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SKILL LABOUR SHORTAGE INCONSTRUCTION INDUSTRY

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Abstract: The study investigate skilled labour requirement in the construction industry. Construction skilled shortage workers have become worldwide issue. It also becomes the greatest challenge facing in construction industry in word. Local workers are not highly motivated and it is understood that killed workers produced by vocational training cannot meet the needs of the economy. Some of them even leave construction industry by taking education from construction schools. The local construction sector is one of the most important sectors, accounting for 7.4% of the country's economy. Over the last decade it has grown 'even encouraging foreign investors to enter the local economy. And foreign workers have felt available by entering local competition. A labour shortage in a different work at construction site like formwork, concreting work, excavation, electric, reinforcement, Crain drive, plumbing work, painting work, carpenter, etc. This paper explores on skill labour shortage in construction work in a world. Dissection on this paper are the main problem of labour doing the work, collect the data, and solve this issue as a possible. Labour shortage are sector specific labour shortages or suitably skilled labour shortage. This document aims to identify employment gap areas in the midlands construction industry. A total of population consisting of project managers, site engineers was reached by questionnaire method. And analyses the data and find the best solution of this problem.

Index Terms – skill labour shortage, spss software, contractor, engineer, labour training, mindset of labor

1. INTRODUCTION

Worldwide labor shortage are experienced in the US, UK, Canada Malaysia, Bahamas, India. The Canadian government and business group have proposed skilled immigration as a strategy to fill the gap. The construction sector has an important place in country's economy. It is an important contribution in development. Construction is a global industry knows for creating job across a range of skill levels and expertise. The lack of skills to work in the building is not country specific problem, it is a global problem. Because construction is an important factor in the GDP of countries around the world. The construction industry is considered one of the largest industries in the world. It is an essential part of the country's economic development, but its success depends on skilled workers. Recruiting and qualifying skilled workers is still a challenge for the business.

The construction industry has been experiencing labor shortage for years. The demand for skilled construction workers is increasing due to the growth of the economy and the construction of new buildings and infrastructure projects. However, the supply of workers has not been expected. There are many reasons for underemployment in construction. One of the most important reason for this is the aging workforce. Many experienced workers are retiring and there are not enough young workers to replace them. Also, young people are not interested in getting a job in construction. Another reason for the labor shortage is the difficulty of finding workers with the right and appropriate skills. Many construction jobs require specialized skills such as plumbing, electrical engineering or carpentry, but there are not enough workers with these skills.

The labour shortage has greatly affected the construction industry. It causes increased labour costs, project delays and decreased productivity. To address the labour shortage, some construction companies have increased wages and benefits, invested in employee training and technology to improve job performance and productivity in the workplace. In addition, efforts are being made to promote the construction industry as a viable career option for young people.

1.1. Objective of this research

- Find out where there is a shortage of skilled workers.
- Investigate the causes of labour shortage in construction.
- Check the result of the underrun.
- It brings the necessary reductions to fill the shortage of skilled workers.

