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Impact of Skilled Labour availability on the Performance of Construction Industry

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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. Skills shortage in construction is an international phenomenon. In Nashik the problems are compounded by the legacy of a government that ensured that more than eighty percent of the population was not educated to manage a construction economy and then handed over a decimated construction industry. Injection of massive amounts of money for reconstruction and development, and the exodus of essential skills exacerbated the situation to the point that construction could not deliver on promises of basic needs for the vast majority of the population*

Key Words*: *Craft labor; Cost; Data combining.

1.INTRODUCTION

Skilled labor shortages on a project are initiated by both the available quantity and/or qualification of skilled labors. 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. Due to the quantitative nature of the current research, Statistical Package for Social Sciences (SPSS, version 22.0) was used to analyses 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. Like Scale scoring of 1–5 was used for the questionnaire administered.

1.1 Scope of Work

- The construction industry is the major beneficiary of these research findings.
- The contractors and other key players in the industry are going to benefit especially if the contractors avoid or minimize the causes of low-skilled workers' performance in construction projects.
- Motivation of skilled workers through various means as previously mentioned if strictly abided by contractors will improve skilled workers' performance and productivity towards successful project delivery

1.2 Objectives

1. To analyze the collected data and determine the relationship between availability of skilled workers and performance parameters in projects.
2. To develop model for correlation between causes of shortage of skilled workers and performance parameters of project.

1.3 Limitations of the Study

1. Barriers to development of skills were traditional thinking of laborers and contractors, less government involvement, less effort by the organizations, unavailability of time for both organizations and laborers.
2. Various barriers which would affect to the development of skills are, poor image of the industry, less job satisfaction/wage, less concern by the employer organization, Subcontracting.

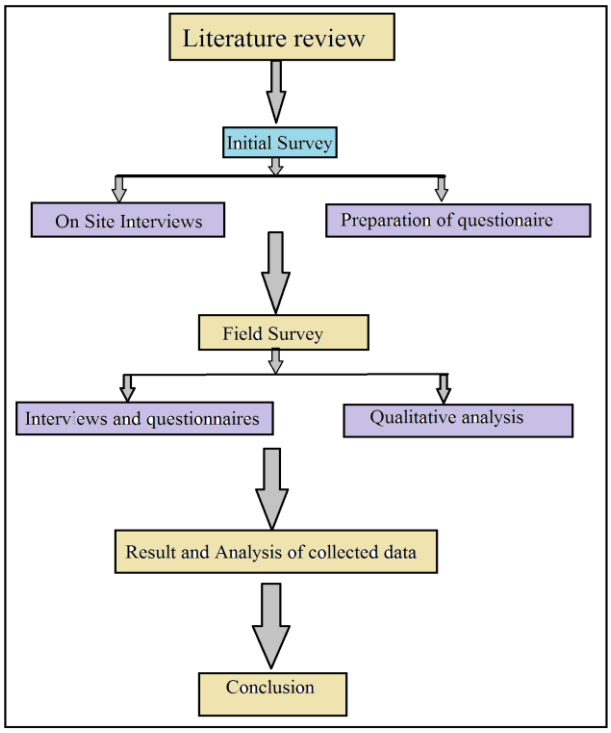

Fig -1: Methodology in the form of flow chart

2. Skill Shortage

Skills are the necessary competencies that can be expertly applied in a particular context for a particular purpose, and skills shortage occurs where employers are unable to fill vacancies or have difficulty in filling vacancies for a particular occupation, or specialized skill needs within that occupation, under current levels of remuneration and conditions of employment, and location. Shortages are typically for specialized and experienced workers in an occupation, and also relatively overall unemployment. An occupation may be recognized with shortages even where there is not a shortage in all specializations, and may be in shortage in some geographical areas only. Technology changes which result in new methods and skills requirements often lag behind retraining. Degree of difficulty may require higher basic education levels, such as Grade 12 mathematics, particularly in the technology trades. The shortage may be identified as resulting from deficiencies in the education system at school levels.

2.1 Causes of Skill Shortage

The construction industry boom means worsening skills crisis. Retirement of skilled managers, professionals and artisans coupled with a deficient education and training system means a dwindling pool of human resources. The attraction of UK, Australasia and the Middle East will be a continuing draw for talent. Attracting new staff often means we are competing with lifestyle choices – it is a hearts and minds issue. Mobility in career choices means companies face problems recruiting and retaining experienced staff, competing with more attractive packages resulting in higher staff turnover. In civil engineering during the 1990s, for example, the number of graduates declined by over 40% in spite of an overall increase in university graduates. Many of these do not remain in the industry, and many are attracted overseas. The poor public image of the construction industry as a career and the ambiguity of functions in construction, coupled with the perception that a career in construction means working 50% more for 50% less, forever being shipped from one site to another, is a major factor. The lowly professional status means that there is an increasing reluctance of younger employees to commit the necessary effort to achieve professional status. Construction is notorious for its low profit margins, which explains why there is a reluctance to increase salaries.[21] When margins are at historical low levels, we have a skills shortage which could lead to a reversal in roles – employees may be interviewing prospective employers. Changes in on the job training and the demise of apprenticeships have a long-term impact on the skills base. The low national interest in physical sciences, mathematics and the massive inequality in education reduces the potential pool of required skills. Where the construction industry does not interact with people at school or a university, it results in poor career information and further reduces the choices. The skills profile in construction is skewed towards retirement age. As skilled managers and artisans retire and insufficient recruits are capable of replacing them, the skills shortage is set to grow and construction prices will increase, posing an unnecessary burden on the construction economy. We cannot continue to blame the government (or apartheid) for the problem, or even look to the government for a solution. Yet that is precisely what we have been doing.

