

# CAUSES, EFFECTS AND IMPACTS OF SKILLS SHORTAGE FOR SUSTAINABLE CONSTRUCTION: A REVIEW

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**Abstract:** The lack of skilled labour is a major problem for the construction industry in India. The disadvantage is the consequence of a lack of a structured training program focused on skills within the country's education system. In addition, performers think that workers must learn while working. The performance of skilled artisan is one of the key aspects of productivity that it requires adequate attention to efficient implementation of projects in the construction industry. Therefore, the purpose of this review is to explore the concept of lack of skills, causative and relevant mitigation measures in the context of the use of the Secondary data available. Recommended steps for systematic review of literature where he continued to increase methodological rigor.

**Keywords:** Sustainable construction, skill shortages, skill training

## I. INTRODUCTION:

The lack of skills is often a major problem for the economies of many countries. As rapid globalization and technological change shaped the global labour market, the lack of skills has become a growing problem for employers. The extent of the problem varies widely among countries and is most visible in Asia. According to the Organization for Economic Co-operation and Development (OECD) report, India ranked second among the 10 countries with the greatest lack of skills. 64% of companies in India find it difficult to find qualified workers. Estimates show that around 9 million students graduate each year in India, but their obsession with government jobs leads to a breakdown that has a consequence of the country's Gross Domestic Product (GDP). [19]

According to the National Skills Development Corporation (NSDC), a public-private partnership charged with financing and directing private skill development programs, approximately 12.8 million people will be ready to join the labour market each year in the next decade. There are numerous challenges that the government faces when providing quality exercise for the skills of young people in the country. [19]

These challenges include:

1. Increase the skill and capabilities of the current system to guarantee equal entrance for all.
2. Quality and significance
3. Creating operational conjunction between school teaching and government efforts in skills development
4. Official creation of an institutional mechanism to guarantee the quality of research, testing and certification, affiliation and accreditation.
5. Mobilization of appropriate investments to finance the development of skills.

The government seems to have realized the fundamental role played by education and the development of skills in the construction of labour. Therefore, in boosting the country's economic growth. The Skill India program was launched on July 15, 2015 along with the creation of a new National Policy for Skills Development and Entrepreneurship. The main objective of Pradhan Mantri Kaushal Vikas Yojana (PMKVY) was to train more than two million people in one year: NSDC 2014/2015. It trained 1.3 million people. Within the mission, the previous goal of training 150 million people by 2022, rose to a much higher target of 400 million people by 2022. [10]

The development business in India is developing over 16% p.a. Also, is probably going to achieve 500 billion million occupants before the end of XIIth Five Year Plan period. In this industry, aptitudes and learning are the motors of monetary development and social advancement. The economy is progressively profitable, increasingly creative and progressively focused through the improvement of a bigger human capital. There is dependably a distinction between learning and execution, and the hole is clarified by the insufficiency of the aptitudes.

The Sustainable Construction defined as "A development which can work utilizing an ideal measure of vitality, devour less water, save normal assets, produce less waste and make space for sound and happy with living, when contrasted with ordinary development, is a development building"

Subsequently, the key issue for the sustainable advancement of the mix is the distinctive parts of sustainability in three fundamental angles that are social, economic and environmental.

The connection between these viewpoints can be spoken to graphically show in figure; 1 the Wen outline made out of three overlays the circles with each circle speak to an alternate angle. [17] Three Overlapping circles symbolize how the center of

maintainability requires value thought of all viewpoints in which any choice to tackle the issue or the improvement influences these three angles.

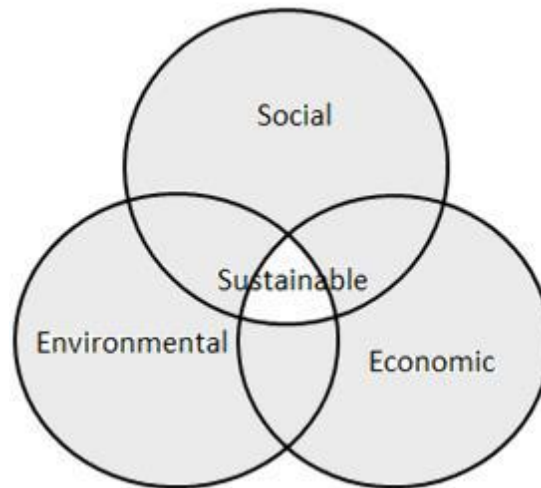


Figure 1: Wen outline of the three overlays of sustainable development [17]

**II. CRITICAL LITERATURE REVIEW:** Literature review is the core of the review paper. Following are some literature review from various national and international journals on use of skill shortages in construction.

