

Survey Study on Labour Safety at Construction Sites in Kota City

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ABSTRACT Today's construction industry has accomplished extensive growth worldwide. In construction project safety of the structure as well as that of the personnel is out most important, to be successful for project. All the safety measurements or issues are to be considered in design stages of the construction till the completion and handling over of the structure. In construction industry skilled employes and unskilled labours are a reason for accidents and health risks to construction. The coordination between contractor, client and workers is needed for safe work conditions but it is less in the Indian construction. In construction industry labour safety laws are available, the multitudinous accidents taking place in construction and they are continuing. Management commitment towards the safety and health of the labours is also lagging. A detailed study of some literature was carried out to understand the cause of accidents, reduce or preventing measurements and development of safe environment for work. This paper presents the results of a questionnaire survey about safety in construction, which is divided into different categories of construction workers in Kota city. In this paper we examine and discuss in detail the work shift, total working hours, numbers of accidents, types of injuries in large and small construction sites.

KEYWORDS: *Work hour, Work shift, accident, injuries, and safety equipment's.*

1. INTRODUCTION

Construction Industry is a very large industry and many workers worked in it therefore it is the second largest employer in India. In all over the world, the construction area of civil engineering is the most hazardous industries. In construction sites fatal accident taking place is quit alarming. The major cause is to be fall of persons from height and something fall on workers. In present, in Indian construction industry is quite complex and latest technology as well as man power. With the development of construction industry, some drawbacks are also present in terms of safety and health.

In Indian construction, labour force is 7.5% of the total world labour force and fatal accidents contribute is 16.4%. the possibility of a fatality is five times in construction industry more than in a manufacturing industry, whereas the risk of major injury is 2.5% time higher. It is the world's highest accident rate among construction workers, according to study

by International Labour Organization (ILO). These accidents not only construction workers are suffered but also the public including children are affected. After a long period, construction industries were realized about the need for safety awareness. This is due to companion of high cost with injuries which is related to work, insurance premium, worker compensation & also include indirect cost of injuries. Because work related accident and health issues in every year, considerable amount of time is lost. In construction sites several factors are responsible for site accident & health problems. Occupational Safety and Health administration examination gives a result on the causes of construction fatalities, was shown that 39.9% of fatalities on construction were caused by fall, 8.4% caused by struck to objects, 1.4% caught in between accident, 8.5% by electrocution. There are some techniques, can be adopted for labour safety which are, safety management, safety organization, safety policies, safety training, safety equipment's, welfare facilities, safety committees, etc. Because of the lake of communication between the labours and the department employes accidents are occurred. It is a major reason. Accidents in the construction sites may be caused due to the factors such as falling objects, fall persons form height, ladders, collapse of building parts, working on machines, etc.

It is important that all employees as well as management of health and safety at work sites must be in the level of consciousness. It is highly desirable to decrease the rate of labour accidents. Much prevention is carried out & measures to address these problems. However, accidents keep occurring. Hence, for prevention of labour accidents, new effective measures are always keenly anticipated. In large construction projects they are following good safety measures and provide a separate department. But in small construction projects which is taken by local contractors are not aware of the labour safety requirements that could prevent sites accidents.

In this paper we examine the current status of safety at workplace and provide suggestions for improving safety measurements. It includes a study survey or physical visit to different construction sites and collecting data & give feedback regarding to number of workers, total working hours, work shift, number of accidents in selected construction sites and the types of injuries suffered by workers, collected & examined.

2.LITERATURE REVIEW

The construction industry is a very dangerous industry. The performance of the industry in occupational health and safety is very poor. The standard of occupational health and safety is even worse in developing countries. In Indian construction industry OHS has never been given prime importance. Even though in India construction industry is significantly booming, there are no proper initiatives undertaken by the government to implement OHS rules and regulations. Huang and Hinze analysed accident caused due to fall of workers at construction sites and the result showed that most fall accidents took place at elevations of less than 9.15m, occurring primarily on new construction projects of commercial buildings and residential projects of relatively low construction cost.

Jannadi and Bu-Khamsin conducted questionnaire survey among industrial contractors in the Eastern Province of Saudi Arabia and formal interviews with the contractors and officials responsible for construction safety were taken. 72% of the companies participated in this survey were the general building construction companies. Twenty main factors and eighty-five subfactors and their level of importance based on the survey results and analysis were identified. Pheng and Shiua emphasized that integration between quality and safety should be achieved for better coordination and utilization of resources. Koehn and Datta through their study concluded that safety rules and regulations not only overcome issues like poor quality work, unsafe working conditions, and lack of environmental control but also reduce cost and enhance productivity. Wilson Jr. and Koehn suggested that safety practices vary with construction sites, as every site has unique safety aspects. Larger construction projects are better organized whereas small to medium firms do not have an adequate safety program or person to oversee safety criteria.

