REASONS OF POOR PERFORMANCE OF CONSTRUCTION PROJECTS OF PAKISTAN

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ABSTRACT
Objective: This paper aims to identify and analyze the reasons for the poor performance of Pakistan's construction projects.
Research Method: Quantitative method was adopted to collect the data for this study. A questionnaire survey was conducted amongst the client, contractor, and consultant organizations involved in large construction projects to evaluate the factors affecting the performance of construction projects.
Findings: The study identified three factors which were then further divided into nine more subfactors. Among all factors, health and safety factors were ranked highest by all the respondents.
Originality: The study analyzed the factors affecting the performance of construction projects in Pakistan. This study provided new insights into the project performance, helping to understand how the factors occurred and manifested themselves in the project.
Keywords: Construction industry, project performance, construction project performance, health, and safety

1. INTRODUCTION

The construction sector is one of the dynamic industries of today that has a great role in developing the nation. It has vide opportunities of expansion (Almansoori et al. 2021). For instance, UAE has experienced a construction boom during the past three decades, attracting construction professionals from all over the world (Alhammadi and Memon, 2020). The construction industry is the main source of economic growth, progress, and activities (Mhaske et al., 2017). The construction industry has a significant effect on the gross domestic product (GDP) (Irani et al. 2004). The construction companies provide substantial opportunities for new jobs and domestic investment (Dziekoński et al., 2018). Construction projects involve the development of infrastructure projects such as highways, motorways, the building of dams, bridges, monuments, and real estate (Mhaske et al., 2017). It is primarily needed that every project must be completed successfully. The success of any project relies on the performance of various criteria, which include overall performance, quality performance, cost performance, and schedule performance (Thompson et al., 2017). It is also associated with the project's success according to traditional trainable that is given time, budged cost, and required quality (Kulatunga et al. 2005).

In Pakistan, the construction sector is the key source of economic development. According to a trading economics report, the construction industry has contributed about 5.33 percent to the total GDP of Pakistan (Pakistan, 2019). According to statistics of 2018 from the economic trends, the construction sector provides around 7.8 Percent of employees to the workforce, which is 0.3 percent more than the stats of 2015, thus showing that a very large population depends on the construction industry.

Employment is on the rise from previous years (Pakistan Bureau of Statistics, 2018). In Pakistan population is increasing by 3 percent every year due to urbanization. Due to the increase in urbanization, the construction industry faces many problems like the poor performance of cost and time and poor quality performances (Akhund et al., 2019).

Hence, poor performance factors must be controlled. For this, the first step is to know the common reason for poor performance regarding health and safety, environment, and Innovation, and Learning related factors at construction sites. Therefore, this study focuses on identifying common reasons for poor performance in the construction of Pakistan.

2. LITERATURE REVIEW

Defining performance measurement indicators has been challenging, but only a few researchers have tried to define the term performance. Performance measurement is a method of evaluating the project by quantifying efficiency and effectiveness variables (Neely, 2000). In addition, effectiveness was defined as the extent to which the apex of customer satisfaction is measured and by how much firms efficiently manage their resources. Historically, the organization was evaluated through financial indicators. This was later criticized and other aspects of performance evaluation emerged. Performance management was also assessed through quality management (Vukomanovic et al. 2007).

Moreover, the role and responsibilities under the performance matrix have changed depending upon the objectives of an organization (Dziekoński et al., 2018). Performance is associated with the project's success according to traditional trainable that is given time budged cost and required quality (Kulatunga et al. 2005). In construction companies of the United Kingdom, the key performance indicators (KPI) measure the success of the projects, which includes client satisfaction, construction cost, profit, productivity, safety, environment, health and safety, and project time (Dziekoński et al., 2018).

Different researchers have identified the common reasons for poor performance factors in the construction industry regarding health and safety, environments and Innovation, and Learning in different countries, as shown in table 1.

