

# Critical Factors Affecting Quality in construction

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## **Abstract:**

Construction Industry is one of the developing industries compared with other industries that has a great impact on the economy of any nation. Quality is considered as an important concern for project managers. Quality issues are a very disturbing event for a civil engineer. In this context, owners and engineers are alarmed by quality issues which have become more common than one can anticipate. The identified factors from the literature are time management, availability of resources, financial issues, labours, environmental conditions, materials and equipment used, lack of safety, co-ordination of participants, design, lack of communication, selection of contractor, inspection, codes and standards, execution and top management support. Based on the identified factors a questionnaire survey was conducted to collect opinion from the construction experts. Then based on the survey, the identified factors were ranked by Pareto analysis.

**Keywords — Construction industry, quality assurance, time management, availability of resources, Pareto analysis.**

## **I, INTRODUCTION**

It is a subjective term for each person or sector has its own definition. In technical usage, quality can have two meanings:

1, The characteristics of a product or service that bear on its ability to satisfy needs,

2, A product or service free of deficiencies. It can also be defined in many ways are quality means fitness for use, quality means meeting the customer expectation.

A quality improvement or self-improvement study group composed of a small number of employees and their supervisor. The Quality circles introduced in Japan, hence it known as quality control circles.

The managerial process which determines the organization's design, resources, funding agencies, performance standards, appropriate actions for promoting quality awareness at all levels of project organization.

## **II, IMPORTANCE OF STUDY**

- Quality is playing a pivot role during the construction phase of the project.
- It is noticed that there are a number of problems in the construction industry caused by bad quality control, and the situation seems to get worse.
- Understand the quality criteria for the building construction projects and its impacting factors will make it possible to handle the quality problems much better.
- Failure of many contracting firms happened due to these problems.

## **III, LITERATURE REVIEW**

**Priyanka et al (2014)** in "Study on Factors Influencing Construction process performance" involved into a collection of various factors which affects the performance in construction industry and analysis the factors using SPSS software. Based on the result, the ranking and selection of major

factors contributing the construction process performance were identified. Finally, it is revealed that the significant factors affecting quality are occurrence of meeting, environmental risks, working hours, material delay, and labour shortage, coordination, checking inventory level, resource delay, coordination and safety precautions.

**Wesaw Salah Alaloul et al (2015)** in “Identification of coordination factors affecting building projects performance” stated that coordination process is an efficient solution for weak performance of construction projects. This study involves identification of coordination factors which influence the performance of building projects in Malaysian context and based on literatures 53 factors were identified. The most effective factors resulted are quality assurance plan, parties participation in plan and scheduling. The ranking was done by Relative Importance Index method.

**David kumar et al (2015)** did a study on “A Study on Factors Influencing Quality of Construction Projects” to provide clients, project managers, designers, and contractors with necessary information needed to better manage the quality of a construction building projects by identifying the factors that affect process quality of construction projects and to rank them by degree of importance. From literatures, the major factors identified from the literature survey are, Design, Lack of communication, Conformance to codes and standards, Selection of designer, Co-operation of parties, Management factors, Selection of contractor, Top management support, Labour, Work execution, Material, and Equipment.

**HemantaDoloi (2013)** in “Cost Overruns and Failure in Project Management: Understanding the Roles of Key Stakeholders in Construction Projects” analysed that By performing an in-depth analysis of the roles and responsibilities of these key stakeholders,

this research is intended to unfold the industry wide perception of cost performance being heavily reliant on the contractor’s performance alone. Based on the reliability of the dataset and robustness of the analysis methodology, the author’s research revealed some degree of clear contrast on the most significant factors from previously published research, and provides an opportunity for understanding the perceived shift of industry practices in construction projects.

#### **IV, RESEARCH METHODOLOGY**

The methodology is framed according to the goal of the project. From the factors the prepared questionnaire is distributed into owners, consultants, Supervisors and contractors.

From the responses collected based on the survey the identified factors were ranked by pareto analysis. The results of the analyses will help us to identify the critical factors which are affecting the quality in construction.

#### **V, ANALYSIS AND RESULTS**

##### **QUESTIONNAIRE ANALYSIS**

From literature studies, 15 factors were identified and a total of 75 questions were prepared as 5 questions for each factors. The questionnaires were distributed to around 43 companies in and around Trichy. The questionnaires were distributed to owners, contractors, consultants and supervisors in various companies. As a result, 25 respondents were obtained. From the questionnaire survey, the percentage variations between the factors were calculated and the top most influencing factors are identified.

##### **DATA ANALYSIS**

The percentage of respondents and the variations between various factors. According to the questions, the not agree factor has to be

taken into account, whereas it has very low percentage and is negotiable and less agree is taken for calculating results.

### 1, SAFTY MANAGEMENT

Benefits of safety and health may include: less injuries, less property damage, improvement in morale, less down time. Most of the accidents on construction sites were preventable through implementation of an effective safety program. Although an effective safety program can prevent for reduce injuries.

### 2, TOP MANAGEMENT

In top management technical, financial, social, and economical issues were highly affects the management. Lack of systematical approach and knowledge ability to manage the project and entire organisation

### 3, COORDINATION OF PARTICIPANTS

Construction projects performance requires improvement to fulfil the complexity of the stakeholders needs and expectations. Therefore, coordination factors are vital in ensuring a successful implementation of project.

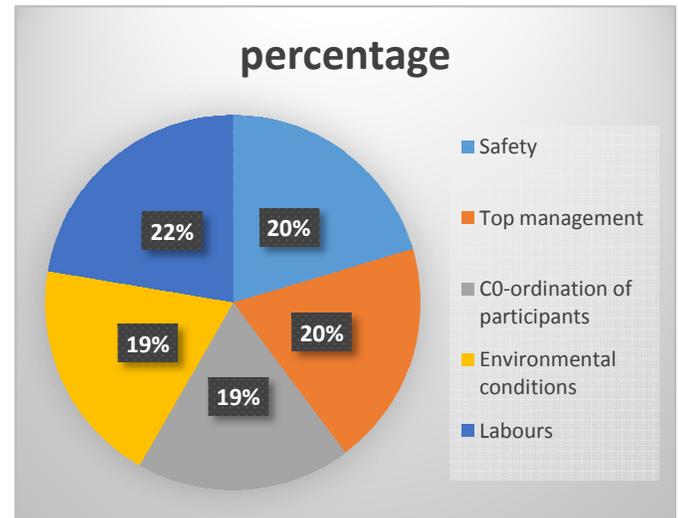
### 4, ENVIROMENTAL CONDITION

It includes everything outside the project - Climate, Materials, Technology, Location, Economy, Politics, Client and so on. The lesser the predictability of the Environment the more its effects on the Construction.

### 5, LABOUR MANAGEMENT

Improvement of labour productivity who are responsible for material handling, cost control of construction facilities, which includes shop fabrication, inventory and procurement.

## PERCENTAGE VARIATION OF FIVE FACTOR:



## VI, CONCLUSION

Quality planning is required for any projects where recognized local, national or international standards Quality planning must be practiced along with other key planning processes.

From the above findings, the study concluded the Pareto chart for the fifteen factors in which the factors are ranked based upon the cumulative percentage as Labours, Safety, Top management, Environmental conditions, Co-ordination of participants, Contractor, Inspection, Execution, Codes & standards, Availability of resources, Time management, Financial issues, Materials & equipment used, Design & drawings and Communication.

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