

## ‘Skill Gap & Training’- Need Analysis of Construction Sector

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**Abstract**— Economical growth rate of any country depends upon number of people in work & their productivity. Skill is at root of productivity. Efficient use of skill enables to do proficient work with increase in productivity. India is the second fastest-growing economy in the World & construction industry is the country's second largest economic activity after agriculture. Human capital is the most important asset to a construction company. Presently Indian construction sector is suffering from acute shortage of skilled labour & in future situation will be more critical. As per a survey about 83% of the workers are unskilled and majority of them are women. Training to worker is backbone for skill development. On the job training and certification methods are measures to improve skill & employability factors.

**Keywords**- Skill; Human capital; acute shortage; skilled labour, Training, certification..

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### I. INTRODUCTION

Today India is the second fastest-growing economy in the World & construction industry is the country's second largest economic activity after agriculture.<sup>[1]</sup> India's GDP rate may touch 8-8.5 which will be more than China. Human capital is the most important asset to a construction company. Obviously the quality of manpower influences success of the construction industry. India is known as country of young people with median age of population being 24.6 years & one-third of the population is below 14 years of age.<sup>[2]</sup> By 2025 India is and will remain one of the youngest countries in the world for some time.<sup>[3]</sup> This 'demographic dividend' can boost economic growth rate. By careful planning & efficient utilization of human resource we will be ahead of developed countries within short decades. But this success depends on number of people in work and their efficiency of productivity, which directly depend on the skills they have and how effectively those skills are used. Skill is at root of productivity.

However, this demographic dividend can shockingly turn into a 'demographic disaster' if available manpower remains idle due to a deficiency of skills. Construction labour has been migratory in nature and present high demand situation results in entry of unskilled worker into the industry. In addition absence of formal training system to workers takes a longer time to acquire skills, which in turn has kept their wages incredibly low. All this makes severe impact on industry by less productivity, inferior quality work, demolition & repetition of work, material wastage, increase in cost, inability to meet time deadlines and unhappy customers. This shortage of skilled labor doesn't left any choice of demanding skilled labor force for developers and contractor.<sup>[4]</sup>

### II. NEED FOR SKILL DEVELOPMENT IN CONSTRUCTION SECTOR<sup>[5]</sup>

- Shortage of skilled manpower to cope with increasing use of new technology & mechanization in construction industry.
- Existing work force is largely unskilled and unorganized.
- To reduce on site wastage, which ranges from 7-10% construction material due to lack of proper skills in workmanship.
- Need of skill up-gradation to international standards.

### III. OBJECTIVES:

- To minimize problem of skill labour shortage by conducting onsite training programme to construction labour.

### IV. LITERATURE REVIEW:

The construction industry is a global industry known for its generation of jobs at different skill and professional levels. In India construction constitutes 40% to 50% of India's capital expenditure on projects in various sectors such as highways, roads, railways, real estate, energy, airports, irrigation, etc and is the second largest industry in India after agriculture. The Indian construction industry has been playing a vital role in overall economic development of the country, growing at over 20% Compound Annual Growth Rate over the past 5 years is likely to reach 500000 crore billion by the end of the XIIth Five Year Plan period. It substantially contributes about 12% to the gross domestic product of the country. The increasing need for the housing and nationwide infrastructure development assures the quantum growth of the industry in coming years and will require 92 million man years of labour. However, this sector is also one of the most unorganized sectors in India and faces huge shortage of skilled workers on the construction sites.<sup>[6]</sup>

[1]&[2]. A report on "INDIAN CONSTRUCTION INDUSTRY" prepared by P.R. Swarup, Director General, Construction Industry Development Council, India 2006-2007.

[3]. A report on "Human resource & skill requirement in the Building, construction & real estate services sector by 2022 by National skill development council.

[4] Kushal -Credai Pune labour report.

[5] & [6] National skill development council & Kushal -Credai Pune labour report.

The following table shows the requirement of Human Resource for Construction ( 2022) as per approach plan 2012 by National skill development council.

