



Evaluation of material procurement process in construction industry

E.Kohilambal¹, Dr.P.S.Kothai², M.Mohana Priya³

^{1,2,3}Department of civil engineering, Kongu engineering college

Abstract- Construction industry has changed significantly over the past several years. It is an industry driven primarily by personal investors; the presence of securitized real estate has increased considerably. Procurement policies significantly influence the victory of construction projects since they are designed to provide solutions to specific project needs or conditions. The construction industry was analyzed with particular emphasis on public sector procurement. The general methodology of this study relies principally on the appraisal questionnaire which was collected from the local building contractors of altered sizes by mail or by personnel meeting. Thorough literature review is initially conducted to identify the risk factors that change the concert of construction industry as a whole. The questionnaire prepared for the review was formulate by seeing the relevant literatures in the area of procurement management. A significant number of the survey respondents believe that performance of projects could be improved using alternative or hybrid procurement strategies. This paper offered recommendations in order to mitigate or reduce completely the challenges and complexities faced by the organizations.

Key words: Procurement policy, complexities, solutions, risks, recommendations.

I. INTRODUCTION

Procurement systems have evolved globally with innovations in process of improvement and service delivery. However, these trends have been largely mistreated by budding countries. In recent times, health and safety, and environmental performance have also become significant aspects of project performance. Many literatures and studies of the construction business have analyzed projects and tried to identify factors affecting project performance. Though the factors found are abundant, a lot of the studies point out that procurement related factors have significant effects on construction project performance.

Every building procurement method has its own basic characteristics that define and indicate its framework. When a procurement method is chosen and selected for a specific project, the characteristics of such procurement methods dictate the likely risk and level of doubts involved. The most important is to identify and assess these inherent risks as to formulate appropriate structure to deal with these risks. The current study is focused on concepts of procurement management and will cover the related literature on the topic, development of a survey questionnaire and suggestions related to procurement management practices in construction industry of India.

II. LITERATURE STUDY

Shankar Neeraj and Balasubramanian. M(2015) Risk assessment is a device to identify those risks in a project and manage it therefore with proper dealing. This research seeks to identify and charge the risks and to develop a risk management framework which the investor/ developer/ contractor can accept when contracting construction work in India.

Peter Davis et al., (2006) The objectives and priority of a client need to be coordinated to a procurement system. To do this successfully, it is essential that the characteristics of various procurement systems and selection methods available are understood by clients and their advisors previous to a procurement method is selected. In this account, the characteristics of the most common procurement systems and methods are offered.

Alaeddin Ghadamsi, and Dr. Nuhu Braimah (2006) This paper reports on a theoretical structure that demonstrates the reality of this influence. The framework, developed based on extensive review of literature, forms part of an current wider study aimed at budding a quantitative model for establishing exactly the nature and level of the authority that exists.

Mathonsi, M. D. and Thwala,W. D.(2011) This paper aims to examine, the factors that influence the range of a procurement system. The factors that influence the selection of procurement system, as well as the price value of various procurement systems on each factor. Procurement system is a current term, which is known to many practitioners and researchers of the construction industry by different terms.

Bima Abubakar Muhammad et al., (2015) Procurement policies significantly influence the success of construction projects since they are planned to provide solutions to definite project needs or conditions. Construction projects are time consuming happenings which are considered successful if deliver on time, to an appropriate budget and to a quality desired by the owner. Analyzing the factors limiting the industry from achieving the required growth will be critical in helping develop the routine of the construction projects.

O. E. Ogunsanmi(2011) This paper is to investigate if the various risk source in Design and Build project can be classify into three risk groups of cost, time and quality using the discriminates analysis technique. This research study is a survey research that utilized cross-sectional design to capture the primary data. Projects that are procured by Design and Build method are equally subjective to different types of construction risks. Risk has been defined as uncertainty of an outcome which can result in positive occasion or negative crash.

III. METHODOLOGY

Methodology is the attention given to the nature and kinds of processes to be followed in a given procedure or in attaining an objective. Fig .1 represents the methodology adopted for successful completion of the project.

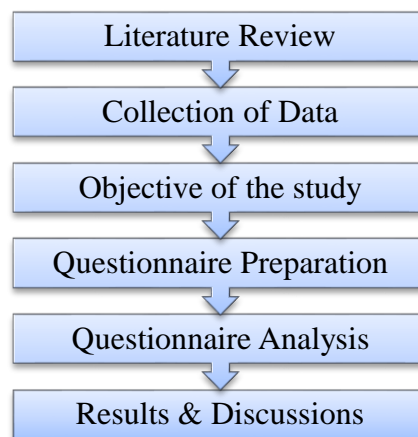


Fig.1. Methodology flow chart

IV. OBJECTIVE OF THE STUDY

The main objective of the study is to know the importance of procurement in construction and

- To evaluate the material procurement process in construction industry.
- To minimise the level of risks in procuring materials and equipments.
- To implement ISO 9001.

4.1. Benefits of Procurement

- To increase co-ordination of common user items across the organisation.
- To ensure an open, transparent and compliant process.
- To achieve continuous improvement on all categories of expenditure through a transparent and fair procurement process.
- To achieve value of money in all procurement activities.
- To encourage environmental and social sustainability through effective procurement policies and practices.

