

To Study the Effect of Skilled Labour on the Performance of Construction Project

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ABSTRACT: Skilled labor in the construction industry plays a very crucial role to the survival and growth of the industry as they are mostly engaged in the practical realization of construction projects. As a country endowed with skilled manpower, the construction industry in India can best be described as ironic. Though on the one hand, it was acclaimed to be the highest employer of the nation's workforce after agriculture, while on the other, it is faced with challenges in technical skilled labor shortage which affects organization's productivity, quality of work, duration of projects and on firm's profits. Not much research has examined the shortage of skilled workforce in the perspective of small and medium construction firms (SMCFs) and even sometimes on large firms in India. Majority of earlier research has focused mainly on large construction firms. The purpose of this study is to carry out a detailed review of archival documents aimed at examining the impact of skilled labor in the construction industry on the performance, of construction project in India.

KEYWORDS: Skilled labor, project performance, Skills shortage; Risk assessment.

I. INTRODUCTION

A shortage of skilled craft labor in the Indian construction industry has been an unfortunate cyclic trend. This shortage has been reported and discussed frequently by numerous past studies in the context of construction industry. Although the past literature provides wealth of information about influence of skilled labor shortage on construction project, less attention has been given to quantifying the impact of skilled labor availability on construction project performance. The primary contribution of this study to the body of knowledge is to fill the gap in existing literature by quantitatively, qualitatively modeling and elucidating the influence of craft labor availability on construction project performance as measured by various factors such as safety, schedule, productivity and cost.

Skilled labor shortages on a project are initiated by both the available quantity and/or qualification of skilled labors. When project managers cannot hire the required quality levels of craft labor, the project is executed with less skilled workers, even if recruiting quantity needs are met. When skilled labor quantity issues arise, a project cannot meet its basic labor demands. Construction is a labor-intensive industry and labor costs comprise a significant portion (30-50%) of the total actual cost of construction projects. It presents the findings from a research conducted on causes of low-skilled workers' performance in Nashik's construction industry. The scope of the research covers the key stakeholders in the construction industry such as; project managers; project engineers; site engineers; and site supervisors. A research question was asked in order to guide the investigation: What are the existing common factors that lead to skilled workers' low performance in the Nashik construction industry? However, this section deals with the research methodology adopted in conducting this research. The methodology employed in this study is quantitative method as discussed below. The target population comprised of key stakeholders in the construction industry in Borno state Nashik. Convenience sampling technique was used in the administration of questionnaire for this study. After taking into consideration the large number of potential respondents in the sample size along with the information required to achieve the research objectives the research instrument decided on was a questionnaire. On the other hand, after taking into consideration the different methods available to administer a questionnaire, the online-survey using survey monkey was deemed as the most suitable research instrument for the current study. This method was decided upon because it would enable the collection of large quantities of data from a sizable population sample with relative ease and therefore aid the administration process. Due to the quantitative nature of the current research, Statistical

Package for Social Sciences (SPSS, version 22.0) was used to analyse the data obtained from the questionnaires. After assessment of the questionnaires it was found that the total number of questionnaires administered was 150 respondents. However, on closer inspection this number was reduced to an actual usable sample size of 111 respondents or 74 % of the total questionnaire administered.[3] This was due to 19 questionnaires that were incorrectly completed and as a result deemed ineligible for use. In addition, 20 questionnaires were not retrieved up to the time of analysis, as it was taking a longer time and difficulty in locating the respondents. Likert Scale scoring of 1–5 was used for the questionnaire administered.

II. NEED OF STUDY

Construction can be identified as a labour intensive industry which carries heavy reliance upon the skills of labourers. Skilful labour force is one of the vital elements for the continuity and successful implementation of construction projects. It has been identified that the performance of labourers neither been measured quantitatively nor qualitatively in the Indian construction industry. Forward the findings of the study revealed that less guidance, less motivation on labourers and poor examination of their skills are the major hindrances for the skills development. Migration, technology innovation and poor image on employment condition were identified as the root causes of the skilled labour shortage. Moreover, the study revealed that unskilled labourers are working as skilled labourers due to the existing shortage of skilled labourers and it will negatively affect the quality and standard of the outcomes, cause high material wastage and spend long time for project completion. By considering the aforementioned facts, there search ultimately introduced a framework to develop skills of labourers to achieve the successful project delivery in Indian construction industry.

