# QUALITY ASSURANCE IN CONSTRUCTION INDUSTRY

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## ABSTRACT

Construction industry plays a vital role in the country's development .. Quality plays an important role in the success of construction projects. Quality management in the project lifecycle is influenced by the improvement of quality . Even though quality management in every phase of the project life cycle is important, its incorporation in the execution stage of the project is very much important in the development of the construction industry. This study mainly focuses on the importance of quality management in the construction industry and the factors which influence the implementation of quality management , determination of the critical factors that affect quality and framing questionnaires based on the critical factors . The study also included the distribution of questionnaire to various companies and conducting the questionnaire survey at different levels of management and collection of responses . Further the responses were analyzed using the Statistical Package For Social Science (SPSS) software . SPSS is a software package used for Statistical Analysis . It is used by various organization for the data management and the data documentation .

# *Keywords : SPSS , Quality Assurance , Quality Awareness , Quality Commitment , Quality Compliance*

### I. INTRODUCTION

Comprehensively, development industry is one of the biggest supporters of the Gross Domestic Profit (GDP) of any nation. The development ventures has expanded quickly in the current years, mirroring the enthusiasm of private and open area putting more subsidizes into property advancement. As the venture has expanded the desire of value item has additionally expanded. Presently quality administration has turned into a fundamental piece of development. Recognizing the quality issues in development and expanding interest for quality items, particular directions to the usage of the Quality Management System have been encircled. ISO 9001 benchmarks were set up for this reason.

Quality is one of the basic factors in the accomplishment of development ventures. Nature of development ventures, and also venture achievement, can be viewed as the satisfaction of desires (i.e. the fulfillment) of the undertaking members. Quality, cost and time have been perceived as the principle factors concerning the customer. Nonetheless, for the greater part of undertakings, the cost and time parameters are the fundamental pre involving factors for

### construction .

Clients are requesting expanding levels of nature of the items gave to them. They expect more elevated amounts of value and are getting to be narrow minded of low quality. To fulfill clients and to be focused, administrators need to discover financially savvy approaches to constantly enhance the nature of their items. The impact of value administration in any association is straightforwardly proportionate to benefit and consumer loyalty. A decent quality administration framework will diminish lacks which will cut down the cost and increment consumer loyalty. Associations rely upon their clients and in this manner ought to comprehend present and future needs, meet their prerequisites and endeavour to surpass client desires. The test for an association that looks to end up an aggregate quality association is to accomplish a zero hole between client desires and execution or to convey an item or administration that surpasses client desires.

### **II.OBJECTIVE OF STUDY**

- To identify the performance of companies regarding construction quality.
- To compare the quality of construction in Government and Non-Government Organization
- To determine whether there is significant difference between these companies and provide recommendations to the Low Performing companies.

### **III. METHODOLOGY**

The literatures related to the study was collected and studied. The most important factors related to quality were identified and was used for framing the list of questionnaires. The questionnaire was distributed among several Government and Non-Government organization among different management levels and responses were collected. The collected data was analyzed using SPSS and critical factors factors were identified using means.

### **IV. FACTORS IDENTIFIED**

The factors identified from literatures are as follows :

- 1. Top Management Commitment
- 2. Customer Satisfaction
- 3. Customer Focus
- 4. Communication
- 5. Material
- 6. Human Resources
- 7. Training
- 8. Workmanship
- 9. Construction

## V. ANALYSIS OF DATA

The data is analyzed using SPSS. At first Reliability test was conducted and then frequency analysis was done among each groups. Further mean was found for each questions and they are ranked based on their importance.

### 5.1 Reliability Analysis

Reliability test was done in SPSS tool to find out the internal consistency. Cronbach's alpha is the most common measure of internal consistency ("reliability"). It is used to determine if the scale is reliable. Reliability is the overall consistency of a measure. In this study, reliability test was performed to determine whether the questionnaires are reliable or not. This test was done after the data collection from various respondents; from various companies. If the reliability value is below the limit then the questions are said to be unreliable or invalid for this study. If the result value of this test is above the limit, then only the collected data can be used for other test purposes.

In this study the Cronbach's Alpha value was 0.964 which is greater than 0.9 .It means excellent and the data can be used for further analysis .

