

# Hazards and safety issues at construction sites in Bangladesh

## Abstract

Construction industry is one of the most common and remarkably growing worldwide now a days. The construction industry of Bangladesh is growing rapidly with the growth of population, economic development and urbanization. Construction management is a great concern in our modern age across the world. However, inadequacies of safety in construction sites causing injuries even death to workers are also very common. In the comparison about construction safety in developed and developing country is one of the most important tool to find out the overall scenario of safety. Most importantly the scenario of Bangladesh about safety concern in construction work is much need to know to get few prevention ideas to reduce it. Accident, injury and death are the most common terms in construction work. Construction workers are the crucial part of this sector, but they are not well trained. The focus of the thesis study is on construction safety which has a vital role in construction project management and other is to know about causes of hazard. From the investigation it is revealed that the existing given importance of construction sites in Bangladesh is very poor and the old traditional approaches are not substantiate enough to ensure the safety for the workers. The main causes of accident are lack of personal protective measure, lack of safety awareness, unskilled labors so on. It is adopted that, the present study will help to find the preventive measure of safety at construction sites.

**Keywords:** construction accident, causes, construction safety, safety awareness

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## Introduction

The construction industry of Bangladesh is increasing day by day rapidly. Generally it's a huge thing and the most important sector right now to build up civilization and everyone really interested in this civilization. To be civilized, the industry became more familiar already, always the existence of it was remarkable but in this modern age, the parameters of it became broad. When the term of construction work came, then obviously the term of construction safety should to come just after that.<sup>1-7</sup> Construction is the most dangerous land-based work sector now-a-days worldwide. Fatal rate is one of the most essential parameter to analyze the concern of construction safety. The reason to give it the high importance is that it's a major source of employment in the world. In Bangladesh also this industry is growing very fast. It represents about 10 percent of Bangladesh's gross domestic product (GDP) and employs more than 2.6 million people. This industry in Bangladesh is worth 900 billion Taka or US \$12 billion (BBS 2013). There are more than a thousand companies in Bangladesh who are involved in the construction business. But, the safety management issue in this sector is very poor in Bangladesh characterized by high Fatality rates.<sup>8-12</sup> Though there is extensive research in this sector around the world, but in Bangladesh, studies are limited and research cannot go far due to lack of data and lack of knowledge about safety. Therefore, this subject demands further study and research, as its importance is being realized at national level to keep on track with the international standard. There are lots of human tragedies, loss of life, less productivity and delays of projects are occurring because of construction accidents. Selecting this topic was the main reason for improving safety performance in Bangladesh by making a good analysis worldwide. To provide some ways to reduce accident by make a recommendation over the rules and regulations.

## Basic important terms

### Vulnerability

Vulnerability means easily hurt or attacked. Some seniors think it's funny to pick on the ninth graders because of their vulnerability. Vulnerability comes from the Latin word for wound, vulnus.

### Hispanic

A Spanish-speaking person, especially one of Latin American descent, living in the US.

### Canopy

An ornamental cloth covering hung or held up over something, especially a throne or bed.

**Synonyms:** awning, shade, sunshade, cover, covering.

### Accident

An unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage or injury.

### Injury

Harm done to a person's or an animal's body by any accidental issue.

## Fatality rates and construction safety culture in Bangladesh

Section 7 of the Bangladesh National Building Code (2006) has a section dedicated to safety measures for workers and clearly states that workers should wear helmets and safety harnesses and that all

temporary stairs, ladders, and scaffolds should be, substantially constructed so as not to create any unsafe situation for the workmen using them or the workmen and general public passing under, on or near them. However even casual observation would reveal that these provisions are frequently if not always violated. According to Safety and Rights Society (SRS) there were 149 deaths in the construction industry in 2012, 183 deaths in 2011, 73 in 2010, 56 in 2009 and 100 deaths in 2008.<sup>13</sup> However, the actual Figure 1 is suspected to be much higher. The Dhaka Medical College morgue and its emergency department alone report receiving one or two such victims of construction site accidents every day. Unlike the export-oriented industries, the construction industry does not receive any pressure for reforms from the foreign buyers (and their consumers). Perhaps as a result, there is no enforcement body to ensure that worker safety legislation is enforced.<sup>14-16</sup> In 2010, the High Court asked the government to establish a National Building Code Enforcement Authority, but no such authority has been created, leaving worker safety rules entirely unenforced (Tables 1&2).



Figure 1 Some pictures safety and hazard scenario.

Table 1 Case scenario (Overall)

SI No	Hazard type	Description	Severity rating	Probability rating	Comments on risk
1	Brick particle	Low injury but huge amount then big risk	4	3	Low
2	Steel Particle	Would not be expected to be serious	3	3	Low
3	Bamboo flat stair	Moving of bamboo can occur injury	2	3	Medium
4	Shutter/formwork	Fitting should be done properly	2	2	Medium
5	Water in floor	Sliding and slipping can occur serious damage	2	1	Medium
6	No railing or wall on stair in upper floor	Mayime the change to fall down	2	1	Medium
7	Bricks particle,rod,wire particle in stair	Much risk in time of tmconcem	2	1	Medium
8	Rod remains out stair	May highly responsible for injuries in leg	2	1	Medium

Table 2 Category and significant on hazard

Category	Quantity	Percentage	Significant
High-Risk	2	20%	Few Specific
Medium-Risk	6	60%	More or less all Low- Risk
Low-Risk	2	20%	Normal

### Research methodology

The purpose of this study is to examine the perceptions of selected construction site quality according to safety and hazards by observation and showing the main purposes of safety and focused on high risk hazards by condition of risk.