V. COLLECTION OF DATA

This section presents the method for data collection, and also the tool for analyzing the data.

The study relies largely on the survey questionnaire which was collected from the local building contractors, the investors and developers of different sizes by mail or by personnel meeting. The collected data are analyzed using SPSS software.

5.1. Factor Identification

- Temporary demand
- Increase in price of materials
- Specialized labour for fascination/setting up
- Disputes between labours
- Changing sequences in construction movement
- Non accessibility of assets
- Revision of design
- Availability of camp for labours
- Change in quantities of work
- In Time work permissions
- Problems during execution of work
- Safety of workers

VI. QUESTIONNAIRE SURVEY AND ANALYSIS

Questionnaire is a set of printed or online questions with a choice of answers, devised for the purposes of a survey about the procurement process. The questionnaire was tested for clarity, ease of use, and value of the information that could be gather. The questionnaire survey is separated into two parts. The first part consists of general information like name of the respondent, type of concern, experience, designation value of their project etc., and the second part consists of the procurement risk factors for evaluation. 30 statements are given based upon the literature study. The questionnaire was prepared for the survey in the area of procurement. The interviewer was free to ask additional questions that focused on issues arising during the course of the interview. A Likert scale of 1-5 was used in the questionnaire. A Likert scale is a type of psychometric response scale often used in questionnaires, and is the most widely used scale in survey research. The questionnaire analysis can be performed by SPSS (Statistical Package For The Social Science) software. In that, descriptive statistical analysis can be carried out. The result from the analysis helps us to identify the factors which affect the procurement process.

VII. RESULTS AND DISCUSSIONS

The table 1 below has the 12 consolidated factors. Out of that 7 has been shortlisted due to its risk occurrence. Most of the problems are comes under management problems and construction.

S. No	Factors Affecting Procurement Process	Mean	Standard Deviation
1	Temporary demand	3	0.78
2	Increase in price of materials	2.59	1.08
3	Specialized labour for fixation/Installation	2.56	0.91
4	Disputes between labours	2.39	0.52
5	Changing sequences in construction activity	2.79	1.02
6	Non availability of resources	2.81	1.91
7	Revision of design	2.17	0.97
8	Availability of camp for labours	3.23	1.33
9	Change in quantities of work	2.45	0.78
10	In Time work permissions	3.12	0.86
11	Problems during execution of work	3.02	0.95
12	Safety of workers	2.55	0.67

VIII.CONCLUSION

This study determines the critical factors which affects the procurement process in construction industry. A total of 7 factors arising problems in construction are analyzed through questionnaire survey which include experts of academic professionals, governmental sectors and construction industry were interviewed, and the evaluation criteria were obtained as the key factor by interviewed experts.

Suitable plans to avoid problems that occurred during projects should be developed in consultation with the project participants who are responsible for each identified risk.

The actions carried out should include the following activities:

- Risk description
- Responsibility for exploit
- Status of risk action planning
- Further act required
- Budget and resources required
- Timing and reporting processes.

Details of the executive structure and processes for the continuing management and monitoring of hazard throughout the life span of the project should be urbanized by project participants or project manager, as well as specific details of strategy to deal with personality identified risks.

REFERENCES

1. Akintola S Akintoye and Malcolm J MacLeod, "Risk analysis and management in construction", International Journal of Project Management Vol. 15, No. 1, pp. 31-38, 1997.
2. Alhazmi, T. and McCaffer, R. (2000) "Project procurement system selection model", Journal of Construction Engineering and Management, vol. 126, no. 3, pp. 176-184.
3. Atkinson, R "Project management: cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria", vol. 17, no. 6, pp. 337-342, 1999.
4. Bassioni, H.A., Price, A.D.F. and Hassan, T.M. "Performance measurement in construction", Journal of Management in Engineering, vol. 20, no. 2, pp. 42-50, 2004.
5. Bima Abubakar Muhammd Tafida Adamu, Baba Dorothy Ladi, "Appraisal of Construction Project Procurement Policies in Nigeria", American Journal of Engineering Research, e-ISSN : 2320-0847 p-ISSN : 2320- 0936 Volume-4, Issue-3, pp-19-24,2015.
6. Hashim, M., Hashim, M., Yuet Li, M.C., Yin, N.C., Hooi, N.S., Heng, S.M. and and Young, T.L. "Factors Influencing The Selection Of Procurement Systems By Clients", pp. 1-10,2006.
7. Mathonsi, M. D. and Thwala, W. D, "Factors influencing the selection of procurement systems in the South African construction industry", African Journal of Business Management Vol. 6(10), pp. 3583-3594, 2012.
8. Mohsini, R. and Davidson, C.H. "Building procurement-key to improved performance", Building Research and Information, vol. 19, no. 2, pp. 106-113, 1991.
9. Ratnasabapathy, S., Rameezdeen, R. and Gamage, I. "Macro level factors affecting the construction procurement selection: Amulti criteria model", pp. 581- 591, 2006.
10. Shankar Neeraj, Balasubramanian. M, "Assessment of risk in construction industry", International Research Journal of Engineering and Technology, Volume: 02 Issue: 01 p-ISSN: 2395-0072, 2015.