

Human Resource Management Techniques Dealing With Deficit & Retention of Skilled Labor in Construction Industry

Prof: Siddesh K Pai^{*}, Mr. Satya Dheeraj^{**}, Ms. Rani Samyuktha Kristam^{***}

^{*} DME, DBM, BE Mech, PGP PEM, MIM - Assistant professor – National Institute of construction Management & Research(NICMAR)

^{**} BE(Civil Engg), Post graduate program in Advance construction management , Student @ National Institute of construction Management & Research(NICMAR)

^{***} BE(Civil Engg), Post graduate program in Advance construction management , Student @ National Institute of construction Management & Research(NICMAR)

Abstract- In construction industry, a project mainly focuses on two things, one is optimum utilization of resources and the other is speedy completion of project. In line to this trend, construction industry has seen Human Resource Management as a primary entity for every company or a project. Human Resource Management is managing organizational workforce. It has been broadly defined as a field of organizational activity and professional practice covering functions related primarily to training, career development, organizational development and research development. Human Resource Management is not structured in construction industry but the awareness about the need and importance of HRM is growing. Though the construction sector is booming, with urbanization at its peak, the industry is not bereft of its share of woes. The biggest problem that the industry confronts is the acute shortage of skilled and trained manpower. Getting skilled and trained workforce these days has become an uphill task. There is wastage of about 7-10% of the construction material due to the lack of skills in workmanship. Thus the main task for the industry is to withhold the skilled workforce till the project gets completed.

The paper mainly deals with the study of Human Resource Management in construction industry, Present scenario of requirement of labor in live projects and how the companies are trying to retain them till the completion of project. We have prepared a questionnaire to support our study. This study also included face to face interview with project managers. The scope of this paper is to identify problems faced in manpower management and obtain solution by using structured interview/questionnaire survey.

Index Terms- construction human resource, retention of labor

I. NEED OF THE STUDY

In construction the migration of labor is high. Employees tend to work at other industries; offering good salary, working conditions, career opportunities and that are seen as being the most glamorous and attractive to work within.

- In India many of workers are not trained professionally, they learn the work from their superior. It leads to less quality of work due to their unprofessionalism & lack of in depth knowledge.

- To meet the high requirement of skilled workers and quality in work, it is essential to train the workers. Study addresses the efficient way of training the workers.
- At present there is about 40% deficit of skilled man power in India.

II. LITERATURE REVIEW

In India, construction industry is second largest industry after agricultural industry. The development of physical infrastructure, consequently the construction sector has been focusing from last decade. It was given more importance to infrastructure development from the tenth five year plan (2002 – 2007). During the period of 2007 -2011 Indian construction industry had witnessed a rapid and strong growth. Due to the country's expanding economy, increasing investment of India's government in development of infrastructure and with support of foreign direct investment (FDI) system. . In 2011 the industry was valued at INR18.5 trillion (US\$403.4 billion), and grew at a CAGR of 14.71% over the review period. It was observed that infrastructure development such as industrial, mining infrastructure, roads and highways, railways, ports, airports, power projects, irrigation and agricultural systems (irrigation systems), telecommunication systems, hospitals, institutions, townships, urban infrastructure including water supply, sewerage, drainage, rural infrastructure contributes in improving economy directly and indirectly by increasing the economy of other sectors. The construction sector has been growing at a compound annual growth rate of 11.1% over the last eight years. At present the construction accounts for the 9.0% of GDP (Gross Domestic Product). The contribution of construction to GDP from 2005 to 2009 is given in table (As per Draft of an approach to twelfth five year plan 2012 – 2017, pg.no: 122).