In developed countries, recent advancement in technology, on one hand, has contributed positively to industry productivity, but, on the other hand, it has created a more challenging and unsafe work environment. Every construction worker is likely to be temporarily unfit for work at some time as a result of a minor injury or a health problem after working on a construction site. Between 1989 and 1992, 256 people were fatally injured in the Australian Construction Industry. Statistics revealed that the fatality rate was 10.4 per 100,000 workers, which was similar to the fatality rate for road accidents. It is estimated that, in China, every year, 3,000 workers belonging to construction sector were killed in work related accidents. From a study conducted by Egyptian construction industry, it was concluded that safety programs organized by Egypt contractors were less formal and the accident insurance costs were fixed irrespective of the contractor's safety performance. The most common cause of injuries and death in the construction sector is falling from heights. The main causes include working on a scaffold or platform without guard rails, or without a safety harness correctly attached, and fragile roofs and ladders that are badly maintained, positioned, and secured. Slips, trips, and falls are the largest cause of accidents in all sectors.

In India, departments under the Ministry of Labour and Employment deal with OSH issues in construction sector under the head of Chief Labour Commissioner. Directorate

General Factory Advise Service Labour Institute (DGFASLI) provides technical support in drafting model rules, carrying out surveys, and conducting training programmes in construction sector. A number of Labour Laws are applicable to the workers engaged at construction sites. These are as follows:

- (i) Contract Labour (Regulation & Operative) Act, 1970,
- (ii) Minimum Wages Act, 1948,
- (iii) Payment of Wages Act, 1936,
- (iv) Equal Remuneration Act, 1976,
- (v) Inter-State Migrant Workmen (Regulation of Employment and Condition of Services) Act, 1979,
- (vi) The Building and Other Construction Workers Act, 1996.

The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996, was enacted on 1.3.1996. The act is applicable to all establishments employing 10 or more workers in any building and other construction works. The Chief Labour Commissioner is entrusted with the task of enforcement of this act and the central rules.

3.METHODOLOGY

The methodology is process of elaborate to the work process of the project & reflects the different aspects of construction sites. It is a process to design to project in steps or to graphically.

In the first step of our project is a selection of the sites to questionnaire survey.

In the questionnaire survey some criteria followed-

- a) Labour work shift, number of workers and workers timing.
- b) Number of accidents, types of injury and reason for injury.

In second step the questionnaire data were collected. The total number of sites survey is 12. In these sites small and large construction sites are both include. In these interviews managers, site engineers, labourers are included.

In the last step we analyse the data which we have collected & made a result.

4.RESULT AND DISCUSSION

4.1 Number of Floors & Work Shift

The data was collected form 12 residential, commercial buildings sites& road construction sites(residential buildings like houses, apartments and hostels: commercial buildings like shops, office and auditorium).

In small construction sites only G+0, G+1, G+2 building construction were found. In small construction sites data were collected from one number of G+0 sites, 3 numbers of G+1 and 2 numbers of G+2. In moderate construction sites (like street road construction, colony road construction, etc) data were collected from 3 sites. In large construction sites <G+2

building construction was found. In large construction sites 4 numbers of <G+2, data were collected.

In the maximum number of construction site starts work at 9 AM and finish at 6 PM. In the working time one hour is given for resting and food & is comfortable in all sites. In some sites night shift work is also done to complete the project work.

4.2 Number of Workers

In small construction sites >10 workers are working. In moderate construction sites 10 to 22 workers are working. In large construction sites <22 workers are included. In Kota city construction sites the numbers of migrant labours are more than local workers. Because the migrant labours are ready to

work for low wages so the contractors or organizations are happy to give job to them.

4.3 Number of accidents, type of injury and reason for injury

Detailed information about accident which happened in previous one year were collected, percentage of accident in different type of injuries and number of accidents in each site is calculated.

In the Selected 12 construction sites the total number of accidents happened is 124. The average number of accidents was found 10.33. Figure 1 shows the total number of accidents in each construction sites. Site number 10 shows more number of accidents is 15 and site number 2 and 6 shows less number of accidents is 6.