1.2. Methodology

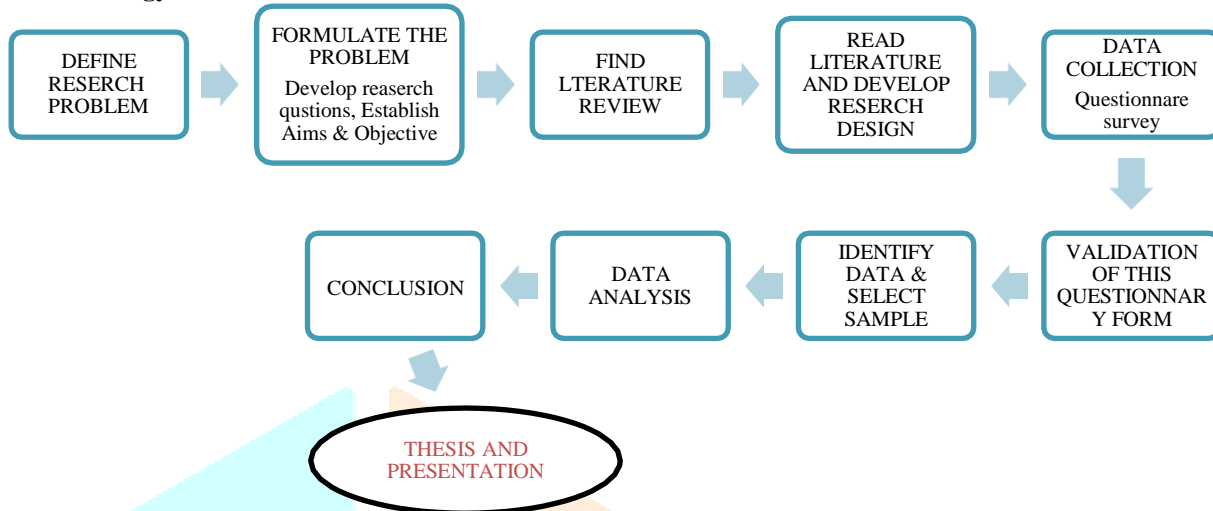


Figure 0.1 Methodology of thesis

- Collect and analyse preliminary data and conduct data analysis to understand the nature of the workforce shortage.
- Preparation of two types of questionnaires, one for management and professional level, the other for business.
- Data were collected from a semi-structured interview based questionnaire. Analytical techniques to evaluate data and identify the causes of skilled labour shortages and their impact on the construction industry.
- Give good ideas/mitigation to overcome the problems.
- Present conclusions and recommendations from the process.

2. LITERATURE REVIEW

(Akomah et al., 2020) Painters, decorators, electricians and tilers are the cause of the lack of skilled workers in the construction industry in the midlands. This deficiency is due to economic relation, external forces, job preferences, job characteristics, job satisfaction, economic constraints and personal characteristics. Inadequate delivery and safety related issues were noted as the main impact of the shortage, also, patience, the ability to work in harmony with other people, flexibility (adapted to ease of chance), honestly, skills intelligence, communication, thinking and the willingness to increase your knowledge base and skills features need to be worked on. To reduce the shortage of skilled workers, workers should be supported and taught to develop the attitudes and skills required by their jobs.

(Ahmad Zaki et al., 2012) If successful, the NDTS can help reduce the quality and inequality of skilled workers, bridge the skills gap between businesses and organizations, reduce dependency on migrant workers, transfer skills to skilled workers, training centres, and transform the economic community. Malaysia still has little knowledge of the use of R&D and that it should be a part of the country's development. Although CIMB has R&D as one of the most important; it is not well established at the higher education level or in the industry itself. To be effective and to increase the capacities of local workers, it is necessary to understand the principles and rethink the development strategy. Knowledge management strategies are accepted as a method of identifying and using information tools because they are related to personal knowledge, lesson learned training and internships.

How can knowledge management help provide a knowledge base to empower people and facilitate vocational education and training in Malaysia?

(Oseghale et al., 2015) In a survey of skilled workers in the construction industry in Edo state, Nigeria, 80% of surveyed executives admitted to experiencing construction worker shortage in all four lines of business. (Such as masonry, carpentry, painting and plumbing). Seventy five percent of carpenters surveyed, 56% of masons, 77% of plumbers and 65% of painters checked that business were unemployed. Work, the most important factors contributing to the shortage of skilled workers; lack of clear roads, high employee turnover, low wages and reduced technical training.

Research shows that the effects of labour shortage including-

- 1) Additional labour costs,
- 2) Delays due to labour shortages
- 3) Cost overruns.

Research results show that the construction industry has older workers as more than 65% of carpenters are over 42 years old, 60% of masons are over 33 years old, and 85% of painters are over 42 years old. The study revealed that young people age 18-25 are under represented in the design industry.

(Pathirana, 2021) Lack of skills is a major problem identified by the construction industry through a comprehensive analysis of local economy understanding, public participation in foreign trade and government policy. Many facts, including economic and social, are discussed on this issue. Focusing on the youth in Sri Lanka, the government's plan is areas related to the economy including necessary schools and planning, policies and regulations for investment economy. Youth work it is important to rebuild the foundation of the economy that have fallen due to the spread of COVID-19 and to follow trends in global economic development that will ensure robust growth in a local context.

Future researchers will be able to use this as a good basis for their studies. This review will include human capital, infrastructure development. It will also help establish policies at the national and business level. The job is directly related to the employment and GDP of the country. Additionally, the authors propose to examine the impact of labour migration on middle-income countries.

(Juricic et al., 2021) Labour migration has a huge impact on the EU Market for many reasons an aging population, economic growth and trade inequality among EU members. Economic activities in member states the regulatory process varies from country to country, but in all member states there are unsustainable workers who must be paid by sending skilled workers from our country or in the movement of EU unpaid workers. Skills and jobs are not fixed, they change over time and are all reasons why labour shortage are difficult to predict.

