Comparative Study on Quality Management System in Construction Site

Priya Thersia Abraham, Anu.V.V

Abstract— *Quality management system (QMS) that focuses mainly on customer satisfaction contributes collective assistance and necessities for forming an appropriate quality management procedure, in order to reduce the cost. In construction industry, it assists the companies to achieve their objectives, and ensures that all stages of construction project consistently meet the quality requirements. This study aims at comparing the overall quality and quality cost in order to access Quality management system. Thereby it effectively reduces the overall cost of the project without affecting the quality. Process Cost Model and Cost of Quality acts as the most imperative tools for the comparative study. A 'Process Cost Model' projects the mechanism for measuring the quality expenses of construction projects. The quality costs in the PCM are called process costs, which can be divided into two parts: the costs of conformance (COC) and the costs of non-conformance (CONC). The cost of quality management system is mainly used for assessing, monitoring, scheming and conforming to a decision which enhances the business profitability. Quality is the subtle factor for the success of construction projects.*

Index Terms— *Quality Management System, Process Cost Model, Cost of quality, Cost of conformance, cost of non conformance*

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1 INTRODUCTION

Quality is one among the major aspect for the accomplishment of construction projects. In structure related projects the satisfaction of the customers as well as the project participants are given prime importance. Quality, Cost and Time tends to be the chief concern of the client. Quality management system (QMS) could be instigated at the company level and at the assignment level. Applicability of Quality Management System (QMS) in the construction industry is in fact numerous. From the viewpoint of a construction company, quality management system means sustaining the quality of construction works following the needed norms thus to obtain customer's satisfaction that would fetch long term competitiveness and business endurance for the companies. This study aims at comparing the overall quality and quality cost in order to access Quality management system. To assess how quality has been managed and to identify the problem areas. And Moreover to attract the attention towards the presence of unplanned costs and the cost of failure.

2 STATEMENT OF PROBLEM

Quality Management System (QMS) have many applications in the construction industry. QMS could be implemented either at the company level or at the project level

From the perspective of a construction company, quality management in construction projects should mean maintaining the quality of construction works at the required standard so as to obtain customer's satisfaction that would bring long term competitiveness and business survival for the companies. Quality management system (QMS) that focuses mainly on customer satisfaction contributes collective assistance and necessities for forming an appropriate quality management procedure, in order to reduce the cost. Quality management is a significant constituent as far as affluent management of construction projects are concerned. In construction industry, it assists the companies to achieve their objectives, and ensures that all stages of construction project consistently meet the quality requirements. This study aims at comparing the overall quality and quality cost in order to access Quality management system.

3 OBJECTIVES

To conduct comparative study between Process Cost Model (PCM) as well as Cost of Quality (COQ) and finally to reduce most cost effective method.

4 SCOPE

- To assess how quality has been managed and to identify the problem areas.

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- To attract the attention to the presence of unplanned costs and the cost of failure.

5 METHODOLOGY

The methodology adopted for the present survey is illustrated in Fig.1

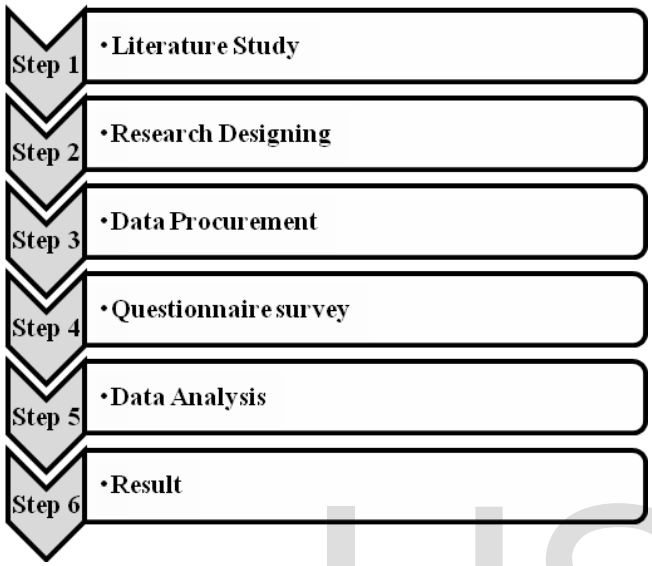


Fig. 1 Methodology of work.

