

Assessment of Contractors' Performance in Government Sector Projects

Ms.Tharanya.S¹, Mr.Pradeep.T²

¹PG Student, Department of Civil Engineering, Kongu Engineering College, Perundurai, India.

²Assistant Professor, Department of Civil Engineering Kongu Engineering College, Perundurai, India.

Abstract—The construction industry is a significant part of every economy and that performance assessment holds the key to its success of national socio-economic goals. Construction projects and their success are closely related to contractors. The selection of a suitable construction contractor increases chances of successful completion of a construction project. Contractors' performance can provide robust benchmarks for contractors and help to identify ways towards performance improvement. Contractor performance can be defined by the level and quality of projects delivered to clients. The study is to provide a method for evaluating the performance of contractors on government construction projects. Questionnaires were designed depending upon the various factors which affect the contractors' performance in government sector projects. The questionnaires are distributed to various construction companies. The analysis is done for responses from government projects only using SPSS. To improve their overall performance, contractors are advised to focus on construction time and cost, safety and health of labors, reduce delays, maintain a stable workforce and establish partnerships with their subcontractors.

Keywords—Contractor Performance, Performance Assessment, Frequency, Cronbach's alpha, Reliability

I. INTRODUCTION

A general contractor (prime contractor) is in charge for the day-to-day supervision of a construction site, management of vendors and contact of information to involved parties throughout the development of a building project. A construction contract is a mutual requisite agreement between two parties based on policies and conditions recorded in document form. The parties involved are one or more owners and contractors. The owner has full power to decide the type of contract to be used for a specific development to be constructed and to set forth the legally-binding terms and conditions in a contractual agreement. A general contractor is responsible for the overall coordination of a project. A contractor is accredited to a construction project once the design has been completed by the person or is still in development. This is done by going through a bidding process with different contractors. The contractor is selected by one of three common methods: low-bid selection, best-value selection, or qualifications-based selection.

II. OBJECTIVES OF STUDY

- To list out and analyze the performance parameters which are critical for the success of contractors.
- To analyze the performance of contractors in government sector projects.

III. NEED FOR STUDY

The selection of good construction contractors are very often conducted during tendering. Tendering indeed gives a client a choice in granting contract a company which proposes the lowest price and short construction cycles. Poor performance of contractor results in poor quality of the products and time delay in construction resulting in cost and time over run. This can be avoided by proper choice of contractors when past performance data is available. Performance evaluation of

contractors provides a base for selection of contractors based on the importance of work and capability of contractor.

IV. SCOPE OF STUDY

Scope of the study is limited to views of contractors, owners and engineers related to performance in government sector projects in Tamil Nadu.

V. METHODOLOGY

- Literature Review
- Identification of Factors
- Data Collection
- Questionnaire preparation
- Questionnaire survey
- Data analysis
- Results and Discussions

VI. FACTOR IDENTIFICATION

The literatures collected from various journals were reviewed and the factors involved in the study were identified. The performance evaluation factors are used to evaluate the performance of contractors. Based on the factors involved questionnaire is framed to analyze the contractors' performance. The literatures were studied and the factors which have an effect on the performance of contractors were identified and explained below.

1. Quality of work
2. Timeliness of performance
3. Project satisfaction
4. Safety and health compliance
5. Budget management
6. Project management
7. Technical knowledge
8. Stress in work
9. Tender problems

VII. QUESTIONNAIRE DESIGN

One way to collect the data necessary to analyze contractor performance is to conduct questionnaires. Questionnaires are designed depending upon the various factors which affect the contractors' performance in government sector projects. The questionnaire consists of two parts; first part contains the company and respondent profile and second part consists of set of questions based on the factors. The questionnaires are distributed to various construction government companies. Among 55, 35 responses are received and analyzed using SPSS software. The results are discussed for further improvement. The questionnaires are designed with 5 rating systems. Based on the factors involved questionnaires are designed.

1. Strongly Agree
2. Agree
3. Moderate
4. Disagree
5. Strongly Disagree

VIII. DATA ANALYSIS

A. Reliability Analysis

Reliability tests were carried out to find the reliability of the scale used for analysis. Prior to data analysis, the reliability of data was assessed using Cronbach's Coefficient Alpha Method, which is

commonly used as an estimate of the reliability of data. Reliability scores obtained from responses indicate adequate internal consistency.

