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Improvement of Labour Productivity in Construction Industry- Review

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Abstract – *Construction industry is an important aspect in every countries economy. It is necessary to optimize time and cost of construction for maximum benefit. Labour productivity plays important role in construction industry and it may be used as a measure for efficiency of construction activity. Labour productivity mainly depends on its workforce and various other parameter. The response to this problem, this paper presents an approach to measure productivity by identifying factors which are affecting current site selection. The information is dispersed in many literature and is available under various headings. An effort has been made to find out perspective of entities working at various level on usefulness of various process, technologies and techniques. This paper reviews various perspective and studies the analysis done by them and gives an approach for definite measurement of labour productivity.*

Key Words: **Labour productivity, Perspective, Factors, Review**

1. INTRODUCTION

Several studies related to labour productivity are performed for construction industry in past. Several of them were related to calculating the effect of productivity factors. Measureable calculations about the effects of those factors are required for several purposes, it includes estimation of the construction project, it's planning and scheduling. However, past study shows that it is tough to calculate such an impact, and at present there are no universally accepted standards to measure factors causing labor productivity loss in construction industry. This lack of methods for measuring effects highlights the need to enhance measureable assessments for the factors affecting productivity in building construction, and this is supposed to be the topic of this research.

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2. LITERATURE

In the "Estimating labour production rates for Industrial Construction activities" paper, S. AbouRizk, P. Knowles, and U. R. Hermann(2001) discussed about an approach that enables an estimator to create accurate labour production rates using artificial neural network. The Factors affecting labour production rates in Industrial task were found, current estimating practices and their limitations, and the process followed in collecting historical production rates. Later artificial neural network model is then described. The model is composed of a two-stage artificial neural network, which is used to forecast an efficiency multiplier (an index) depending on input factors identified by the user. Conclusion were presented by comparing new approach with the existing estimating practices.

In the "Neural Networks for Estimating the Productivity of Concreting Activities " paper, By A. Samer Ezeldin and Lokman M. Sharara(2006) the productivity of concreting activities were discussed with the help of Neural networks. In this paper three neural networks were developed to determine the productivity for formwork assembly and concrete pouring activities , within a developing market. Eighteen expert were selected to collect data and ninety two data survey were processed for neural network with the help of commercial software. The results of the developed framework of neural networks indicated adequate convergence and relatively strong capabilities.

Jason portas(1997) reviewed the application of neural network model in the area of construction productivity. The paper also include the factors that affect labour productivity on construction site. A number of neural network were tried, but the suitable model was a three layered network with a fuzzy output structure. This method was compared with traditional statistical model but the quality produced by this network was improved significantly. This paper also includes a case study with the chief Estimator.

According to Abdulaziz M. Jarkas and Camille G. Bitar(2012) labour cost comprises 25 to 55% of the overall project's cost, and thus it is regarded as a true reflection of the economic success of the operation. There are so many challenges faced by the construction industry but one of the most important is low labour productivity. The objective of this research is to identify and rank the relative importance of factors perceived to affect labour productivity on the construction sites in To achieve this objective, a statistically representative sample of contractors and others were invited to participate in a structured questionnaire survey, comprising 60 productivity factors, classified under the following various groups: (1) management; (2)

technological; (3) human/labour; and (4) external. Among the factors explored, the subsequent 10 are discerned to be the most significant in their effects on labour productivity: (1) clarity of technical specifications; (2) the extent of variation/change orders during execution; (3) coordination level among design disciplines; (4) lack of labour supervision; (5) proportion of work subcontracted; (6) design complexity level; (7) lack of incentive scheme; (8) lack of construction manager's leadership; (9) stringent inspection by the engineer; and (10) delay in responding to requests for information.

Gholamreza Heravi and ehson(2015) Eslam doost developed a model of labour productivity based on multilayer feed forward neural network trained with back propagation algorithm by which complex mapping of factor to labour productivity is performed. To prevent network from overfitting and in prove their generalization early stopping and Bayesian regularization are implemented and compared. The results proved a better prediction perform for bayesian regularization than early stopping.

Mistry soham and Bhatt Rajiv (2013) in this paper carried out a survey in south Gujrat city on civil contractors . An approx. 51 feedback were collected using an hierarchy process and relative importance index technique. They considered top most five factors which had highest RII and concluded it as the most influencial factors affecting labour productivity

C.Thiyagu and M.Dheenadhayalan (2015) they focused their study in the region of Coimbatore. They carried out survey through questionnaire and distributed it to respondents at various projects sites in the area of Coimbatore. They aimed at getting perspective from people working on different type of construction project. Respondents chosen were residential, commercial, industrial, architectural and government building.

3. CONCLUSION

Based on above review got to know to about various major factors that affects construction labour productivity and their respective methods to obtain the factors which were mainly obtained through a survey questionnaire. The factors considered kept varying from place to place . Some factors had great importance in a particular region but were least important in some other region. From this we can conclude that the labour productivity keeps on varying from region to region and a deep research is required to understand the same and their should be respective entity who should surveyed for factors rather than arbitrary survey .

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