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Factors Affecting Construction Productivity: A Review

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Abstract: ***The civilian level of productivity in the construction industry is of direct interest to site managers and project management teams. Various researchers have tried to identify factors that affect productivity, but no general agreement has been reached. The purpose of this document is to develop a conceptual framework for site performance. The five main groups of independent variables, namely: project characteristics, labor characteristics, management system, resource management and the external environment, are identified as important for site productivity. This document provides an overview of construction productivity.***
Keywords: Construction, productivity, management and organization.

I. INTRODUCTION

A. General

The construction industry has traditionally been seen as a labor-intensive industry. Production in this area has the features of large-scale, open jobs and large fragmentation in the process. Therefore, the construction industry has long been considered an "incredibly inefficient" sector. The relatively low growth in industrial productivity compared to other industries, such as the manufacturing industry, has caused great concern among customers and decision makers.

In India, low construction productivity has been identified as one of the main problems of the construction industry. According to a 1992 report by the CIDB Building Productivity Working Group, the construction sector in India was perceived as a low-performance sector compared to the country's manufacturing sector and the construction sector of other developed countries. Due to its labor-intensive nature, India's construction industry uses a disproportionately large share of the country's total labor force in terms of its contribution to the economy. As an economic sector, construction contributed to 6% of the country's gross domestic product (GDP), but accounted for 7.5% of the total labor force. Over the 10-year period from 1982 to 1991, construction productivity in India increased at an average rate of 3.1%, below 4.2% for the entire Indian economy, which showed that the construction industry was lagging behind national development.

The reasons for this situation include the division of design and construction phases; temporary pool of largely inexpensive, unskilled foreign jobs; and still economical, traditional labor-intensive building systems. As labor is sorely lacking in many countries, the industry relies heavily on foreign skilled and unskilled workers (ie., about 80% of construction work is foreign workers). Although this can overcome the labor shortage in the industry, the problem of low productivity associated with the easily accessible pool of cheap foreign labor is rich. As a result of this cheap and low-class workforce, there is little incentive for contractors to improve construction methods by introducing technological progress. Thanks to the government's policy of controlling the number of foreign workers in India in recent years, the industry is facing pressure to reduce its dependence on labor. Thus, the government has introduced a number of schemes, such as prefabricated production and the mechanization program being developed, to encourage, assist and support efforts to increase construction productivity. At the same time, attempts to identify the causes of low productivity have never stopped, especially to distinguish between critical causes. If productivity efforts can be directed in the right direction, then improvement measures will be taken effectively. Although several studies have been conducted on factors affecting productivity, and most factors have been identified, further studies of the relationship between different factors are rare. This study conducts research to recognize significant factors of low productivity in the construction industry of India. The focus is on the relationship between different factors through quality and quantity analysis to determine the most direct factors and their root causes.

B. Prerequisites for Productivity

Productivity is usually defined as the average number of direct working hours required to establish a unit of material. They say, that perfect performance (1.0) can be achieved with a 40-hour work week, when people take all the vacations and vacation days, as planned, all engineering drawings would be 100% complete, there would be no delays during construction; everyone would work safely; everything would be perfect for the first time; and there would be no litigation at the end of the project.

C. Determination of Productivity in the Construction Industry

The term "productivity" expresses the relationship between outputs and inputs. Output and input vary from one industry to another. Also, the definition of productivity changes when applied to different industries of the same industry. Work is one of the main requirements in the construction industry. Labor productivity usually links labor in terms of labor costs to the number of products produced. In other words, the definition of labor productivity is the number of goods and services produced by the production factor (labor force) per unit time.

II. REVIEW OF LITERATURE

Productivity was calculated by mid-1906 in the construction industry. Later, declining productivity remains a major challenge in the construction industry around the world. In 1968. A construction roundtable was set up due to concerns about rising construction costs due to rising inflation and a significant reduction in construction productivity.

The United Nations Committee on Housing, Construction and Planning (UNC) has published significant guidance on the impact of repetitions on construction operations and processes. The study found the need to increase productivity, perhaps more serious in the construction sector than in any other sector. It was necessary to implement, as far as possible, industry-wide principles of production throughout the construction process. Although it was known that careful adaptation to the construction industry would be required to implement the knowledge and experience gained in the manufacturing industry (Alinaitwe, H., Mwakali et al 2015).

Past research and studies show the number of factors influencing productivity, there are still anonymous factors that need to be further explored even in developed countries (Makulsawatudom and Emsley 2002). The study (Polat and Arditi 2005) noted that productivity policies are not always the same in every country. Their research identified various factors influencing productivity and grouped them according to their characteristics, such as design, performance plan, material, equipment, labor, health and safety, supervision, working hours, project factor, quality, leadership and coordination, organization, owner / consultant and external factors.