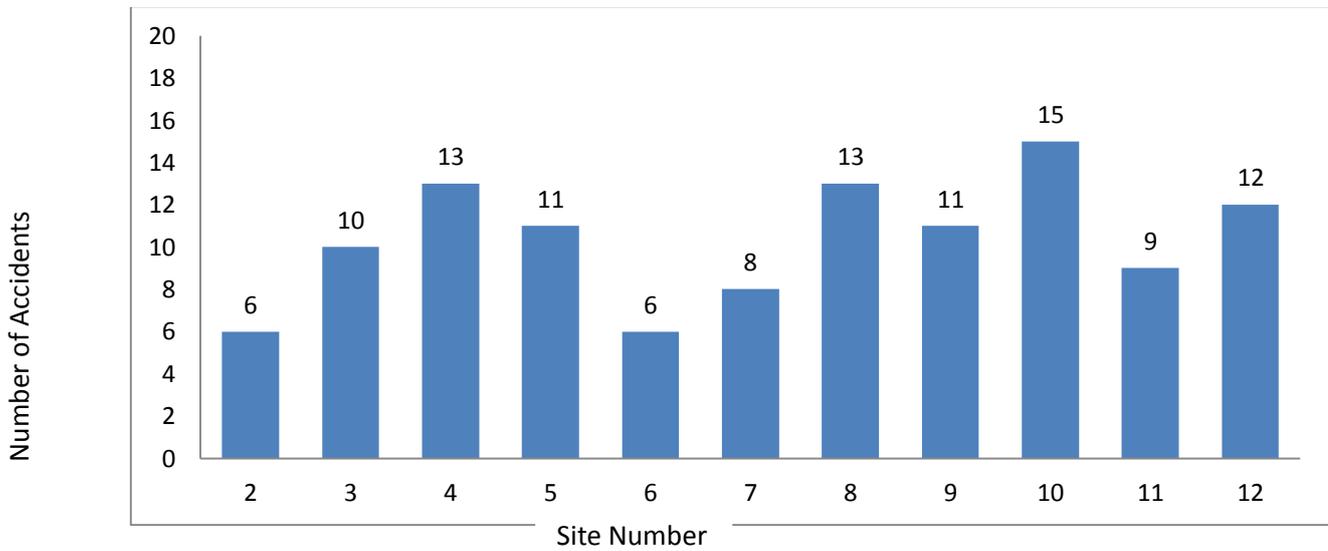


Figure 1: Number of accidents in construction sites

Figure 2 shows the percentage of accident in construction sites in each category which is the death of persons is 4.04, loss of body parts is 7.26, Bone fracture is 25.8, Injury to the body is 38.71, Skin infection is 15.32 and deficiencies is 8.87.

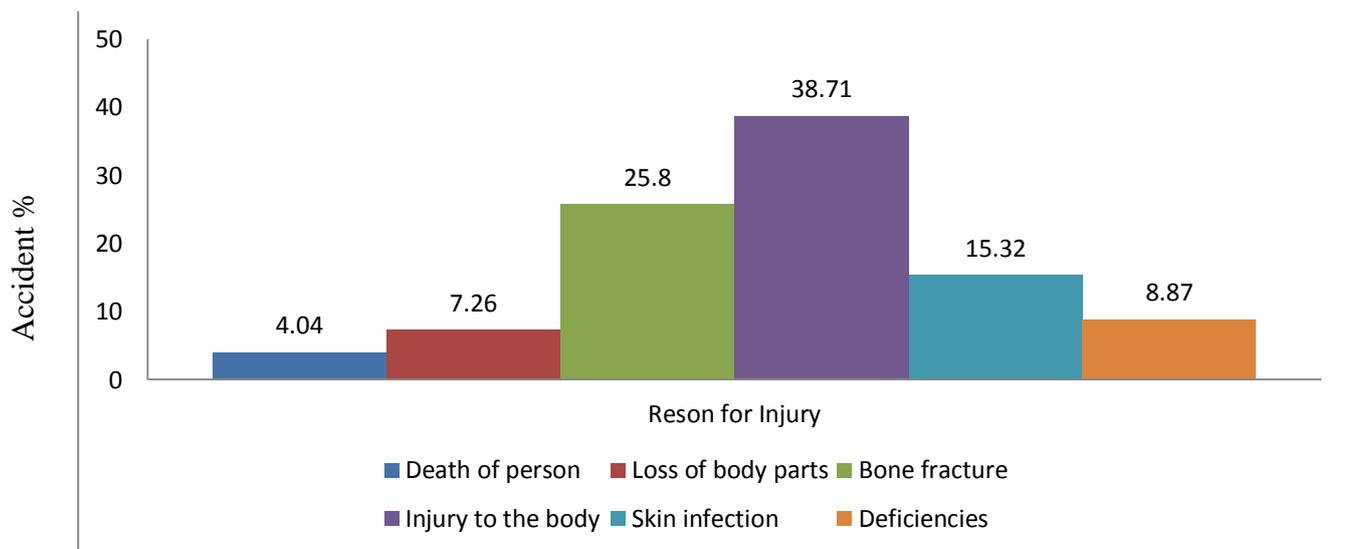


Figure 2: Percentage of accidents in construction sites

5. CONCLUSION

Adopting the complexity in construction industry it has become more dangerous. In construction industries, close monitoring is necessary to have to their labour safety management systems to reduce the hazards. In this paper we conclude that-

- a) The average number of accidents was found to be 10.33 in construction sites.
- b) In all type of construction sites (small, moderate and large construction sites) the number of accidents occurred due to body injuries was found 38.71 percent.
- c) The working hours are comfortable for all categories of workers in most of construction sites.
- d) The safety of workers is to be improved in all construction sites.
- e) Contractors must give importance to the safety of workers.

In this paper concluded that for improvements in the safety department different types of methods are adopted to prevent injuries. The available laws that can be followed by employers for safe construction site enjoyment can be studied in detail.

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