6 LITERATURE SURVEY

According to AbdulAziz et al. (1999), quality systems involve internal and external aspects. An internal quality system covers activities aimed at providing confidence to the management of an organization that the intended quality is being achieved. This is called a "quality management system".

S.L.Tang et al, A 'Process Cost Model (PCM)' has been proposed for measuring the quality costs of construction projects. It is simple and more feasible in construction projects. The current paper describes two case studies using the PCM to capture quality costs on two construction projects. It is possible to use the model to achieve the quality costs of a particular construction process.

P.P.Mane et al, The best quality, time and cost are the important aspects of successful construction project which fulfills the main goal of construction industry. The quality management system (QMS) in construction industry includes quality planning, quality assurance and quality control. The paper refers the outcome of the research methodology decided by authors based on interview of project participants and analysis of scrutinized interview data.

Selles et al,The paper includes a model which helps illustrate how the various elements of the cost of quality (COQ) might be employed by the general contractor within the Construc tion project. The study concludes by suggesting possible ways of measuring the costs of construction. The construction industry needs to experience two true paradigm shifts; one moves the industry from resources spent on quality nonconformance to resources spent on quality conformance.

7 CONDUCT OF SURVEY

Data were gathered through visiting the site. Quality Engineer and Site Engineer were requested to answer questions pertaining to their experience in construction industry and their Opinions about Quality Cost. The primary set of Datas includes the parities like Site Engineer and Quality Engineer and their contribution towards causes of Quality Cost are mentioned. Accordingly, the data are collected from Quality Engineer and Site Engineer. All the elements of causes were selected from the previous studies.

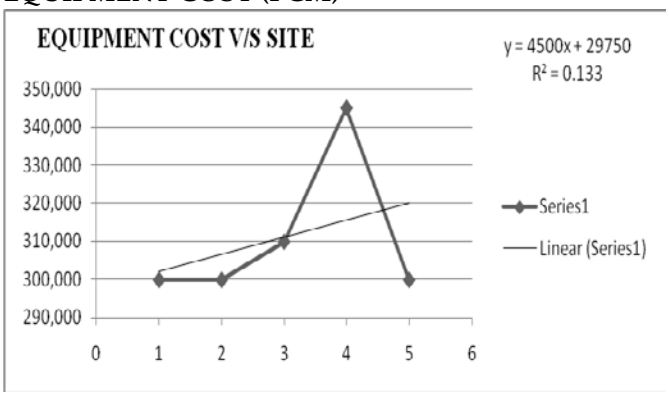
Table 7.1 List of project details

Sl. No	Project	Participants
1	Vythiri(Wayanad)	Site Engineer Quality Engineer
2	Sultan batheri	Site Engineer Quality Engineer
3	Chemmad Malappuram	Site Engineer Quality Engineer
4	Kanagad,kazarcode	Site Engineer Quality Engineer
5	Choondi,Wyanad	Site Quality Engineer Engineer

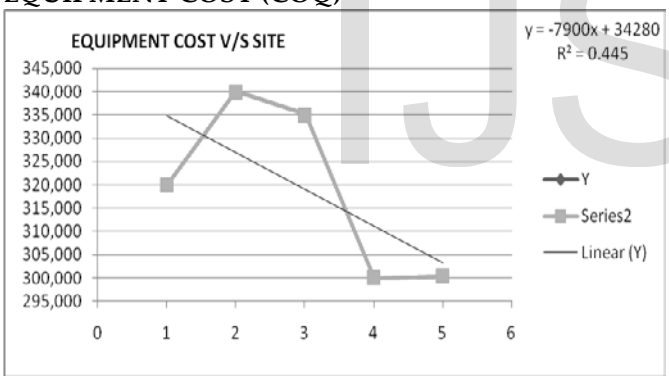
8 DATA ANALYSIS

Cost is calculated by PCM and COQ .Equipment Cost and Testing Cost is analysed by Linear Regression analysis.After analysing,we conclude that which method is be best.

