

Analysis of Construction Safety Management in India and UAE

Govind A Nair, Soni Vivek

Abstract: *The major concern in construction industry is safety because injuries to individuals, organization and societies will bring great loss as whole. This paper aims to focus the effectiveness of factors that influences the safety management practices adopted by the construction firms in India and UAE. The paper is examined using Comparative analysis with two hundred samples. As paper revealed that the India has comparatively less safety measures than UAE. To minimize the risk the government should implement laws towards safety and security for workers; provide the training to site officers. Researchers from the previous studies had explained the countries like Italy, Australia and China has provided new technological method to provide safety for their employees.*
Keywords: *Safety, Labour Laws, Construction, Training, Awareness*

I. INTRODUCTION

The safety of human being is of utmost importance in this world, no matter in which sector you work because almost all sectors are prone to hazardous situations. Regardless of the intensity and kind of work, health and safety should be ensured and taken good care of before any project gets underway. Construction works are growing at a tremendous pace day by day in every nook and cranny of the world. As a result, there is a huge concern regarding the safety of construction workers as they are always in contact with situations of high risk.

This study aims at analysing safety measures in the INDIA & UAE building sectors. By referring secondary data that was available, certain factors were constructed which are already being implemented abroad and were not used on a large scale in a developing country like India. For this purpose, a survey was conducted among the construction labourers with an interview schedule prepared with the already obtained factors. The obtained data was analysed using comparative analysis.

The studies related to workplace safety emphasize that establishment of consistent and regular safety management process could prevent varieties of accidents happening all around the construction sites. Rigorous planning on implementing the construction safety procedures via training and educating the workforce and carrying out inspection would aid in reducing the fatality rate. Also, using the right tool or equipment at the right time can make humongous difference in the workplace by reducing avoidable injuries and accidents.

Revised Manuscript Received on April 07, 2019.

Govind A Nair Department of Management, Amrita Vishwa Vidyapeetham, Kollam, India.

Soni Vivek, Assistant Professor, Department of Management, Amrita Vishwa Vidyapeetham, Amritapuri

Once complete, a certain level of planning will not only enable site managers and business people to identify safety risks easily but also to communicate between themselves in the building process [G.M. Waehrer 2007].

This paper focuses on investigating the effectiveness of factors that influences the safety management practices adopted by the construction firms in India.

II. LITERATURE REVIEW

One of the dangerous industries is the construction sector. [Simonds and Grimaldi 1984].

The traditional concern being project management safety of the construction industry, it seems that they are usually unable to handle safety at work in a culture of zero accident. There are legal compliances established by the Government worldwide to maintain workplace free from injury and illness, which clearly states the responsibilities of the construction worksite. But, Legislation alone cannot provide for a culture of zero - accidents. However, the performance based approach has been taken as evidence for Hong Kong construction companies of medium to small sized dimension [Rowlinson and Matthews, 1999]. Similar evidences were reported from British construction firms [Dawson 1988 S. P. Willman].

According to [Wentz, 1998 C.A.] the top management should be committed to encourage and support safety by effectively handling health and safety programmes, conducting meetings with the trade workforce, and performing inspection to investigate all levels of accidents and safety performances, Commitment to the promotion of the culture of null accidents.

In USA, government agencies such as the Occupational Safety and Health Administration govern construction safe practices (OSHA), which provides strict norms and regulations, which enforces the same on the worksites [Jannadi & Assaf, S 1998]. On the contrary the construction No government agency regulates safety in Saudi Arabia [Fullman, 1984]. According to [Fang DP, Huang XY, Wong John CW 2001] The causes of accidents can be classified into two categories at construction sites: Instant accident causes, which includes unsafe working conditions and contributing causes of accidents comprising of employee and management policy mental and physical conditions [Petersen, D., & Goodale, J 1980].

Research into building safety practices in China has shown that the official safety assessment of Chinese building sites since 1999 has been based on the Standard Chinese Construction Safety Inspection.