2.2 Its Effect on Construction Industry

Skills shortage poses the greatest threat to the future of construction, and will continue as demand for construction work increases. The boom in demand puts pressure on the construction industry which is struggling to meet increasing demand for its services. There will be an increase in construction demand together with a worsening supply of middle and senior

management. The construction sector is struggling to meet the increasing demand for its services because of an increasing industry-wide skill shortage. The skill shortage will continue as the demand for construction work increases, and is most acute in the public sector where the most sought after skills are for engineers, natural scientists and artisans. The shortage of professionals and managers within the industry is reflected in many parts of the world, and the construction industry is becoming more global. The risks for both contractors and their clients as human, material, logistical and financial resources are being leveraged to unsustainable levels. Companies are expected to develop more of these resources internally as the projects evolve, exacting a toll on the efficiency of the company and the ability to meet deadlines. For how much longer can this continue?

3. 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: Various Causes of impact of labor on the performance of construction project

Sr No.	Various causes of impact on construction project performance
1	Low wages of skilled workers
2	Lack of issuance of training certificates to qualified skilled workers on completion of training programmes
3	Lack of opportunity to observe public holidays for skilled workers
4	Vulnerability to safety and health care services on site
5	Overcrowding of skilled workers during
6	Lack of standard salary scales for skilled
7	Excessive rework by skilled workers due
8	Conflicts among skilled workers on site
9	Unfavorable weather conditions
10	Delay in supply of materials and
11	Ineffective vocational training
12	Lack of sufficient skill acquisition centres
13	Lack of free food vouchers for skilled
14	Outdated machines for operation on site
15	Delay in payment of skilled workers'
16	Lack of free medical facilities for skilled
17	Plants malfunction and maintenance on
18	Lack of free residential accommodations
19	Lack of gifts during festive periods for
20	Shortage of plants and equipment on site
21	Change of orders of project execution
22	Lack of incentive scheme programmes for
23	Lack of free transportations for skilled

As shown in Table No. 5.3 below represents, 16 respondents representing 53 % were Company Directors while5 respondents representing 17 % were project managers. On the other hand, 9 respondents representing 30 % of the stakeholders were site engineers.

Table -2: Position in Organization

Position	Frequency	Percentage
Company Director	16	53
Project Manager	5	17
Site Engineer	9	30
Total	**30**	**100**

Table – 3: No of Executed Projects

Parameters	Frequency	Percentage
10 and Below	15	50
11 to 20	9	30
21 to 30	4	13
31 to 40	2	7
41 to 50	0	0
51 and Above	0	0
Total	**30**	**100**

Table No. 5.5 represents the in charge of Managing in construction Projects. Over 16 Company Directors from various firms manages the material which contributes to about 53 % according to my survey.2 Project Managers from various firms manages the material which contributes to about 7 % According to my survey. 7 Site Engineers from various firms manages the material which contributes to about 23% According to my survey. 3 Specific sections from various firms manage the material which contributes to about 10% According to my survey. 2 Others from various firms manage the material which contributes to about 7 % According to my survey.

Sr No	Description	Total	Average	Rank
1	Increase in costs	**30**	**1.00**	**1**
2	Delays	**28**	**0.93**	**2**
3	Reduce quality	**27**	**0.90**	**3**
4	Low productivity	**25**	**0.83**	**4**
5	More rework	**20**	**0.67**	**5**
6	Increase in cost of production	**18**	**0.60**	**6**
7	Rise in construction workers' pay	**15**	**0.50**	**7**
8	Decrease in the size of the construction labor sector	**14**	**0.47**	**8**
9	Higher accidents rates	**12**	**0.40**	**9**
10	Reduction in organization's competitiveness	**11**	**0.37**	**10**
11	Enterprise failure	**3**	**0.10**	**11**

4. Recommendations

Considering the result of this study, which shows adverse impact of a skilled labour shortage on a project performance. This study also revealed that there is a significant shift in skilled workers' preferences from work satisfaction to higher income and job security.

5. CONCLUSIONS

- 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
- The findings revealed that, most significant causes of low skilled workers performance are low wages, lack of sufficient skill acquision centers, lack of incentive schemes programmed, Vulnerability to safety & health care services & lack of standard salary scales for skilled workers.
- The correlation coefficient shows that if the various causes of skill shortages increases then their impacts on construction industry also increases in a same manner.

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