Fig no : 8.1.1 Graph no: 1
EQUIPMENT COST (PCM)



Figno: 8.1.2 Graph no: 2
EQUIPMENT COST (COQ)



Figno:8.1.3 Graph no:3
TESTING COST (PCM)

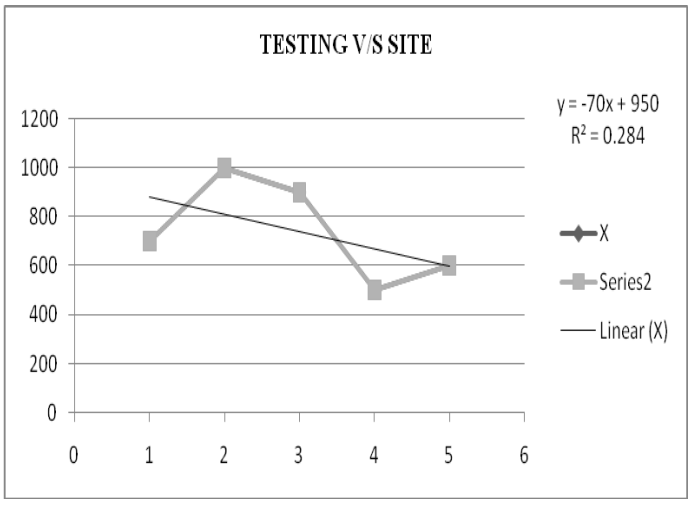
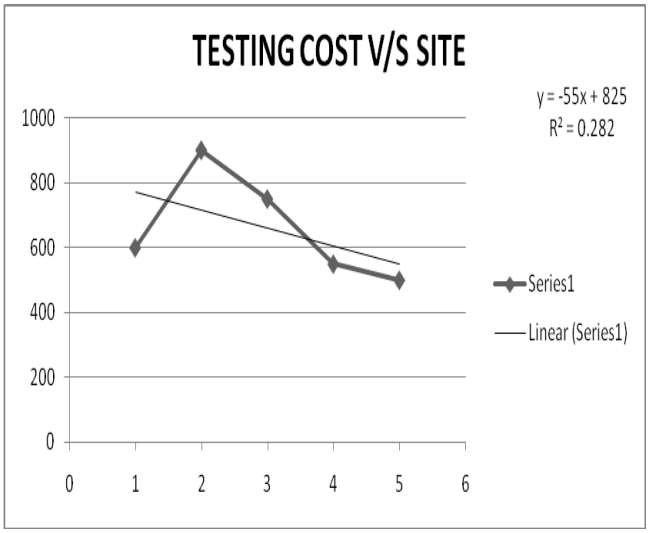


Fig no: 8.1.4 Graph no: 4
TESTING COST (COQ)



From the Linear Regression analysis Quality cost for concreting process is calculated by using PCM method shows high values while for COQ, the quality cost is less. So it can be concluded that COQ method is better than PCM method in Quality cost analysis. For the analysis of data collection responses from the Quality engineer and Site Engineer are colllected. The result is analyzed by using the Linear Regression analysis .The following tables show the site details, Equipment cost and Testing Cost. The cost of quality in PCM method is high as compared to COQ.In COQ method, lesser cost is used to maintain quality while in PCM method higher cost is used. At the same time required quality can also be attained by COQ method.

8 RESULT AND DISCUSSION

For the analysis of data collection responses from the Quality engineer and Site Engineer are collected. The result is analyzed by using the Linear Regression analysis .The following tables show the site details, Equipment cost and Testing Cost.

The cost of quality in PCM method is high as compared to COQ.In COQ method, lesser cost is used to maintain quality while in PCM method higher cost is used. At the same time required quality can also be attained by COQ method.

Table 8.1

SITE	EQUIPMENT (PCM)	TESTING (PCM)	EQUIPMENT (COQ)	TESTING (COQ)
Vythiri (Wayanad)	3,00,000	700	3,20,000	600
Sultan batheri	3,00,000	1000	3,40,000	900
Chemmad Malappuram	3,10,000	900	3,35,000	750
Kanagad, Kasaragode	345,000	500	3,00,000	550
Choondi, Wyanad	3,00,000	600	3,00,500	500

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