[Huang et al. 2000] studied building accident losses, pointing out that Chinese contractors do not usually take great care of safety related workers issues. Because of that, they had a huge loss. Considering the rules and regulation policy adopted by Indian government is rather imperative since they strictly followed in the coal mine industries, where the workers experience similar burden of work like in the construction fields or sites. Comparing the same with Turkish scenario it is found that around 274 people lost their lives in coal mines, since the regulations were not fully taken into considerations [Pradhan, A. K., & Senapati, A. K. (2018)]. This paper focused on showing the dismal performance of workmen safety measures which were provided to the MCL employees. Unhealthy workmanship has also lead to this greater cause. Almost in every industry, workforce centric approach would be necessary to the growth of the industry.

The world is full of catastrophes lately, since the overall rise in temp has led to controversies in the construction sites, causing heat stress. The paper aims to demonstrate productivity in the work due to the effects of heat stress by means of a forecast average vote (PMV). Field studies expert opinion surveys have paved the way for the details. Constant cardiac rates of employees and temperature measurements for those engaged in various construction jobs were carried out. Especially those who work in the open. Metabolic rates of the workers were calculated from the heart rates. It was found that workers outdoors, working with heavy workload exceeded their threshold limits and the productivity were drastically reduced [Venugopal, V. (2016)].

Data envelopment analysis (DEA) was always the best way to evaluate the safety performance of industries by using robust mathematical tools to mix up unhealthy practices in the field of worker security. The result was contrasting, given how safety performance of the construction industry is reliably low in comparison with other industry categories [Mahapatra, S. S. (2011)]. There has always been bad practices along with the positives, since the Indian construction safety have become worse due to the accident prone workplace scenarios. So is the case when compared to coal mines which similar to that of the construction were the worker safety is at a tantrum. Documents have put up to show that the country's severely understaffed bureaucracy ignores violations [Chaudhari, S. (2017)]. The lack of proper storage for hazardous chemicals and the non-segregation of work areas has overburdened the worker safety.

The role of building safety professionals has increased significantly in the last decade. Only few progressive owners only had employees and contractors for the construction field since 1980s. Now the full-fledged construction based works have reached the essence. General

liability (GL) insurance policy had to be implemented to keep up with the worker standard since the loss of life is inevitable. Defect claims are usually expensive, so is the worker safety [Andrews, R. (2012)].

The triple dimensions (time, schedules, and performance), which is of greatest importance in developing nations like India, are supported by an innovative dimension and parameters. The paper employs structured review to develop the vital evaluation framework to assess the labour productivity in the industry. This article has a strong framework for comparing the performance of various building projects with an integrated approach [Shankar, R. (2018)].

The development of construction research has highlighted the problem in construction, especially in areas with the highest development pressure. The United Arab Emirates (UAE) has been an area where the building industry has reached an unequalled position in recent years. The paper aims to identify the main causes of delays in the UAE building industry. The results contrast with poor labour productivity from unrealistic contract periods. In order to ensure the timely delivery of projects, customers, consultants and contractors have had to change their existing practices. [Pretorius, A. (2017)].

Imploring building safety cases and worker health in Dubai construction companies have been put to test various times. But, the sinister developments by the Emirates civic body to appoint safety officers have paved way to reduce the unhealthy construction practices. Loss of lives are countless according to the records maintained by the Dubai Construction industries, since the rules and regulations had to be unpaved for certain conditions due to the lack of productivity. Now the municipality's safety alerts also have surmounted the way to good productivity along with the worker safety [Thomsen, J., & Abu-Zidan, F. M. (2012)].

The assessment of construction safety features (CPF's), the extent to which the event of an accident may have influenced was identified. The paper examined the facet of the causal impact of CPFs in the accident. A semi-structured interview and survey of UK construction professionals were conducted. The results revealed that the CPF has a high potential for an accident that leads to serious damage to the health and safety of workers. [Suresh, S. (2014)].