In addition, it is worth noting that most EU member states saw the current trade deficit with almost perfect growth in the third quarter, but generally acknowledge labour migration and did not attribute access to job deficits

(Varadarajah, 2020) A labour skill are important and necessary for the construction industry. Skill labour shortage are a major problem in the construction industry. This study served the population on construction workers in 30 construction industry in Batticaloa city and examined the causes, impact and measures of construction labour shortage. The collected data were analysed using SPSS Software. From the finding, it was concluded that 60% of construction companies experienced a shortage of skilled workers.

“Skill workers change jobs after training, unemployed workers, young people refuse to join construction companies main reasons for workers not enough, construction delays, cost overruns and more rework Batticaloa large construction is not good for business due to lack of skill workers.

As the construction industry is growing rapidly the continued development of the construction industry and products and services is crucial to reducing poverty and work. However to get the professional must have the necessary skills in business, business and management can not only employ people well, but also improve the overall performance of the construction.

(Alshahrani et al., 2023) The importance of evaluating factors affecting skill shortage in sustainable construction. The view of civil engineering in Mecca. This study aims to evaluate the importance of these views from the perspective of construction professionals in Mecca.

To acquire information on the perceived significance of several factors

Influencing the scarcity of trained labour in sustainable construction project, the researchers conducted a survey among construction professionals in Makkah. Low education and training, lack of enthusiasm in the construction sector, low pay and perks are some of the variables taken into account in the study.

(Watson, 2012) An analysis of the Australian construction industry that focuses on the complexity and impact of unemployment in Australia. The concept of these explanations in order for the enterprise to meet its expectations, its expectations, it must have a sufficient number of talented and experienced people. Impact on the construction industry, the report focuses on how lacking skilled labour has a negative effect on the construction sector. It goes over how.

(Shekhar et al., 2021) The performance and success of the construction sector are significantly influenced by the availability of trained labour. This study looks at how the availability of skilled labour affect the performance of the construction and investigate any potential ramifications, the authors carried out a thorough analysis. The report shows how skilled workers are needed in the construction industry for everything from design and planning to actual construction. The authors highlight the difficulty of finding skilled workers and its impact on the labor market. A number of factors can contribute to famine including a weak market, inadequate education and training and demographic changes. Findings show that work is not enough.

3. DATA COLLECTION

Data collection is the process of enquiry, measure the data and analyzing correct data. The task of data collection begins after a research problem has been defined and research plan chalked out. Data collection was done after the identify and analysis various factor affecting of skill labour shortage in construction industry at India and other country. A create the questionnaire and collection the data by construction field by contractor, engineer, project manager and labour.

Then understand the factored effect on skill labour shortage in construction industry various literature paper are reviewed. This list of questionnaire of use the data collection at the field, this questionnaire are validates with project manager and site engineer those are specialists for construction worker, and more than 10 year of site work experience.

1. Facility provide by company for worker's residence?
2. Latest technology equipment's used in construction site?
3. Availability of material in site on time?
4. Payment of salary on time?
5. Satisfaction of doing work is?
6. Speed of construction work?
7. Behavior of site employee?
8. Safety provide on-site?
9. Condition of working environment at site?

3.1 Sample size

$$n = \frac{m}{1 + (m - 1)/N}$$

Were n= Sample Size

m= 95% confidence level with a margin of error 0.1 therefore m is 87

N= estimated population value

Here 95% confidence level is taken and the sample size for classified stakeholders n= 81

According to this formula sample, size is 81 and this research study received 72 responses which are 88.88% of the total sample size.

3.2 Factor Effecting in skill labour shortage in construction industry

- Worker mind-set
- Not proper trained workers
- Interested of particular work
- Facility provide by company
- Equipment drive training
- Immigration of worker in other country
- Payment delay of labour
- Health check-up of site worker
- Type of providing wages of labour
- Low salary

3.3 Factor affecting of company due to skill labour shortage

- Paying extra money for labour
- Schedule delay caused by labour shortage
- Cost overrun
- Quality of work are not good

4. DATA ANALYSIS

4.1 Primary data

Primary data Analysis are used to frequency method. In this data analysis general information regarding respondent are given. Basic question and answer are mentioned in this questionnaire form. in this questioner form are filling by this data filled by Contractor, Engineer, Supervisor, Project Manager. Filled the data of name, email, role at site and site working experience.