TABLE I

Cronbach's Alpha Value

Cronbach's	Cronbach's Alpha Based	No of
Alpha	on Standardized Items	Items
.964	.965	60

### 5.2 Frequency Analysis

The study of quantitatively describing the characteristics of a set of data is called descriptive statistics. Frequency Analysis is a part of descriptive statistics, frequency (or absolute frequency) of an event is the number of times the event occurred in an experiment or study. Frequency Analysis is an important area of statistics that are often graphically represented in histograms.

*Frequency For Type Of Organization:* Frequency Test was conducted for types of organization and it shows that out of 60 responses, 30 were from Government Organization and 30 were from Non-Government Organization.

# TABLE III

### Frequency For Organization

Туре	Frequency	Percent
Government	30	50
Non-Government	30	50
Total	60	100





Fig. 5.1 Type Of Organization

*Frequency For Age:* From this result, we come to a conclusion that, more number of samples were collected from the age group ranges from 31 - 40. Out of 60 samples 21 samples were from the age group of 31- 40, their point of view; regarding the quality culture in Government companies and Non-Government companies are more in this study.

#### TABLE IIIII

Frequency For Age Group

Age	Frequency	Percentage
Less Than 30	20	33.3
31 - 40	21	35
41 - 50	13	21.7
More Than 50	6	10
Total	60	100



Fig. 5.2 Age

*Frequency For Gender:* From the result we come to the conclusion that more number of samples were collected from male group compared to female group. Result indicates that out of 60 samples **40** samples were from the male group.

#### TABLE IVV

#### Frequency For Gender

Gender	Frequency	Percentage
Male	20	33.3
Female	40	66.7
Total	60	100



#### Fig 5.3 Gender

*Frequency For Experience:* From this result, we come to a conclusion that, more number of samples were collected from the respondents whose experience ranges from 6-10 years which has a frequency of **23**. The figure indicates that out of 60 samples 23 samples were from the group respondents ranges from 6 - 10, their point of view; regarding the quality culture in Government companies and Non-Government companies are more in this study.

#### TABLE V

#### Frequency For Experience

Experience (Yrs)	Frequency	Percentage
Less Than 5	21	35
5 - 10	23	38.3
10 - 20	8	13.3
More Than 20	8	13.3
Total	60	100



Fig 5.4 Experience

### 5.3 Ranking Based On Means

Based on the means of the responses , the factors are arranged in the descending of their importance in the implementation of quality .

#### TABLE V

#### Means Of Responses

			Std.
	Ν	Mean	Deviation
Q7	60	4.03	.712
Q3	60	4.02	.813
Q31	60	3.97	.758
Q13	60	3.95	.790
Q26	60	3.93	.800
Q27	60	3.92	.850
Q28	60	3.92	.809
Q21	60	3.92	.889
Q19	60	3.90	.896
Q8	60	3.88	.885
Q6	60	3.87	.999
Q15	60	3.85	.936
Q14	60	3.83	.827
Q29	60	3.82	1.017
Q17	60	3.80	1.022
Q18	60	3.80	.971

Q4	60	3.78	.922
			Std.
	N	Mean	Deviation
Q20	60	3.77	.810
Q5	60	3.75	1.035
Q2	60	3.72	.783
Q24	60	3.63	.863
Q23	60	3.62	1.027
Q10	60	3.62	1.010
Q25	60	3.60	.785
Q30	60	3.60	.827
Q9	60	3.55	.982
Q22	60	3.53	.947
Q1	60	3.50	1.017
Q12	60	3.48	1.112
Q16	60	3.48	1.097
Q11	60	3.45	1.032

From the result, we can conclude that Q7 i.e. Appointing Experienced Personnel is given most importance followed by Quality Maintenence At Site. Least importance is given to providing facilities like toilets, foods, rooms to workers and Receiving Customer Comments and Considering their Requirements.

## **VI.CONCLUSION**

From the following study we can conclude that , the Cronbach's Alpha value obtained from the Reliability test was 0.964 which means it has excellent internal consistency and suitable to carry out further tests . From the test we can conclude that Appointing Experienced Personnel is given most importance followed by Quality Maintenence At Site . Least importance is given to providing facilities like toilets , foods , rooms to workers and Receiving Customer Comments and Considering their Requirements . So it is recommended to provide basic facilities to the workers at site so that they can work comfortably and taking care of Customer's requirements should also be given more importance for a better Quality Assurance at site .

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