**Jayawardane and Gunawardena (1998)** found that about 80% of the workforce have casual business, just 40% is completely used and 86% of the talented workforce got just casual preparing. Over 20% of the workforce is disappointed with low pay, absence of security at work and trouble in getting a normal line of work. [13]

**Fielding et al. (2000)** reviewed that the writing about the present position of ladies in the development business in the United Kingdom. It was noticed that ladies utilized in development make up 13% of the industry. Boundaries to ladies' entrance incorporate an image of the development business, proficient information among youngsters and grownups, choice criteria and courses ruled by men, practices and enrollment methods, chauvinist frames of mind, culture overwhelmed by men and the working environment. [8]

**MacKenzie et al. (2000)** checked the perspectives on development bosses in connection to the techniques of industry-government reactions that manage components of the absence of aptitudes in the development business in the United Kingdom. The record depicts seven existing plans of industry and government, and nine elective methodologies to address the absence of structure abilities. [15]

**Ahmed et al. (2003)** collected their discoveries in two classes where internal causes (customer, contractual worker and expert) and other causes that are outside the ability to control of the association. In our job, as we underscore for the ability deficiencies. [2]

**Dainty et al. (2004)** found that fundamental causes of the lack of skills in the construction industry. The factors identified are the demographic reduction in the size of the cohort of young people entering the labour market; Fragmentation and bad image of the industry. Rapid development of mechanization and new technologies; expanding the work on its own and using only workers / subcontractors; reduction of investment in training; and the movement of work towards other sectors. [5]

**Horvath (2004)** specified that about 40% of the world's assets and vitality the utilization is identified with the development and support structures. This worry was in a progressively economical method for structure, in a more maintainable manner than routine with regards to traditional development. [12]

**Dainty et al. (2005)** exhibited in three topical titles got from the examination: to be specific, necessities and effects of aptitudes, business and maintenance of both preparing and capabilities. This, thusly, must be accomplished through the advancement and usage of measures that unite businesses in the business, preparing suppliers and administrative bodies to address the requirement for sand abilities to change arrangement activities. [6]

**Shah and Burke (2005)** found alternate points of view of absence of abilities held by financial experts, bosses and worker's guilds. It at that point talks about the issues of estimation and distinguishing proof and gives a precedent that shows down to earth challenges in evaluating aptitudes deficiencies. [18]

**Bartlett (2007)** measured the present condition of the workforce and spotlights on contract workers in South Florida and particular temporary workers to distinguish the business and maintenance endeavor. Studies were utilized to survey how development organizations got their workforce and what occupations are accessible for business. [4]

**Anderson et al. (2008)** found Innovative methodologies give chances to exploit this pool of talented work and create pride in working at a larger amount. It is particularly critical to have the capacity to create more seasoned labourers while selecting in confined networks. [3]

**Abdul-Rahman et al. (2012)** archived contends that, albeit remote specialists have defeated the deficiency of work in the Malaysian development advertise, over the top reliance on outside laborers and the subsequent negative impacts have turned into a genuine social issue and thus they are presently advanced techniques, for example, "drawing in neighborhood specialists." In the development business, "industrialized frameworks", "dispensing with illicit movement" and "improving the administration structure" so as to limit the negative effects of remote labourers. [1]

**Heikkila (2012)** stated that India absences enough skilled workers, since the existing system of job-related training is not aimed at informal or informal workforce, which makes up more than 90 percent of the active population of India. [11]

**Vekaria (2012)** concluded that project management skills are acceptable as the most important factor affecting labour productivity among other factors, such as technology, skills and training, work organization, project uniqueness and wage trends. He firmly agreed that technological research will increase productivity. He said that the research of new technologies or transfer technology is very important to develop a better performance of projects in line with globalization in the construction industry.[21]

**Watson (2012)** inspected the issues of fundamental aptitudes in the Australian development industry and he discovered commitments to finance preparing and abilities advancement, low interest in instruction and preparing, less interest in the learning framework, an unequal dimension Supply of work request, maturing Labor and modern relations, movement and relocation are a portion of the elements that altogether impact the accessibility of work in the development business. [22]

**Zaki et al. (2012)** finished up the business faces the test of obtaining adequate workforce, just as withheld aptitudes laborers, to react to the intense interest for talented specialists because of quick improvement. Likewise, he clarified that gifted laborers prepared for professional preparing don't address the issues of the business. Some of them left the business, even in the wake of having experienced preparing composed by a development preparing association. [23]