TABLE 1.1 Percentage Contribution Of GDP by Construction Sector To Total GDP

Year	GDP (at current Prices) (new series) (Rs. crore)	GDP: Construction (at current prices) (new series) (Rs. crore)	Percentage Contribution of GDP by Const. Sector to Total GDP
2005	28,77,701	2,12,807	7.4
2006	32,82,385	2,64,173	8.0
2007	37,79,385	3,19,180	8.4
2008	43,20,892	3,76,266	8.7
2009	49,33,183	4,37,017	8.9

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

TABLE 1.2 Requirement Of Human Resource For Construction by 2022

Type of Manpower	Required man years
1. Engineers	3.72 million man years
2. Technicians	4.32 million man years
3. Support Staff	3.65 million man years
4. Skilled Workers	23.35 million man years
5. Unskilled/ Semi skilled workers	56.96 million man years
Total Manpower	92 million man years

III. RESEARCH METHODOLOGY

Construction industry contains various types of human resources such as strategic managers, project managers, architects, construction managers, engineers, construction

supervisors and labor. Each has their own roles & responsibilities. In this study we concentrate on the labor only. This study gives information about construction labor in some parts of India. Those contain Goa and some parts of Andhra Pradesh, Karnataka, Gujarat and Maharashtra.

Data Collection (Questionnaire technique):

For this study we select two ways to collect data. One is through structured interview of HR, PM and engineers and second is through structured questionnaire. For the data collection, in Goa we met the HR, PM & engineers of different companies and we collected data through structured interview and questionnaire. We found answers of experienced people are more appropriate & shows importance of human resource management in industry. So we decided to consider a sample which provides us potential and prevailing information about the industry. These mainly pertain to educational qualification and experience. These are as follows:

- i. People completed his/her diploma and 4-5 years of experience in construction field,
- ii. People completed his/her Graduation or Post graduation in engineering and 2 years of experience in construction field,
- iii. People completed his/her Post graduation in Management or from NICMAR and 1 year of experience in construction field.

Inference from the data collected:

Deficit percentage of Local available Manpower: Out of 48 respondents only 21 respondents give the information about manpower required and available for the project. So we analyzed deficit percentage for those 21 responses only.

The study show that on an average 47.77% of all levels of labor, 53.06% of skilled, 49.71% semi skilled and 40.54% unskilled are deficit in overall industry. This deficit % is changed based on type of project and location of project. Study shows deficit of 51.50% in real estate sector, 46.40% in infrastructure sector. Responses indicates deficit of 41.04% in urban, 54.61% in sub urban, 46.50% in rural area. The following table shows deficit % as per level of labor.

Deficit percentage of labor w.r.t Type of Project

Type of Project	Sample size	Deficit percentage			
		Skilled	semiskilled	unskilled	Average
Real Estate	7	53.47	56.39	44.64	51.50
Infrastructure	12	55.13	47.54	36.54	46.40
Industrial	1	58.33	60.00	88.00	68.78
Others	1	20.00	18.75	12.50	17.08
Total	21	53.06	49.71	40.54	47.77

Deficit percentage of labor w.r.t Location of Project

Location of Project	Sample size	Deficit percentage			
		Skilled	semiskilled	unskilled	Average
Urban	7	47.97	47.41	27.76	41.04
Sub urban	8	56.09	53.38	54.36	54.61
Rural	6	54.95	47.50	37.04	46.50
Remote	0	0.00	0.00	0.00	0.00
Total	21	53.06	49.71	40.54	47.77

Effects due to lack of manpower

In a project the requirement of labor is important, if the labor is not available the effects for the projects are generally Delay, Low quality, Cost implications for which 97.9% of the respondents say there is effect of delay, 87.5% of the respondents

say their will a low quality and about 81.3% of the respondents say there will be cost implications and whereas about 14.6% of respondents say they may be other effects.