Table 1: Mapping Of the Factors of Poor performance

S. No	FACTORS	References									
		Nyangwara et al. 2015	Abdel Aziz (2009)	Bitamba et al. 2020	Kumar et al. 2019	Sharma et al. 2018	Eke et al. 2016	Musonda, 2012	Dziekonski et al, 2018	Kuria et al. 2018	Kulatunga et al. 2005
Health and safety factors											
1	Application of health and safety factors in the organization	×	×	×		×	×		×		

2	The project location is safe to reach		×	×	×		×	×		×	
3	Reportable accidents rate in the project	×		×			×			×	
Innovation and Learning factors											
4	Availability of personals with experience		×			×		×		×	
5	Reviews of failures and solving them	×		×		×					
Environment factors											
6	Climate condition	×						×	×		×
7	Air quality		×		×						
8	Wastes around site	×				×		×			
9	Noise level		×							×	

3. METHODOLOGY

The data collection for this study was done through structured interviews with the help of a Questionnaire form amongst the experienced practitioners engaged in handling the construction projects in Pakistan. The questionnaire form was prepared based on poor performance regarding health and safety, environment, innovation, and learning factors. The participants were asked about the level of relevancy for each factor by using a 5-point Likert Scale as 1 for Not Relevant, 2 for Slightly Relevant, 3 for Moderately Relevant, 4 for Highly Relevant, and 5 for extremely high Relevant. The experts with experience of at least 6 years were selected for interview to get reliable data. Total 23 respondents representing contractors, clients, and consultants participated in the data collection process. The participants' response for each factor was recorded and analyzed statistically using a formula as adapted from (Memon, A. H. et al 2014).

$$AI = \frac{\sum(1x_1 + 2x_2 + 3x_3 + 4x_4 + 5x_5)}{\sum x_1 + x_2 + x_3 + x_4 + x_5}$$

Where

X1 = Respondents' no who marked for "Not relevant."
X2 = Respondents' no who marked for "Slightly relevant."
X3 = Respondents' no who marked for "Moderately relevant."
X4 = Respondents' no who marked for "Highly relevant."
X5 = Respondents' no who marked for "Extremely high relevant."

4. RESULTS AND DISCUSSIONS

During interviews, collected data from experts were analyzed statistically to conclude the most common poor performance factors. Analysis of the data was done with the help of SPSS and Microsoft Excel. Before examining the factors, the demographic was analyzed as in table 2.

Table 2: Demography of the Respondents

S. No	Designation	Type of organization	Education	Field Experience
1	Director (Work & services)	Client	M.E (Construction Management)	16 years
2	Site Engineer	Client	B.E (CIVIL)	8 years
3	Site Engineer	Client	B.E (URBAN)	6 years
4	Executive Engineer (WAPDA)	Client	M.E (CIVIL)	10 years
5	Assistant Engineer	Client	B.E (CIVIL)	7 years
6	Executive Engineer	Client	M.E (Project Management)	11 years
7	Material Inspector	Consultant	B.E (CIVIL)	9 years
8	Manager QAI	Consultant	M.E (Construction Management)	15 years
9	Assistant Resident Engineer	Consultant	B. Tech (CIVIL)	9 years
10	Resident Engineer	Consultant	M.E (CIVIL)	12 years
11	Material Engineer	Consultant	M.E (Geo Tech)	15 years
12	Site Inspector	Consultant	B.E (CIVIL)	6 years
13	Project Manager	Contractor	B. Tech (CIVIL)	14 years
14	Site Engineer	Contractor	B.E (CIVIL)	8 years
15	Site Engineer	Contractor	B.E (CIVIL)	9 years
16	Site Engineer (Structure)	Contractor	B. Tech (CIVIL)	7 years
17	Site Engineer (Highway)	Contractor	B.E (CIVIL)	6 years
18	Senior Site Engineer	Contractor	B. Tech (CIVIL)	10 years
19	Project Manager	Contractor	M.E (CIVIL)	18 years
20	Project Manager	Contractor	M.E (HIGHWAY)	16 years
21	Site Engineer (Structure)	Contractor	B. Tech (CIVIL)	12 years
22	Assistant Project Manager	Contractor	M.E (Construction Management)	10 years
23	Site Engineer	Contractor	B.E (CIVIL)	8 years