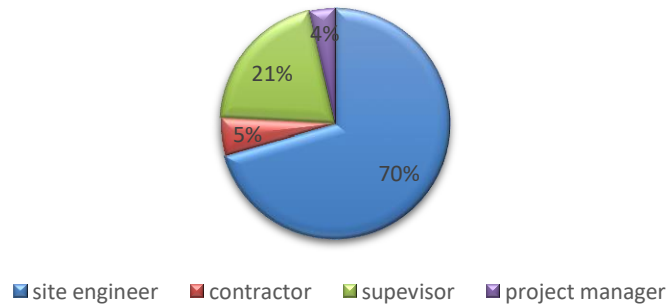


Figure 0.1 respondent

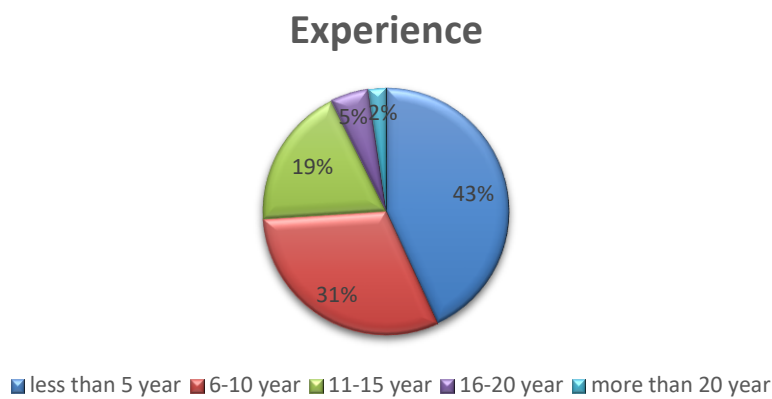


Figure 0.2 site working experience

4.2 secondary data analysis

The data is analysed with Relative Importance Index (RII) and correlation method using different functions of Excel and bar chart. Find the RII for each factor, and then provide a ranking. The top 05 reasons that are significantly skill labour shortage in construction industry using this approach from the 09 questions.

4.2.1 Relative Importance Index (RII)

It is a weighted average method in which the average rank for each question is calculated and then the rank for each capability is derived from the average of the ranks of the questions grouped under that capability.

$$RII = \frac{\sum w}{A \times N}$$

Where W is the weighting as assigned by each respondent

$$RII = \frac{5 n_5 + 4 n_4 + 3 n_3 + 2 n_2 + 1 n_1}{A \times N}$$

n5 = Number of Respondent for Excellent
 n4 = Number of Respondent for Very Good
 n3 = Number of Respondent for Good
 n2 = Number of Respondent for Neutral
 n1 = Number of Respondent for Poor

A = (Highest weight) = 5

N (Total Number of Respondent) = 72

Responses though to google form and fil to five options Excellent, very good, good , neutral, poor and select to options analyze analysis this factors and given a rank of factors.

Table 0.1 responses in questioner form

Sr no.	Questions	Excellent	Very good	Good	Neutral	Poor
1.	Facility provide by company for worker's residence	22	22	22	5	1
2.	Latest technology equipment's use in construction site	28	26	14	3	1
3.	Availability of material in site on time	28	21	17	5	1
4.	Payment of salary	25	24	15	6	2
5.	Satisfaction level in work	27	22	12	10	1
6.	Speed of construction work	24	23	16	7	2
7.	Behavior of site employee	28	21	16	7	0
8.	Safety provide on site	27	24	14	5	2
9.	Condition of working environment at site	25	22	16	7	2

4.2.2 Skill labour shortage factor RII rank

Table 0.2 skill labour shortage factor rank

Sr no.	factors	RII	Rank
1.	Facility provide by company for worker's residence	0.764	9
2.	Latest technology equipment's use in construction site	0.814	1
3.	Availability of material in site on time	0.794	3
4.	Payment of salary	0.778	5
5.	Satisfaction level in work	0.778	6
6.	Speed of construction work	0.767	8
7.	Behavior of site employee	0.794	4
8.	Safety provide on site	0.800	2
9.	Condition of working environment at site	0.769	7

4.2.3 Correlation matrix

A correlation matrix is a statistical technique used to evaluate the relationship between two variables in a data. The, matrix is a table in which every cell contains a correlation coefficient, were 1 is considered a strong relationship between variables, 0 a neutral relationship and -1 a not strong relationship.

❖ Statics table

Statistical data are short data coefficients that represent a data set that can represent the entire population or a sample of the population. Descriptive statics are divided into measures of mean trend and measures of variance.