III. PROBLEM STATEMENT

Construction industry faces challenges with regard to problems associated with the successful project delivery and the problems related with skills of laborers in the construction industry. Among them, shortage of construction skilled workers has become worldwide issue. Similarly, there is a shortage of skilled laborers in Indian construction sector. The industry lacks skilled masons, carpenters and plumbers which make deceleration of construction activities by increasing the total cost of project, posing a major challenge to the industry. Therefore, the aim of the study is to develop a framework for skills developments for laborers to enable the successful project delivery in the Indian construction industry.

IV. OBJECTIVES

1. To identify performance parameters of skilled workers.
2. To prepare and undertake the questionnaire survey regarding availability of skilled workers and their respective impacts.

V. METHODOLOGY

- 1- A literature review carried out to investigate the previous works in this research area.
- 2- Identification of factors affecting the project performance process based on the previous literature review.
- 3- A questionnaire survey carried out to identify the most important cost project performance factors in the construction market.
- 4- Pertinent data of a selected sample of building construction projects collected. The analysis of such data will help to show how the previously identified cost estimating factors can affect the project performance process.

Table -1: Scale Index

Average Index	Range
1.0 ≤ Average Index < 1.5	Not Significant
1.50 ≤ Average Index < 2.50	Slightly Significant
2.50 ≤ Average Index < 3.50	Moderately Significant
3.50 ≤ Average Index < 4.50	Most Significant
4.50 ≤ Average Index < 5.00	Extremely Significant

Causes of low skilled workers' performance in construction projects in Nashik region. The purpose of this section of the research focuses on the

mean ranking analysed on the objective that is the 'causes of low-skilled workers' performance in construction projects in Nashik region. The data

analysed from the survey conducted was evaluated to determine its significance using the average mean

index scale adopted as shown in Table No. 1

Sr No	Description	Average Index	Rank
Various causes of impact on construction project performance			
1	Low wages of skilled workers	3.78	1
2	Lack of sufficient skill acquisition centers for skilled workers	3.75	2
3	Lack of incentive scheme programs for skilled workers	3.70	3
4	Vulnerability to safety and health care services on site	3.67	4
5	Lack of standard salary scales for skilled workers	3.65	5
6	Delay in supply of materials and equipment to site	3.63	6
7	Ineffective vocational training programs for skilled workers	3.62	7
8	Outdated machines for operation on site	3.60	8
9	Delay in payment of skilled workers wages	3.57	9
10	Lack of free medical facilities for skilled workers	3.52	10
11	Plants malfunction and maintenance on site	3.48	11
12	Shortage of plants and equipment on site	3.47	12

13	Lack of free transportations for skilled workers	3.45	13
14	Change of orders of project execution	3.42	14
15	Excessive rework by skilled workers due to construction errors	3.40	15
16	Conflicts among skilled workers on site	3.37	16
17	Lack of free residential accommodations for skilled workers	3.30	17
18	Unfavorable weather conditions	3.25	18
19	Lack of issuance of training certificates to qualified skilled workers on completion of training programs	3.15	20
20	Overcrowding of skilled workers during project execution	3.10	21
21	Lack of gifts during festive periods for skilled workers	3.05	22
22	Lack of opportunity to observe public holidays for skilled workers	2.93	23

VI. CONCLUSIONS

1. Construction industry is a people oriented one with the presence of various forms of skilled to unskilled labor.
2. The main purpose of this study was to quantitatively model the influence of skilled labor availability on construction project performance
3. The causes of shortages of skilled workers performance in construction projects in Nashik as the major objective of this study is achieved through survey using well-structured questionnaire.
4. The findings revealed that, most significant causes of low skilled workers performance are low wages, lack of sufficient skill acquisition centres, lack of incentive schemes programs,

Vulnerability to safety & health care services & lack of standard salary scales for skilled workers.

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