From the table 2, it can be seen that the respondents participating in this data collection process have a minimum experience of 6 years and a maximum experience of 18 years. The total experience of the respondent is 242 and the average experience per respondent is more than 10 years. Among these experts, six respondents are working with client organizations, seven are working with consultants, and fourteen are engaged with contractors. The data shows that it is reliable and relevant because experts have complete technical and engineering education and are held at

management and technical positions. According to the given scale, the respondents were asked to indicate the reasons for poor performance factors for health and safety, environment, and innovation and learning factors during the execution process. Collected data analyzed and presented in given table 3.

Table 3: Reasons of Poor Performance of Health & safety factors

S. No	Health and Safety Reasons for Poor Performance	Level of Relevancy					N	Average Index	Rank
		1	2	3	4	5			
1	Application of health and safety factors in the organization	0	2	2	8	11	23	0.843	1
2	Project location is safe to reach	2	1	5	11	4	23	0.722	2
3	Reportable accidents rate in the project	4	6	10	3	0	23	0.504	3

Health and safety are the most critical parameters in the construction industry (Khoso et al. 2017; Siddiqui et al., 2018) because it plays a vital role in minimizing risk in construction sites. From the above-given table, it can be perceived that the Application of health and safety factors in the organization ranks at first with a value of Average Index of 0.843. Therefore, there must be a guide to provide knowledge regarding the importance of health and safety to manage the reason. Respondents were also asked about reasons for the poor performance regarding environmental factors as shown in table 4.

Table 4: Reasons of Poor Performance of Environmental factors

S. No	Environmental Related Reasons for Poor Performance	Level of Relevancy					N	Average Index	Rank
		1	2	3	4	5			
1	Climate condition	2	7	4	6	4	23	0.626	1
2	Air quality	2	7	5	6	3	23	0.609	2
3	Wastes around site	6	7	10	0	0	23	0.435	3
4	Noise level	6	8	9	0	0	23	0.426	4

The environment is the most important part of project success and sustainability. Respondents were also asked about reasons for environmental factors' poor performance, as shown in table 4. Here respondents have to identify the factors, which mostly affect the performance of the projects in the construction industry of Pakistan. Climate condition is the most prominent reason with the Average Index 0.629 and rank at first. This is because Pakistan has different climate influences for other regions. It is not easy to work in the Sindh Province for the labor who is habitual to work in KPK. Respondents have also asked about reasons for the poor performance of factors for innovation and learning, as shown in table 5.

Table 5: Reasons of Poor Performance of Innovation and learning factors

S. No	Innovation and Learning Related Reasons for Poor Performance	Level of Relevancy					N	Average Index	Rank
		1	2	3	4	5			
1	unavailability of personals with experience	1	3	8	11	0	23	0.652	1
2	Review of failures and solving them	4	8	8	3	0	23	0.487	2

From table 5, it can be seen that the unavailability of people with experience in a particular field is the main cause of poor performance in the construction industry of Pakistan, with the value of the Average index of 0.652. Therefore, it is imperative to deploy relative and suitable staff for performing any particular task. This will be very helpful for achieving a successful project with improved project performance.

5. CONCLUSION

This study identified the main factors regarding health and safety, environment and learning, and innovation affecting the project performance. This study was achieved by interviewing 23 experts engaged in different projects representing contractors, clients, and consultants. According to experts' data, the main reason for poor performance is not applying proper health and safety factors in the organization. In addition, the environment was also considered one of the important factors affecting the performance of the organization or project. The unavailability of the competent staff and the proper training of the available staff also resulted in the poor performance of the construction projects.

REFERENCES

Abdel Aziz, S. K. H. (2009). Factors affecting the quality of design and contractual documents in Gaza Strip.

Akhund, M. A., Memon, A. H., Memon, N. A., Ali, T. H., Khos, A. R., & Imad, H. U. (2019). Exploring types of waste generated: A study of construction industry of Pakistan. Journal of Building Performance, 10(2), 1-8.