TABLE I. RELIABILITY STATISTICS

Cronbach's Alpha	No. of Items
0.752	30

Cronbach's alpha value is 0.752. The value must be in the range of 0.6 to 1.0 if the data has to be reliable. Hence the data's values are reliable.

B. Frequency Analysis

Frequency analysis is done for all factors and the main factors which affect the performance of contractors are given below.

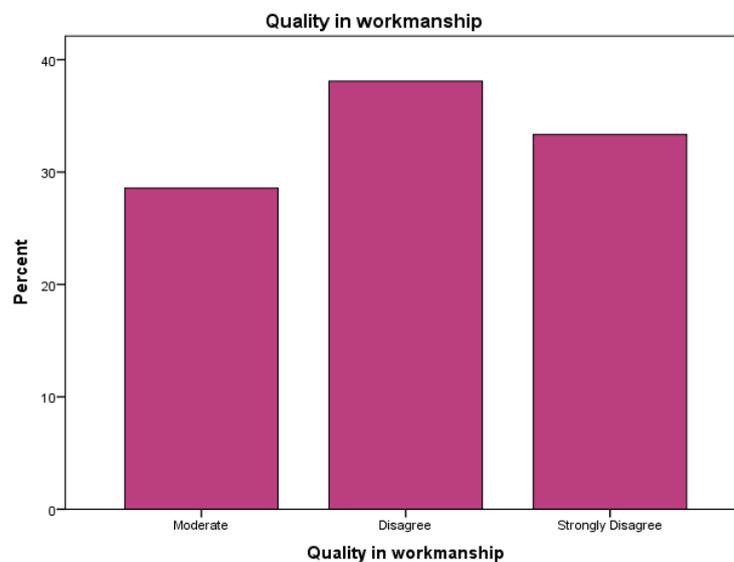


Fig.1. Quality in workmanship

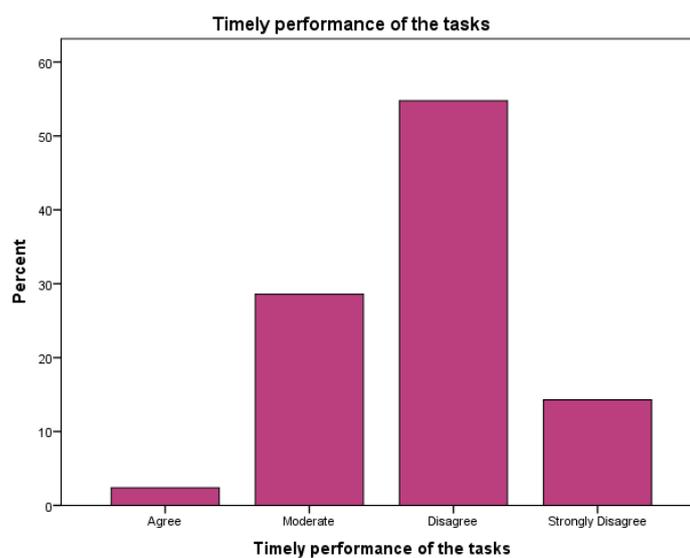


Fig.2. Timely performance of the tasks

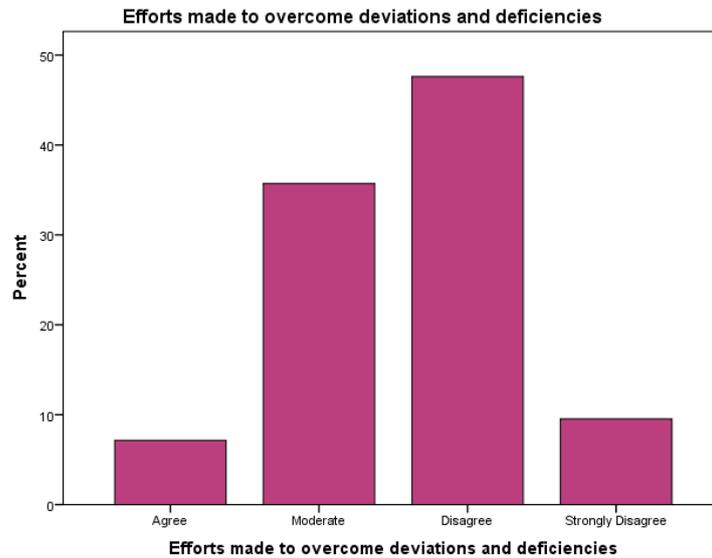


Fig .3. Efforts made to overcome deviations and deficiencies

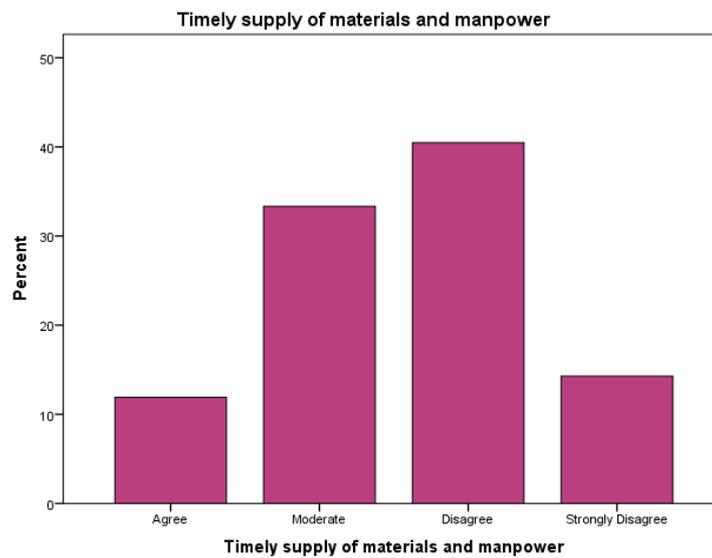


Fig .4. Timely supply of materials and manpower

IX. RESULTS

TABLE II. RANKING OF PARAMETERS

Parameters	Mean	Rank
Project conformed to contract requirements	1.81	25
Good quality of materials supplied at required time	3.33	7
Project works in compliance with drawings and specifications	2.57	20
Quality in workmanship	4.05	1
Timely performance of the tasks	3.81	2
Timely completion of project with sophisticated schedule	2.43	23
Timely supply of materials and manpower	3.57	5
Delays in schedule tackled in an efficient	3.21	10

manner		
Project satisfied with performance of workmanship	3.21	10
Efforts made to overcome deviations and deficiencies	3.60	4
Frequent inspections carried out in site	2.60	19
Project satisfied with cost, time and quality	3.31	8
Safety and health policies forms a part of company core values	3.02	14
Equipments in good operating condition	2.60	19
Safety precautions are provided for workers	3.17	12
Proper training programs conducted for workers	3.19	11
Adherence to target costs on the contract level	3.29	9
Cost overrun and change proposals priced reasonably	3.21	10
Project funds received in time	3.40	6
Subcontractors, sub consultants, suppliers and labor force well managed	2.19	24
Experienced managers and technical personnel available to resolve problems	2.52	22