Type of Manpower	Required man years
1.Engineer	3.72 million man years
2.Technician	4.32 million man years
3. Support staff	3.65 million man years
4.Skilled worker	23.35 million man years
5.Unskilled/ semi-skilled worker	56.96 million man years
<b>TOTAL MANPOWER</b>	<b>92 million man years</b>

Table-1

Present condition :

Category	Percentage of Employment	Total Employment
Unskilled workers	83%	25.6 million
Skilled workers	10%	3.3 million
Engineers	3%	0.8 million
Technicians and foremen	2%	0.6 million
Clerical	2%	0.7 million

Table-2

Above table shows that the majority of the workforce at approximately 83% constitute unskilled worker, 10% constitute skilled worker. Most of these unskilled workers are seasonal, migrant workers from poorer agricultural states such as Karnataka, Bihar, Chhattisgarh, Jharkhand, Orissa & West Bengal and they lack education and formal training and usually pick up skills on the job, informally from experienced persons or supervisors, resulting in inefficient performance on the job. Among the 10 per cent skilled construction workers, migration to overseas countries - Gulf countries in most cases - for higher wages is common. Emigration worsens the shortage of skilled workers and creates an upward pressure on domestic wages leading to a situation where Indian firms have to import workers to meet their requirements.<sup>[7]</sup>

In construction industry, skills and knowledge are the driving forces of economic growth and social development. The economy becomes more productive, innovative and competitive through the development of more skilled human capital.

Table-2:-Report of the Working Group on Construction for the Eleventh Five Year Plan, Planning.

[7] Ruchi Hajela- Shortage of Skilled Workers: A Paradox of the Indian Economy COMPAS, University of Oxford

There is always a difference between knowing and performing, and the gap is explained by inadequacy of skill. As per report of 'Financial Budget 2015' by Ministry of Finance Department India, it is possible to achieve GDP at rate 8-10%. But skill development & effective utilization of skilled manpower similarly employment generation are significant challenges in front of Indian economy. Presently skill worker percentage is only 2%. As per report of National skill development council during year 2013-14 about 12 million skill workers were required but this aim was unable to be achieved due to absence of required facilities for skill development. In the absence of any institutional mechanism for skill formation, construction workers continue to be trained by the traditional master craftsmen. Apart from its inadequacy in quantitative terms, the traditional system neither utilizes new technologies and work methods, nor does it absorb the benefits of research and development. Also, women workers are not trained in any trade and they remain head load carriers or helpers, all their working life.

The need for skilled construction workers becomes more significant for India as the escalating use of technology and mechanization is expected to reduce the requirement of unskilled workers on individual construction sites. Therefore, in order to remain employable, construction workers need to upgrade their skills. Realizing the severity of the shortage of skilled construction workers, the government of India had conducted a skills mapping study and identified carpentry, electrician, painter, welder, masonry, crane operations and plumbing as key roles which will be in demand until 2022. Together, these key roles will require 7.3 million vocationally trained workers by 2022. (Source: National skill development report )

Skill development has become vital for sustainable economic growth especially for nations like India with emerging opportunities. Hon'ble Prime Minister of India has connected four initiatives – Make in India, Digital India, Clean India and Skill India. In Pittsburgh in 2009, G20 leaders pledged "to support robust training efforts in [their] growth strategies and investments" in the context of a framework for strong, sustainable and balanced growth".<sup>[8]</sup>

A rich literature exists on the links between education, skills, productivity and economic growth. Estimates for European countries show that a 1 per cent increase in training days leads to a 3 per cent increase in productivity, and that the share of overall productivity. Research work done by Yinggang Wang at university of Kentucky shows that quantitative analysis of construction labour training can be done. As per his research work productivity can be increased by 10.6%, turnover decrease by 13.9%, absenteeism decrease by 14.5%, injury decreases by 25.5%, & rework decreases by 23.2%. Positive B/C ratio of training varies from 1.5:1 to 3.0:1.<sup>[9]</sup>

[8] A skilled workforce for strong, sustainable & balanced growth. A report by G20 training strategy, International labour office GENEVA.