Effects due to lack of manpower

Effects	Yes		No	
	Frequency	Percent	Frequency	Percent
Delay	47	97.9	1	2.1
Low quality	42	87.5	6	12.5
Cost implication	39	81.3	9	18.8
Others	7	14.6	41	85.4

Ways to cope with lack of manpower:

From the entire survey, we found some ways to cope up with deficit skilled labor as follows:

- i. By providing training to local available labor.
- ii. We should provide good incentives, better pay scale and facilities need by labor to keep them with company and to attract other sector labor to meet requirement.
- iii. Mechanization reduces the labor required in the site. But it needs high skilled persons to operate machines. So many companies selection the operators trained from diff training institutes or giving training to available labor. Some of the companies maintain the departmental labor with the company and training them in operation & maintenance of machines for better product. Most of the times they are taking lease from equipment banks
- iv. Proper labor management and monitoring. Making the best use of available labor by increasing the work hours, use for multiple works or motivating them to work to maximum capacity and not to waste time during work hours etc.
- v. Recruiting the multi-skilled workers decreases the workers required and ideal time of worker. It increases the productivity and labor requirement at site.
- vi. Shift workers from other site or try to attract/contact new labor contractors.
- vii. Providing incentives on target achievement to labor contractor and labors. This attracts labor to work in project.

- viii. Providing P.F, G.F, on behalf of labor contracts to attract more labor contracts.
- ix. Offering competitive rates.
- x. Increase the period for completion of project.
- xi. Giving works to sub-contractors and distributing the work or project.
- xii. Advance payments to contractors.

IV. CONCLUSION

In this study we were only concentrated on low level work force such as labors/workers.. Responses are from different projects located in different areas, out all responses 47.9% from urban, 31.3% from sub urban and 20.8% from rural area. Responses from projects located in remote area were not obtained

Research shows that overall 47.77% of labors are deficit locally in all the sectors, about 53.06% of skilled workers are deficit in all the sectors. Compare to urban and rural workers are deficit in suburban areas accounted to 54.61%. Research indicates that most of workers about 41.7% are leaving within 6 months, workers leaving after 6 months and before end of the project is very less about 16.7%. It gives idea that workers sustained up to 6 months will leave after completion.

Due to lack of skilled manpower projects are suffered with mainly delays, cost over runs and low quality works. A few other effects such as wastages of materials, loss of reputation of firm in

industry and accidents which reduce confidence in workers etc. are listed.

About 50% responses indicates only 50 – 79% of workers shows the interest towards training. Lack of motivation in workers, low education, communication and time consumption are main barriers in training, others like short term contracts, financial & family problems of workers and fewer profit margins in project also increases barriers for training.

Factors that motivate workers are money, hygiene environment and good working culture. Many companies keep

their skilled workers with them by paying competitive wages, timely payments, good working culture, hygiene environment and sufficient work. In addition to these companies providing bonuses, incentives, and gifts on achievement of targets and also providing PF through labor contractor.

Many companies are mechanizing there construction or giving training to local labors to cope with lack of manpower. To reduce people required for project many companies are procuring multi-skilled workers.

Identify the constructs of a Journal – Essenti

APPENDIX : QUESTIONNAIRE

1. Name : Mr./Mrs.
2. Age and Experience :
3. Educational Qualification :
4. Designation and Department :
5. Contact Address :

Personal	Professional
Phone No:	Phone No:
Email:	Email:

6. Duration of the Project (Select appropriate Option)

7. Total Project Cost _____

8. Project Location(Select appropriate Option)

Urban Sub Urban Village Remote

9. Optimal Man Power¹ Required For Project & Availability at the near Location (Local Labor) (Give Approximate no)

	No. of Required	No. of Local Available
Skilled		
Semi Skilled		
Un skilled		

10. How frequently skilled workers leaves the company (Select appropriate Option)

Within 3 months	
Within 6 months	
Within 12months	
After completion of project	

11. What is the best way of procuring the manpower (Select appropriate Option)

Migrating skilled manpower	
----------------------------	--

¹ Manpower/ Workers means Labor

Local semi Skilled by giving training	
Others (Please Specify)	

12. Ways to cope with the lack of manpower

--

13. Unskilled manpower required basic domain Knowledge of work they are doing (Select appropriate Option)

Yes No May/ May not

14. Effects due to lack of required manpower (Select appropriate Option/s)

Effect	
Delay of Project	
Quality Deviation	
Cost over runs	
Others (Please Specify)	

15. What are the different techniques used to train the Workers, in those which will be the economical and effective (Select appropriate Option/s)