Communication lines are established effectively	3.10	13
Personnel assigned to the project are well versed and experienced for the work	2.62	18
Overall technical capability of the personnel is good	3.00	15
Labors subjected to stresses in various complex activities	3.62	3
Workers ability to concentrate on performing their work	3.33	7
Productivity problems due to stress	3.10	13
Overcome issues in the approval of tender	2.67	17
Tender got approved in a shorter period without delay	3.62	3
Tendering procedures followed as per by law	2.88	16
Issues in quoting rates for the project solved smoothly	2.55	21

X. DISCUSSIONS

The critical factors are stress faced by workers, proper training for workers, tender problems, workers ability to perform their work, technical capability of the personnel, safety and health of workers and performance of workmanship. From the analysis, the projects were not satisfied with the performance of workmanship. The percentage obtained from frequency analysis for quality in workmanship is 39.3% and it shows performance was not satisfactory. The percentage obtained from frequency analysis for efforts made to overcome deviations and deficiencies is 49.4% and it needs to be improved further for better performance. The percentage obtained from frequency analysis for timely performance of the tasks is 57.3% and it needs to be improved. Inspection is must for good performance. The percentage obtained for timely supply of materials and manpower is 40.3% and it has to be made strict in all construction firms. Workers safety is not considered in many firms.

It shows the contractors' inability to provide suitable environment for workers to work and also not providing motivation to workers. It results in poor performance. Labors should be encouraged to reduce the stress of workers. Proper steps should be taken to guide workers in difficult situation.