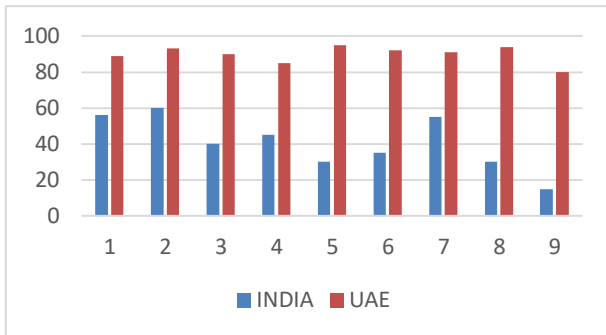
III. RESEARCH METHODOLOGY

Construction safety practices are considered and a set of structured Questionnaire is prepared administered to 200 samples across India and UAE. Comparative analysis is conducted to determine the factors influencing the construction safety practices in Indian and UAE scenario.

A comparative survey analysis and an examination of security risk management in India and the UAE were the research techniques[Zhang, G. (2009)] selected for this safety risk study. The paper focuses on the effectiveness and safety management practices in India and the UAE of factors that influence safety management practices. The paper is analysed using two hundred samples for comparative analysis.

IV. ANALYSIS AND RESULTS

A. Safety instruments/Gears which are used in your



worksite

Fig 1: Safety instruments/Gears which are used in your worksite

From the above diagram it's clear that in every aspect of safety instruments the construction sites in India are behind UAE. In each and every aspect we can see a considerable difference in it. In case of respiratory protection in India its 56% and in case of UAE it's 89%. In case of eye protection it is 60% in India and 93% in UAE. Hearing protection has been given to 40% of respondents in India whereas in UAE its 90%. Hand protection has been given to 45% of respondents in India and its 85% in case of UAE.

Code for Graph A

| | |
|---|------------------------|
| 1 | Respiratory Protection |
| 2 | Eye Protection |
| 3 | Hearing Protection |
| 4 | Hand Protection |
| 5 | Foot Protection |
| 6 | Head Protection |
| 7 | Working from heights |
| 8 | Skin Protection |
| 9 | Emergency |

Table 1: Safety instruments/Gears which are used in your worksite

In case of foot protection 30% of the Indian respondents said that they have been given foot protection and it is 95% in case of respondents from UAE. Head protection has been given to 35% of the Indian respondents and its 92% in case of respondents from UAE. 55% of the respondents in India are working from heights with necessary security instrument and it's 91% in case of respondents from UAE. Skin protection has been given to 30% of the Indian respondents and it's 94% in case of respondents from UAE. Security instruments to delay with emergency has been given to 15%

of the Indian respondents and its 80% in case of respondents from UAE.

B. Years of working in the construction site

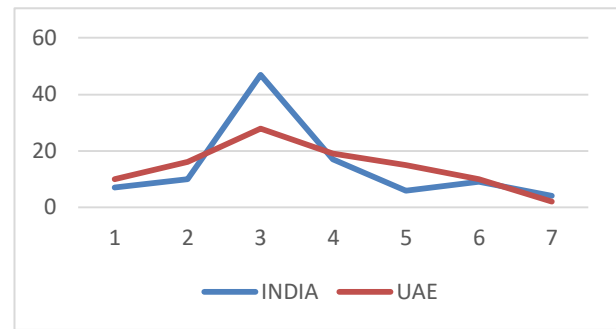


Fig 2: Years of working in the construction site

From the graph it is clear that respondents from India are skewed towards experience within the range of 3.1 to 12 years with 47% of the entire respondents belonging to the range of 3.1 to 6 years. Only 4% of the respondents have experience over 15 years among respondents from India.

Code for Graph B

| | |
|---|------------------|
| 1 | Less than 1 year |
| 2 | 1-3 Year |
| 3 | 3.1-6 Years |
| 4 | 6.1-9 Years |
| 5 | 9.1-12 Years |
| 6 | 12.1-15 Years |
| 7 | 15 years above |

Table 2: Years of working in the construction site

In case of respondents from UAE they have been distributed evenly with comparatively significant amount in the experience range of 3.1 to 6 years with 28% and only 2% of them have experience over 15 years.

C. Satisfaction Level

The respondents from India are indifferent regarding their satisfaction level with 55% of the respondents expressing Neutral opinion. In case of respondents from UAE they are apparently more aligned towards either highly satisfied (47%) or satisfied (34%).