	Techniques adopted	Economical	Effective
By using face to face demonstration how to do			
Video demonstration how to do			
Practical Demonstration			
Drama / Role playing			
Other techniques (Please Specify)			

16. What is the percentage of positive response by workers to take training (Select appropriate Option)

17. What are different welfare programs provided to workers (Select appropriate Option/s)

Accommodation and Food	
Facilities like drinking water, electricity etc	
Others (Please Specify)	

18. What are different motivational factors motivates workers (Select appropriate Option/s)

Money	
Hygiene Environment	

Good Working Culture	
Others (Please Specify)	

19. What are different ways to keep the skilled workers to work for the company for long time Select appropriate Option/s)

By paying more wages	
By providing sufficient work	
By providing good working culture	
By providing hygiene environment	
Others (Please Specify)	

REFERENCES

- [1] Amin Akhavan Tabassi , A.H. Abu Bakar “Training, motivation, and performance: The case of human resource management in construction projects in Mashhad, Iran” International Journal of Project Management volume 27, 2009 , pg. no: 471–480.
- [2] Dimitrios P. Kamsaris and Angeliki Trochana, MSc “Organisational Culture as a Factor Affecting Human Resources in the Construction Industry - What are appropriate techniques that a construction organisation can employ to increase the engineers’ effectiveness” PM World Today - Vol. XIII, Issue IV April 2011.
- [3] Wellington Didibhuku Thwala1, Lydia Nthabiseng Monese “Motivation as a tool to improve productivity on the Construction Site” paper no 24a CIDB 2008.
- [4] Mehrdad Arashpour and Mohammadreza Arashpour “Gaining the Best Value of HR in Construction Companies”
- [5] Stefanie G. Brandenburg; Carl T. Haas, F.ASCE; and Keith Byrom “Strategic Management of Human Resources in Construction” Journal of Management In Engineering-ASCE, ISSN 0742-597X, issue 2, APRIL 2006, Pg no : 89
- [6] Anjan Ghosh, Vikas Agarwal, Shubham Jain, Mandeep Singh “ Indian Construction Sector: Opportunities Expand but Execution Remains a Concern” – A Report by ICRI
- [7] Carl Haas, Richard Tucker, Bob Glover, John Borcharding, Bill Kelly “Construction Workforce Studies” – A report by Center for Construction Industry Studies (CCIS)
- [8] Arnab Bandyopadhyay, A K Swaminathan and Rajesh Rohatgi “Indian Road Construction Industry Capacity Issues, Constraints & Recommendations” A report by IRC on November, 2008
- [9] Carl Haas and Richard Tucker “Multiskilling in Construction” – A report by Center for Construction Industry Studies (CCIS)

- [10] “Issues and Challenges (Manpower and skill constraints remain key)” Indian Infrastructure Journal volume 14, No.6 January 2012, pg: 58.
- [11] Faster, Sustainable and More Inclusive Growth-An Approach to the Twelfth Five Year Plan (2012-17) (Chapter 14: Services: Tourism, Hospitality and Construction)
- [12] Eleventh Five year Plan (2007 – 2012) volume III (Chapter 8.1: Construction)
- [13] “Human Resource and Skill Requirements in the Building, Construction Industry and Real Estate Services” – A Report by NSDC

AUTHORS

First Author – Prof: Siddesh K Pai –DME, DBM, BE Mech, PGP PEM, MIM - Assistant professor – National Institute of construction Management & Research(NICMAR) – email: siddeshp@nicmar.ac.in , Cell: +918888830544

Second Author – Mr. Satya Dheeraj - BE(Civil Engg) , Post graduate program in Advance construction management , Student @ National Institute of construction Management & Research(NICMAR)., email:satya.dheeru@gmail.com; Cell: +917875179992

Third Author –Ms. Rani Samyuktha Kristam - BE(Civil Engg) , Post graduate program in Advance construction management , Student @ National Institute of construction Management & Research(NICMAR)., email:raanisamyukthakristamj@gmail.com; cell: 08985935108