**Hamid et al (2013)** analyst in understanding with its job to guarantee the maintainability of the development business, it is imperative to distinguish the chain of conditions of the work lack in the development venture. In view of the examinations announced, the certainties clarified well the purposes behind the absence of work in the development venture. He said the clearest explanation behind the absence of labor is the powerlessness to pull in new ability when there is more noteworthy interest inside the workforce. [9]

**Praveen et al. (2013)** uncovered that the most vital causal factor because of the absence of abilities is the "lacking number of prepared work force, leaving the preparation and work showcase establishments", and the subsequent impact is the "surpassed time" of the development venture. This examination additionally demonstrated that "an expansion in wages to limit the movement of talented work looking for business abroad" as the most imperative alleviation measure. [16]

**Thomas (2013)** inspected that the circumstances and end results of change of workers in the development business. Proof recommends that representatives in the development business in Sri Lanka are troubled. He finishes up the development business faces a noteworthy test inside a higher vacillation rate, which could cause a genuine outcome as a rule work advance, yet additionally in cost. Higher work compel changes is a marker of worker disappointment and dissatisfaction. [20]

**Raj et al. (2014)** concentrated on the administration of Human Resources (HR) in the field of development. They complete a study with 100 articles from various organizations. What's more, they contemplated the effect of human asset the executives rehearses on profitability and money related execution in the development business. They reached the resolution that 75% of individuals concur that clog makes them work awkward. [17]

**Salleh et al. (2014)** distinguished numerous elements that influence nearby work deficiencies, which are: poor picture of development employments, poor working conditions, poor lodging and administrations, low compensation structure for development occupations, occupations ugly, and advanced education levels, absence of preparing and abilities preparing, and gifted specialist relocation. [19]

**Dharani et al. (2015)** found that development specialists are of a transitory sort and, along these lines, look for business geologically. Along these lines, their bosses are continually changing and it is inconceivable for the two gatherings to grow long haul connections and devotion to their managers. They found that the vast majority of the development work is engaged with some other calling, for example, ranches, industrial facilities, servants, and so forth. In this way, they don't give full significance to the development work and will in general work casually. Accordingly, the work manages familiarity, and casualness diminishes development. [7]

**Healy et al. (2015)** found that the absence of work is impacted by causes, for example, specific information, vulnerability in the long haul interest for items or administrations, enlisting too gradually, wages or pay costs that are excessively high, absence of sufficient preparing and the geographic area of the undertakings. [10]

**Kazaz et al. (2016)** recognized 37 factors and ordered them into four gatherings, for example, authoritative, monetary, physical and social-physiological variables. Investigate the scattering of elements inside the gathering and the conservativeness of each gathering of variables. The outcomes demonstrated that the gathering of hierarchical elements has the most weighted normal and the least estimations of standard deviation. Hence, the variables under a gathering of hierarchical components are viewed as similarly imperative art laborers. In financial and physical variables, they were additionally viewed as similarly vital craftsmans. Just, the elements arranged inside the social-mental elements are fluctuating degrees of significance as indicated by the craftsman's assessment. [14]

The following factors finding from the critical literature review for skill shortages shown in figure 2:

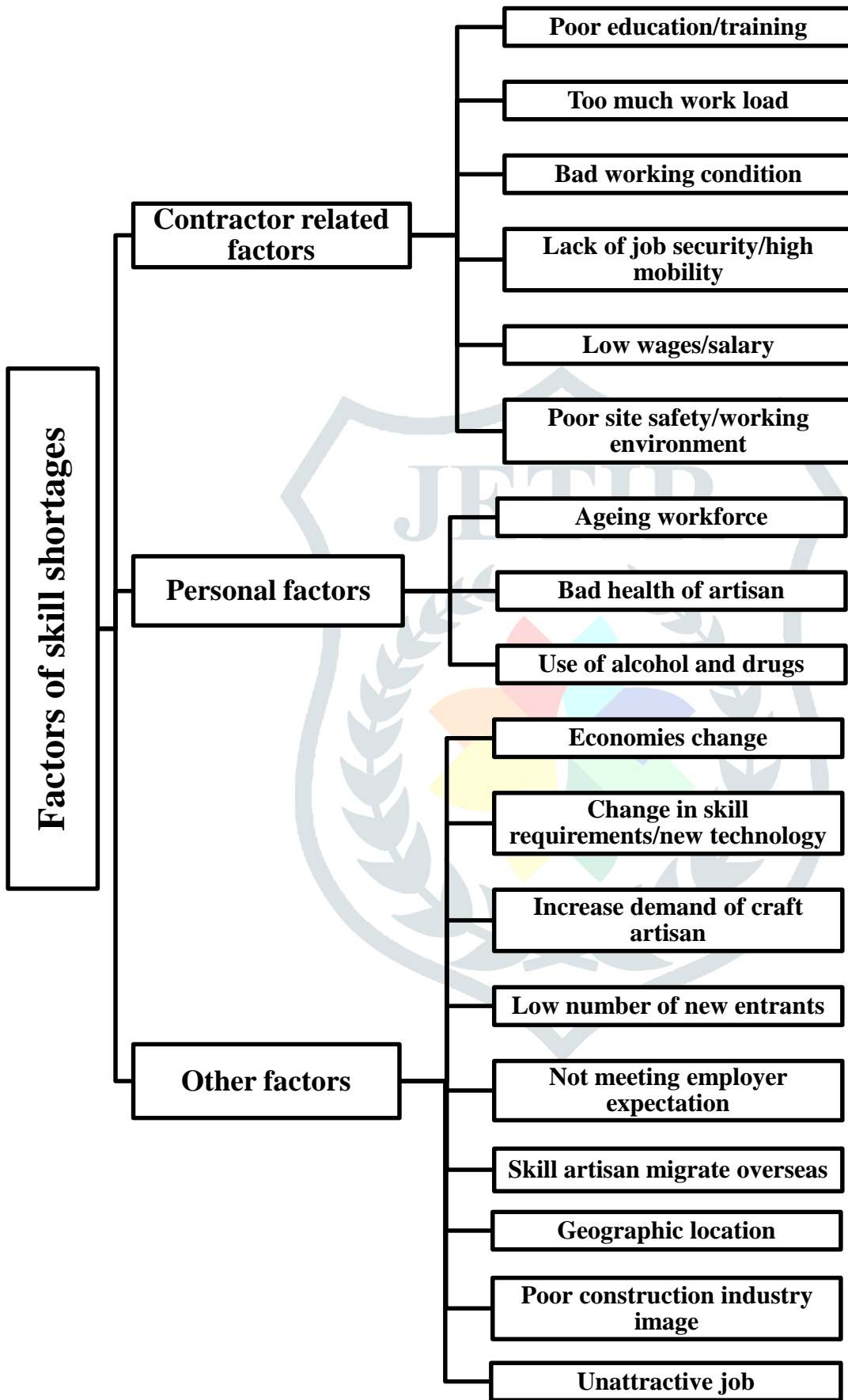


Figure: 2 Factors affecting for skill shortages

**Table-1** Factors identified in different research papers

SR NO.	FACTORS	AUTHORS/YEAR										
		Abdul-Raheman et al.(2012)	Ahmed et al. (2003)	Dainty et al. (2004)	Dainty et al. (2005)	Hamid et al. (2013)	Healy et al. (2015)	Salleh et al. (2014)	Shah et al. (2005)	Watson (2012)	Zaki et al. (2012)	Frequency
<b>1.</b>	<b>Contractor related factors</b>											
	Poor education/training		*		*		*	*		*		6
	Too much work load			*		*			*		*	4
	Bad working condition	*		*	*		*				*	5
	Lack of job security/high mobility/poor treatment		*		*	*				*		4
	Low wages/salary			*			*	*		*	*	5
	Poor site safety/working environment		*					*	*		*	4
<b>2.</b>	<b>Personal factors</b>											
	Ageing workforce		*		*	*		*				4
	Bad health of artisan	*							*			2
	Use of alcohol and drugs		*			*						2
<b>3.</b>	<b>Other factors</b>										*	
	Economies change					*				*	*	3
	Change in skill requirements/n Technology	*	*		*		*	*		*		6
	Increase demand of craft artisan			*		*				*		3
	Low number of new entrants	*	*		*		*			*		5
	Not meeting employer expectation			*					*		*	3
	Skill artisan migrates overseas	*		*		*		*				4
	Geographic location		*				*		*			3
	Poor construction industry image	*				*		*	*			4
	Unattractive job/lack of worker oriented career path	*		*		*	*	*			*	6

(\*) indicate major finding from the literature review

**III. CONCLUSION:**

The critical literature review based conclusions are as follows:

1. Factors affecting skill shortages are categorized under three groups such as contractor related factors, personal factors, other factors.
2. Contractor related factors are categories as poor education/training, too much workload, bad working conditions, and lack of job security/high mobility/poor treatment, low wages/salary, and poor site safety/working environment.
3. Personal factors are categories as ageing workforce, bad health of artisan and use of alcohol and drugs.
4. Other factors are categories as economic change, change in skill requirements/new technology, increase demand of craft artisan, low number of new entrants, not meeting employer expectation, skill artisan migrates overseas, geographic location, poor construction industry image and unattractive job/lack of worker oriented career path.

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