[9] A quantitative analysis of training outcomes and Strategies in the construction industry' by Yinggang Wang, Lexington, Kentucky.

The skilled craft shortage is not a shortage of workers. Rather, the Institute of Management and Administration (“IOMA”) writes that, “it is a shortage of adequately trained, skilled, and productive workers available for certain jobs”<sup>[10]</sup>

Training programme on site.: Craft training currently exists in two forms:

(A) On the Job Training – Informally.

(B) Off the Job Training- Formally.

To develop skilled construction worker, on site job training is found to be more advantageous. On site training is provided in both stages i.e pre-service and also to up-grade skills of existing worker. Training is useful to clear doubts in mind related to work, to learn systematic & safe method of working. On site training programme is useful to achieve following benefits,

- i. To increase productivity & efficiency of construction labour.
- ii. To improve quality of work to international standard.
- iii. To avoid reworking on site.
- iv. To ensure that material wastage on site goes down.
- v. To increase soft skill in labour.
- vi. To reduce accidents on site.
- vii. Higher wages & better lifestyle to construction labour.
- viii. To uplift the morale & make construction worker professionals like in developed country.
- ix. Training developed ability in worker to solve day to day problem related to works without help of their seniors.
- x. Training can allow labor to work for longer time with same company, allow for more responsibility with their job & may offer a more challenging job.
- xi. Skills development enhances both, people’s capacities to work and their opportunities at work, offering more scope for creativity and satisfaction at work.

For successful implementation of training programme teamwork is necessary from developers, engineering team, contractors & training experts.

#### V. METHODOLOGY OF WORK.:

The methodology adopted for project work is ‘Quantitative’ analysis. Research work is done in following stages.

##### 1. Literature Study:

The literature study has cover the followings:

- i. Theoretical (Theories) Literatures.
- ii. Earlier studies on the subject in India.
- iii. Studies conducted abroad.

Literature study will be confined to bringing out relevant conclusions of the study materials with relevance to the above three mentioned entities.

##### 2. Selection: Selection of the site & contractor from Pune.

a). The contractor shall be in the business for the past 3 years at least.

b).The respondent workers at time of survey should be engaged on the selected site.

c).Selection of the experts will be according to convenience.

d).Selection of labour belongs to trade such as carpentry, fitter,masonry.plumbing, painting etc.

##### 3. Sampling:

Workers - For selecting the workers the pay roll shall be taken and random sampling shall be adopted.

##### 4. Data Collection:

i.Personal interviews with Project managers, senior engineers using the scheduled questionnaire at the work sites .

ii. Interviews with contractors.

iii. Interviews with other Experts and organizations working in this field.

##### 5. Data Analysis:

The data so obtained shall be critically tabulated and analysed by conventional methods of statistical analysis and observations derived for further studies.

#### VI. DISCUSSION:

Although there is increasing awareness for construction labour training, present efforts are not sufficient to achieve task by 2022.Public private partnership can play major role to achieve target. Also private engineering colleges, NGO’s can play important role.Economical benefit is the most important factor which attracts labours to undergo training programme.Laburs should be paid according to their skill level. Builders should insist contractor to employ certify labours only. Also, there should be some tax benefit for builder who are employing trained & certified labours. In ISO audits norms should be introduced about use of trained & certified labour on site to improve quality of human resource.

#### VII. CONCLUSION:

Today the skill labour shortage is one of the most decisive challenge faced by India’s construction sector. Skill shortage affect the industry by less productivity , poor quality, material wastage, cost increase, inability to meet time deadlines and unhappy customers . Equipping the workforce with the skills required for the jobs of today and those of tomorrow is a strategic concern in the growth and development of country. To have sustainable skilled labour force training on site, testing of skill, certifications with accredited grading system are parameters to solve skill shortage problem. Also training to female labour has great scope to minimize skill labour shortage.

[10] 48th ASC Annual International Conference Proceedings-Darren Olsen,Mark Tatum & Christopher-Aubun University

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