Classified performance factors that cause low productivity as industry-related factors, work-related factors, and management-related factors. Factors related to the industry are, in essence, the characteristics of the construction industry, such as the uniqueness of construction projects, various places, adverse and unpredictable weather and seasonality. Labor factors include union influence, little learning potential, and lack of motivation. Management factors usually relate to insufficient management of tools or methods (Alinaitwe, H.M. et al 2007).

Classified performance factors into two categories: external factors that are not under the control of the organization's management, and internal factors related to performance factors originating from the organization. From their point of view, the nature of the industry, as a rule, the division of design and construction functions, influenced the productivity of construction due to delayed drawings, design changes and subsequent revisions (Bramble, B. B. et al 2000).

Construction clients sometimes hampered construction productivity due to a lack of relevant knowledge about construction procedures. Moreover, as an outdoor industry, the performance of construction is extremely affected by weather conditions. In addition to factors that are not used, health and safety rules and codes of practice are other external factors that affect task performance and productivity. In the internal category, management shortcomings can lead to loss of resources with the consequences of loss of productivity; introduction of modern technology and training for the employee will increase productivity (Doloi, H., Sawhney et al 2012).

An ideal was built to describe the factors that affect productivity. In the model, two groups of factors determine the performance, work environment and tasks to be performed. Labor and environmental factors relate to how well the work is organized and done. The work to be performed, or the working content, relates to the work required to perform and includes the physical components of the work, the requirements for the specifications, and the design detail (Enshassi, A. et al 2006).

Past research has shown that the task to be performed can affect labor resources by as much as 15%, while the working environment can affect labor needs by an additional 25%. Based on this factor model, a more detailed study was conducted. One study suggested that the planned overtime always leads to loss of efficiency due to the inability to deliver materials, tools, equipment and information at an accelerated rate (Enshassi, A., et al 2007).

Surveys and interviews are standard methods that have already been adopted in many productivity studies. A survey of leading construction contractors to identify factors affecting productivity in Singapore. Three issues of extreme concern were identified as complexity in recruiting managers, complexity in recruiting employees, and high turnover (Hanna, A. S. et al 2005).

Authors conducted a questionnaire of project managers and managers to identify all possible factors that affect productivity. Interviews with contractors showed that weather and material delivery were the main adverse factors in site performance (Israel, G. D. 2003). The questionnaire identified recycling, material problems, tools, heavy equipment, crew intervention, crowded work areas, instruction, quality control testing and management intervention as the main factors influencing the performance and motivation of the master (Iyer, K. C., et al 2005).

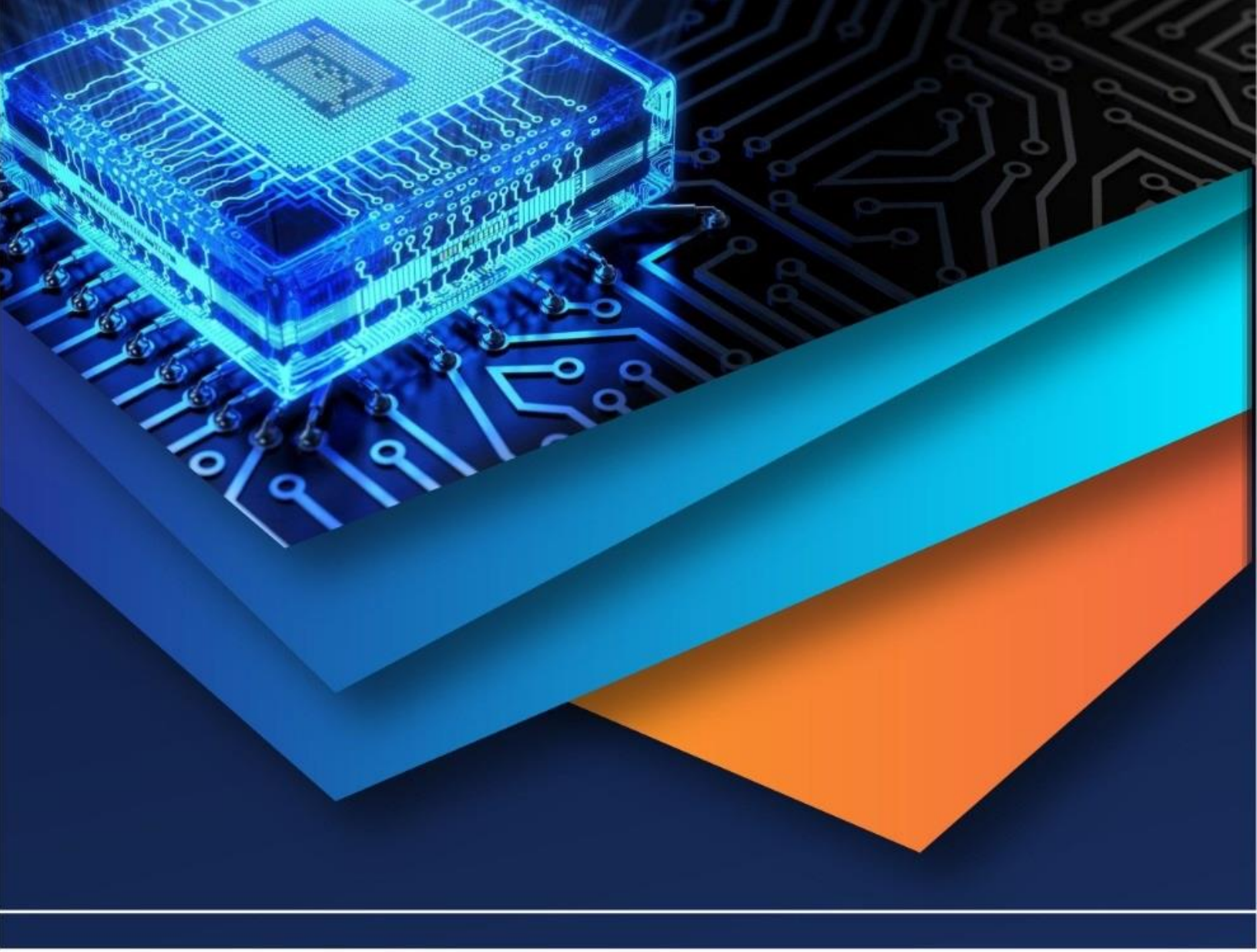
Another survey was conducted with construction personnel to assess their views on the construction industry, including their knowledge of the factors that most affect construction productivity. As a result, a set of complex factors was identified and classified into six groups: contract environment, planning, site management, working conditions, working hours and motivation (Kumar A 2004).