XI. CONCLUSION

The performance of contractors has been analyzed in government sector projects by considering the various factors which are involved in construction activities. The parameters involved such as quality, time, budget, safety and health, tender problems, issues in quoting rates, project management, technical knowledge of personnel, stress faced by workers, productivity problems, project satisfaction. Based on the parameters, the performance was analyzed by conducting questionnaire survey. The performance of contractors has been analyzed using SPSS software. The survey results shows that some of the parameters such as quality of work, timeliness of performance, project management, budget management, technical knowledge of personnel assigned and project satisfaction are not good. In order to improve the contractor performance, contractor should focus on

- Timely completion of project
- Budget adherence to target cost
- Better project management
- Good communication and coordination
- Stress free work environment
- Increased productivity
- Implementation of safety and health policies
- Management of tender problems
- Cash flow throughout the project
- Effective budget management

REFERENCES

- [1] Abd M. Z. and Ronald McCaffer (2005), '*Factors of non- excusable delays that influence contractors performance*', Journal of Management in Engineering, Vol.14, No.3, pp.42-49.
- [2] Arazi Bin Idrus and Mahmoud Sodangi (2010), '*Framework for Evaluating Quality Performance of Contractors in Nigeria*', International Journal of Civil & Environmental Engineering, Vol.10, No.01, pp.31-36.
- [3] Benon C. Basheka and Milton Tumutegyeize (2011), '*Measuring the performance of contractors in government construction projects in developing countries: Uganda's context*', African Journal of Business Management, Vol.6, No.32, pp. 9210-92.
- [4] Calvin C. W. Keung and Li-yin Shen (2013), '*Measuring the networking performance for contractors in practicing construction management*', Journal of Management in Engineering, Vol.29, No. 4, pp.400-406.
- [5] Fu W.K. et al. (2003), '*Competitiveness of Inexperienced and Experienced Contractors in Bidding*', Journal of Construction Engineering and Management, Vol. 129, No. 4, pp. 388-395.
- [6] Gordon D. Severson et al. (2001), '*Trends in construction contractor Financial data*', Journal of Construction Engineering and Management, Vol.119, No.4, pp.854-858.
- [7] Hendrik J. Marx et al. (2012), '*Performance assessment of construction companies: A study of factors promoting financial soundness and innovation in the industry*', International Journal of Production Economics, Vol.23, No.3, pp.1-9.
- [8] Horta I. M. et al. (2013), '*Design of Performance Assessment System for Selection of Contractors in Construction Industry E-Marketplaces*', Journal of Construction Engineering and Management, Vol.139, No. 8, pp.910-917.
- [9] Lee M.R., Syuhaida Ismail, Mohammad Hussaini (2014), '*Contractor's Performance for Construction Project*', International Journal of Engineering Research and Applications, Vol. 4, Issue 4(Version 7), pp.131-137.
- [10] Lo W. et al.(2007), '*Contractor's Opportunistic Bidding Behavior and Equilibrium Price Level in the Construction Market*', Journal of Construction Engineering and Management, Vol.133, No. 6, pp.409-416.
- [11] Masuda Sultana (2012), '*Performance Based Maintenance of Road Infrastructure by Contracting-A Challenge for Developing Countries*', Journal of Service Science and Management, Vol.5, pp.118-123.
- [12] Rateb J. Sweis (2014), '*Factors Affecting Contractor Performance on Public Construction Projects*', Life Science Journal, Vol.11 (4s), pp.28-39.
- [13] Regina Bekoe, Ernest Fianko Quartey (2013), '*Assessing the performance of local contractors on government projects in the akuapem north municipal assembly*', European Journal of Business and Management, Vol.5, No.8, pp.111-124.
- [14] Rick Best and Craig Langston (2005), '*Evaluation of construction contractor performance: a critical analysis of some recent research*', Journal of Construction Management and Economics, Vol.24, No.22, pp.439-445.
- [15] Robby Soetanto and David G. Proverbs (2012), '*Modelling client satisfaction levels: The impact of contractor performance*', The Australian Journal of Construction Economics and Building, Vol.2, No.1, pp.13-27.

- [16] Sai On Cheung et al.(2008), '*Catastrophic Transitions of Construction Contracting Behavior*', Journal of Construction Engineering and Management, Vol.134, No. 12, pp.942-952.
- [17] Yong Qiang et al.(2014),' *Impacts of different types of owner-contractor conflict on cost performance in construction projects*', Journal of Construction Engineering and Management, Vol.140, No.8,pp.04014017(1-8).