companies so as to help reduce the effect of costs in the event of delay occurrence.

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