Alhammadi, A. S. A. M., & Memon, A. H. (2020). Inhibiting Factors of Cost Performance in UAE Construction Projects. International Journal of Sustainable Construction Engineering and Technology, 11(2), 126-132.

Almansoori, M. T. S., Rahman, I. A., & Memon, A. H. (2021). Correlation between the Management Factors Affecting PMO Implementation in UAE Construction. International Journal of Sustainable Construction Engineering and Technology, 12(3), 155-165.

Bitamba, B. F., & An, S. H. (2020). Study on factors affecting the performance of construction projects in the Democratic Republic of the Congo. South African Journal of Industrial Engineering, 31(1), 12-25.

Dziekoński, K., Ibrahim, O. H. M. F., Mahamadu, A. M., & Manu, P. (2018). Framework of performance measurement practices in construction companies in Egypt. Engineering Management in Production and Services, 10(2), 7-14.

EKE, C., Aigbavboa, C. O., & Thwala, W. D. Performance of Construction Projectsin the Gauteng Province of Shouth: Insight, Proceedings of 12th International Conference on Economics and Social Sciences (ICESS-2016), University of Johannesburg, South Africa, pp. 91–95.

Irani, Z., Beskese, A., & Love, P. E. (2004). Total quality management and corporate culture: constructs of organisational excellence. Technovation, 24(8), 643-650.

Khoso, A. R., Akhund, M. A., Memon, A. H., Siddiqui, F., & Khahro, S. H. (2017). Health and Safety of Hyderabad Industries' Labor. Engineering, Technology & Applied Science Research, 7(6), 2334-2339.

Kulatunga, U., Amaratunga, D., Haigh, R., & Baldry, D. (2005). Performance measurement applications in facilities management: An investigation into the future directions, in Research Institute for the Built and Human Environment, The University of Salford, UK

Kumar, S. R., Kumar, S. A., Bhavanesh, T., & Kavinkumar, V. (2019). A study on quantification of factors affecting the quality of construction projects in india, 235–243

Kuria, E. W., & Kimutai, G. (2020). Internal organization environment and project performance in construction firms within nairobi city county, kenya. International Journal of Project Management, 4(1).

Memon, A. H., Rahman, I. A., & Memon, A. H. (2014). Assessing the Occurrence and Significance of VO Factors in affecting Quality of Construction Projects. Life Science Journal, 11(7).

Mhaske, M., Darade, M., & Khare, P. (2017). Construction waste minimization. International Research Journal of Engineering and Technology, 4(7), 934-937.

Musonda, I. (2012). Construction health and safety (H&S) performance improvement-A client-centred model. University of Johannesburg (South Africa).

Neely, A. (1999). The performance measurement revolution: why now and what next?. International journal of operations & production management.

Nyangwara, P. O., & Datche, E. (2015). Factors affecting the performance of construction projects: a survey of construction projects in the coastal region of Kenya. International Journal of Scientific and Research Publications, 5(10), 1-43.

Pakistan, S. bank of (2019). Trading ECONOMICS. Available at: https://tradingeconomics.com/pakistan/gdp-from-construction.

Sharma, M., Trivedi, A. S., & Rao, P. (2018). Evaluation of Factors Affecting the Construction Projects. International Journal for Research in Applied Science and Engineering Technology (IJRASET), 6(II), 1948-1953

Siddiqui, F., Akhund, M. A., Memon, A. H., Khoso, A. R., & Imad, H. U. (2018). Health and Safety Issues of Industry Workmen. Engineering, Technology & Applied Science Research, 8(4), 3184-3188.

Thompson Jr, R. C., Su, Y., & Lucko, G. (2017). Measuring Project Performance Inspired by Stock Index. Procedia engineering, 196, 706-713.

Vukomanovic, M., Ceric, A., & Radujković, M. (2007, September). BSC-EFQM based approach for performance benchmarking in construction industry. In Proceedings 23rd Annual ARCOM Conference (pp. 631-640).