D. Safety Inspection

The daily inspection is happening in majority (51%) of the workplaces in UAE and hardly one respondent from UAE felt that inspection will never happen and in case of India

it is in the extreme opposite direction where only handful of respondents (5%) said that daily inspection happens in their workplace and majority said that it will never or rarely happen in their workplace with 43% said it will never happen and 35% expressed it happens rarely.

E. Safety Awareness

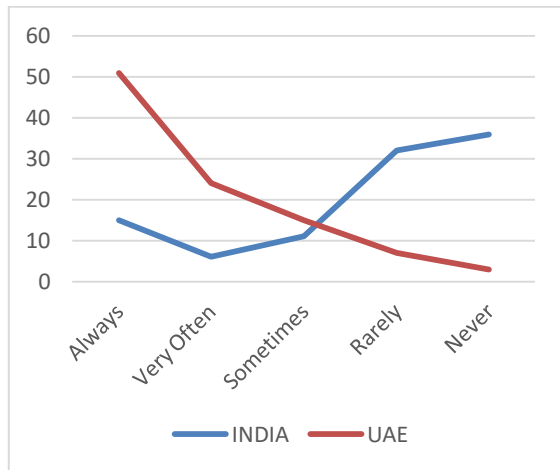


Fig 3: Safety Awareness

In UAE 51% of the employers always provide awareness regarding safe practice in work sites and in case of India only 15% of the employers will provide awareness about safety practices in all cases. From the graph we can see that both of them moves in opposite direction.

F. Material Handling Facilities

52% of the respondents from India felt that their work site are equipped with proper material handling facilities and 48% said the reverse. In case of respondents from UAE 94% said that they have been equipped with proper material handling facilities and 6% said that they have not been equipped with proper material handling facilities in work site

G. First Aid Training

In UAE 58% of the employers always provide first aid training, 22% gives it very often, 15% gives it sometimes, 7% gives it rarely and 3% of the employers never gives it. In case of India 46% of the employers never give first aid training, 29% rarely gives it, 15% give it sometimes, 4% gives it very often and only 6% gives it always

H. Emergency Services

There is no ambulance/emergency service at work site in case of 80% of the Indian respondents and in UAE 95% of the respondents opined that they have ambulance/emergency services at their work site.

I. Medical Assistance

Among the Indian respondents 84% of the said that they don't have temporary medical/clinical facilities at their work site and 96% of the respondents from UAE said that they have temporary medical/clinic facilities in their construction work site.

J. Health Insurance

In India 56% of the respondents said that they have been covered under health insurance plan and 46% said that they have not been covered under this plan. In case of respondents from UAE 92% said that they have been covered under health insurance plan and 8% said that they have been not covered under health insurance plan.

V.CONCLUSION AND DISCUSSION

The survey aimed at gathering information on building site safety management in India and the UAE. The structure consists of 10 common issues from 25 variables. Ten common elements have been identified: safety instruments, annual work, satisfaction level, safety inspections, safety awareness, material management facilities, first-aid training, medical assistance and medical insurance. By comparative analysis the structure consists of 10 common problems. Indian construction sector lags far behind safety standards compared to UAE. Adoption and implementation of safety tools/ techniques should be a prime concern for Indian construction sector as it involves huge risk. Due to weak safety adopted by construction companies in India, workers face life threatening problems like skin and respiratory problems, eye sight and hearing problem, hand and foot protection etc. Many time even after company providing safety equipment to workers, they tend to avoid them. In order to counter this problem, there should be awareness among workers. Available mask, cartridge, airline, half or full face, show / goggles, shield, visors, ear silts / plugs, gloves, barrier creams, shoes / boots, helmet, casks, long sleeved clothes, safety vests, etc. In the end it is the duty of the employer to make sure that the employees are been provided proper safety equipment at workplace and provide safe workplace. India also lags behind in safety inspection in construction sector as there are safety officer and pass number of Construction Company. Indian construction companies should focus on giving first aid training to workers. Emergency service should be provided at workplace so that workers life can be saved, as protecting workers life should be the prime concern for any company irrespective of work sectors. Apart from all these, medical as well as health insurance should be given to them as they are involved in doing high risk job. If all these factors are covered by Construction Company in India, the workers working there will feel sense of care from the organisation will help them to work more efficiently and effectively which will ultimately result in greater productivity at work.