III. CONCLUSION

In today's world, the construction industry is assessed as one of the key industries. It helps to develop and achieve the goals of society. Exploring and knowing the productivity of construction is very important because it damages management institutions and also affects the economy of the construction industry. Prior knowledge of productivity during construction can save money and time. Investment in these projects is very high, and due to the complexity of construction, various factors can greatly affect overall productivity, so the project may eventually add even more time and money to complete.

REFERENCES

[1] Abdul Kadir, M. R., Lee, W. P., Jaafar, M. S., Sapuan, S. M., and Ali, A. A. (2005). "Factors affecting construction labor productivity for Malaysian residential projects." Structure Survey, 23(1), 42-54.
[2] Alinaitwe, H., Mwakali, J., and Hansson, B. (2005). Labor productivity in the building construction, Proceedings of CIB 2006, W065/W055/W086 - Construction in the XXI century: Local and global challenges, October 2006, Rome, Italy.
[3] Alinaitwe, H.M., Mwakali, J.A. and Hansson, B. (2007). Factors affecting the productivity of building craftsmen: Studies of Uganda. Journal of Civil Engineering and Management, 13(3): 169–176.
[4] Al-Shahri, M., Assaf S., A., Atiyah S., and AbdulAziz.A, (2001). "The management of construction company overhead costs." International Journal of Project Management, 19, 295¬303.
[5] Arditi, D. and Mochtar, K. (2000). Trends in productivity improvement in the US construction industry. Construction Management and Economics, 18(1): 15–27.
[6] Association for the Advancement of Cost Engineering (AACE), International Recommended Practice No. 25R-03 (2004). Estimating Lost Labor Productivity in Construction Claims
[7] Bramble, B. B., and Callahan, M. T. (2000). Construction Delay Claims. Aspen Publishers
[8] Cheung, S. O., Suen, H. C. H., and Cheung, K. K. W. (2004). "PPMS: A web-based construction project performance monitoring system." Automation in Construction, 13(3), 361-376.
[9] Construction Industry Institute (2000). "Quantifying the cumulative impact of change orders for electrical and mechanical contractors." Research Summary 158-1, Cumulative Change Order Impact Research Team, Construction Industry Institute (CII), University of Texas at Austin.
[10] Dai, J., Goodrum, P.M. and Maloney, W.F. (2007). Analysis of craft workers and foremen's perceptions of the factors affecting construction labour productivity. Construction Management and Economics, 25(11): 1137–1150.
[11] Doloi, H., Sawhney, A., Iyer, K.C. and Rentala, S. (2012). Analysing factors affecting delays in Indian construction projects. International Journal of Project Management, 30(4): 479–489.
[12] Enshassi, A., Al-Hallaq, K. and Mohamed, S. (2006). "Causes of contractor's business failure in developing countries: The case of Palestine." Journal of Construction in Developing Countries, 11(2), 1-14.



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