Table 0.3 descriptive statistics

Descriptive Statistics			
	Mean	Std. Deviation	N
Facility provide by company for worker's residence	3.82	.998	72
Latest technology equipment's use in construction site?	4.04	.926	72
Availability of material in site on time	3.88	.963	72
Payment of salary on time	3.82	1.179	72
Speed of Construction work	3.83	1.088	72
Satisfaction level in work	3.79	1.100	72
Behavior of site employee	3.88	.948	72
Safety provide on site	3.92	1.031	72
Condition of working environment at site	3.81	1.070	72

❖ Mean graph

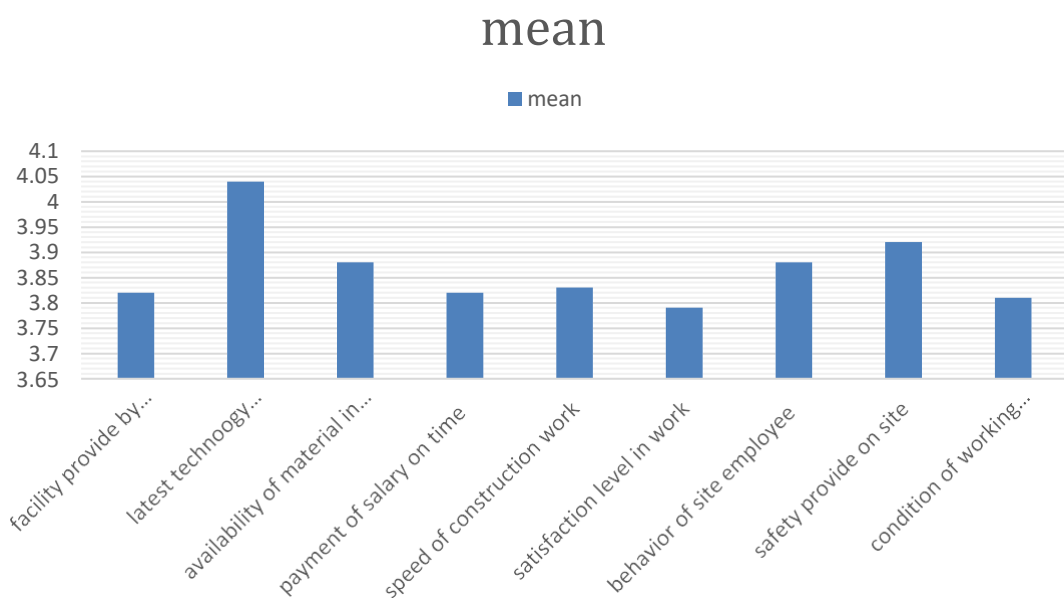


Figure 0.3 descriptive statics mean

4.2.4 Top 5 factor according to mean through SPSS Software

Table 0.4 top 5 factors through SPSS Software

Rank	Factor	Valid response	Mean	Standard deviation
1.	Latest technology equipment's use in construction site	72	4.04	0.926
2.	Safety provide on site	72	3.92	1.031
3.	Availability of material in site on time	72	3.88	0.963
4.	Behavior of site employee	72	3.88	0.948
5.	Speed of construction work	72	3.83	1.088

4.2.5 Top 5 factor according to RII Method

Table 0.5 top 5 factor through RII method

Rank	Factor	RII
1.	Latest technology equipment's use in construction site	0.814
2.	Safety provide on site	0.800
3.	Availability of material in site on time	0.794
4.	Behavior of site employee	0.794
5.	Payment of salary	0.778

5. Conclusion

As previously stated, this research aim is to identify where the labour shortage is and the causes of that. A skilled labour shortage in construction industry is a challenge of construction `line because labour shortage in all category of work in construction site like formwork, electric, plumbing work, concreting work, steel work. Major reasons behind labour shortage are lack of training and knowledge, many skilled labour are moving abroad because they don't get enough value or money. Skilled labour shortage are most effected company because of this the company has to face many problems like cost overruns, project delays, paying extra money to labour.

This research are identify the factors that are effect on skill labour shortage in construction work. Factors are identified through literature review and questionnaire form. Data is analyzed by relative importance index (RII) method and correlation matrix using SPSS software. According to the questionnaire survey's findings, a some problems of effect in skilled labour shortage in construction site.

recent observation and analyses based data through Relative importance index (RII) and SPSS we analysed 5 most effected factors, in a skill labor shortage and factor was ranked first (RII 0.814 & mean value 4.04) which most effect on skill labour shortage in construction field. And a mind-set of labour are very different of other skilled labour. Some labour are not intrusted of their work but they are working continue because lack of money.

A defined the labour problem and proper trained the labour of minimum 3 month. A trained labour are working in construction site the directly positive effect in project like saving of money, time, and energy, and providing a good facility of labour and behavior of company employer are friendly, all safety are providing of labour like PPV Kit, helmet, shoes are providing a company.

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