REFERENCE

1. G.M. Waehrer, X.S. Dong, T. Miller, E. Haile, Y. Men, United States Accident analysis and prevention costs 39(6)(2007) 1258–1266.
2. Grimaldi, 1984 Grimaldi, U.V., R.H., 1984. Grimaldi and Simonds 1984. Management of safety. Homewood, IL, Richard, D. Irwin
3. Rowlinson and Matthews, 1999 Rowlinson, S.M., Matthews, J., 1999. Partnering: incorporating safety management. Proceedings of the 2nd International Conference of CIB Working Commission W99, Hawaii, 24–27 March, pp. 11–17.
4. Dawson et al. 1988 S. Dawson, P. Willman, A. Clinton, M. Bamford Safety at work: the limits of self-regulation Cambridge University Press, Cambridge, UK (1988)
5. Wentz, 1998 C.A. Wentz Safety, Health and Environmental Protection McGraw-Hill, New York (1998)
6. Jannadi, M. O., & Assaf, S. (1998). Safety assessment in the built environment of Saudi Arabia. Safety Science, 29(1), 15-24.
7. Fullman, 1984 Fullman, P.E., 1984. Construction Safety, Security, and Loss Prevention. John Wiley and Sons, New York.
8. Fang DP, Huang XY, Wong John CW. Review of the researches of construction safety management. Journal of Safety and Environment 2001; 1(2):25–32 [in Chinese].
9. Petersen, D., & Goodale, J. (Eds.). (1980). Readings in industrial accident prevention. McGraw-Hill Companies.
10. Huang XY, Fang DP, Li XD. Construction accident losses: how much an accident costs? In: Proceedings of 2000 International Symposium on Safety Science and Technology, Beijing, China. 2000.
11. Pradhan, A. K., & Senapati, A. K. (2018). Workmen Safety and Health: A Rethinking on Mines Safety in Mahanadi Coal Limited
12. Chinnadurai, J., & Venugopal, V. (2016). Influence of occupational heat stress on labour productivity—a case study from Chennai, India.
13. Beriha, G. S., Patnaik, B., & Mahapatra, S. S. (2011). Safety performance evaluation of Indian organizations using data envelopment analysis.
14. Verma, S., & Chaudhari, S. (2017). Safety of workers in Indian mines: study, analysis, and prediction. Safety and health at work
15. Rajendran, S., Clarke, B., & Andrews, R. (2012). Quality management in construction: An expanding role for SH&E professionals.
16. Chaturvedi, S., Thakkar, J. J., & Shankar, R. (2018). Labor productivity in the construction industry: An evaluation framework for causal relationships.
17. Mpofu, B., Ochieng, E. G., Moobela, C., & Pretorius, A. (2017). Profiling causative factors leading to construction project delays in the United Arab Emirates.
18. Grivna, M., Aw, T. C., El-Sadig, M., Loney, T., Sharif, A. A., Thomsen, J., & Abu-Zidan, F. M. (2012). The legal framework and initiatives for promoting safety in the United Arab Emirates.
19. Manu, P., Ankrah, N., Proverbs, D., & Suresh, S. (2014). The health and safety impact of construction project features.
20. Zou, P. X., & Zhang, G. (2009). Comparative study on the perception of construction safety risks in China and Australia. Journal of Construction Engineering and Management.

AUTHORS PROFILE



GOVIND A NAIR

2nd year student,
Department of Management,
Amrita Vishwa Vidyapeetham, Kollam, India.
govindanair12@gmail.com

Govind A Nair is pursuing Masters in Business Administration, specializing in Marketing and Operations Management from Amritapuri campus. He has done his Bachelors in Business management. His areas of interests are Strategic marketing management, Sales and distribution management.



SONI VIVEK

Assistant Professor
Department of Management
Amrita Vishwa Vidyapeetham, Amritapuri
sonivivek@am.amrita.edu

Soni Vivek is a marketing management enthusiast working with Amrita as Assistant Professor for more than 6 years and is currently pursuing her PhD.