### Theoretical framework

Study is done about construction management, construction productivity, labor productivity and also about the factors which affect construction sites. In the theoretical section, the researcher gathered information on safety and hazard of construction in construction

workplace. Moreover, the exploration on safety and hazard helped to acquire schematic ideas about concept of construction work.

### Results

Figures 2–8.

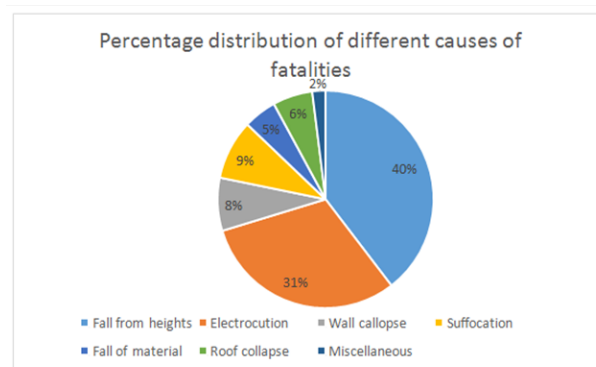


Figure 2 Percentage distribution of different causes of fatalities.

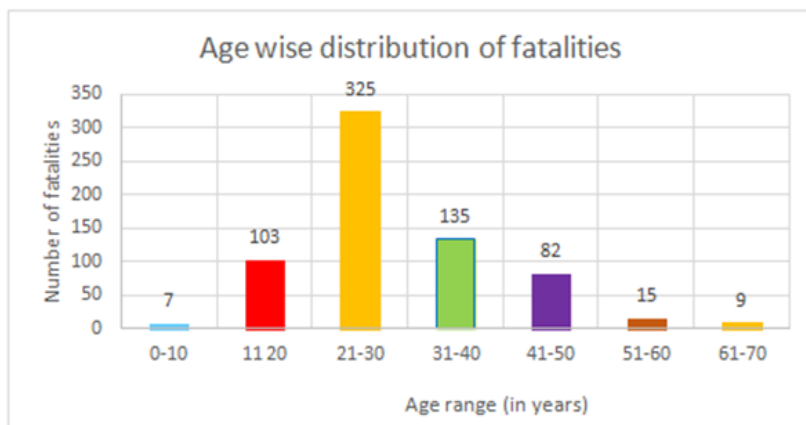


Figure 3 Age wise distribution of fatalities.

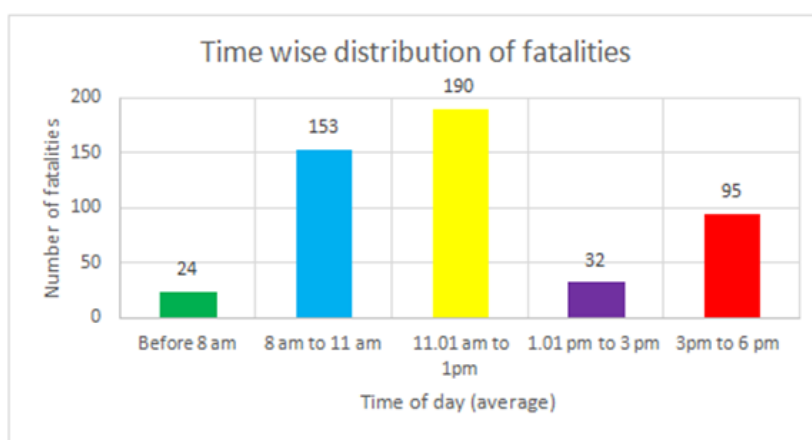


Figure 4 Time wise distribution of fatalities.

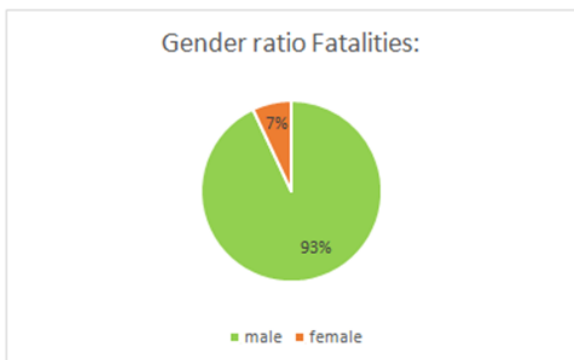


Figure 5 Gender ratio fatalities.

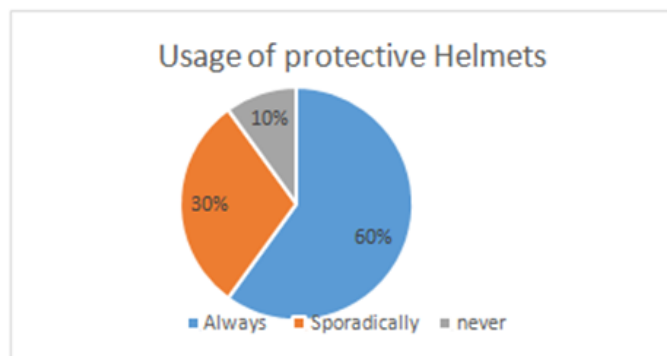


Figure 6 Usage of protective helmets.

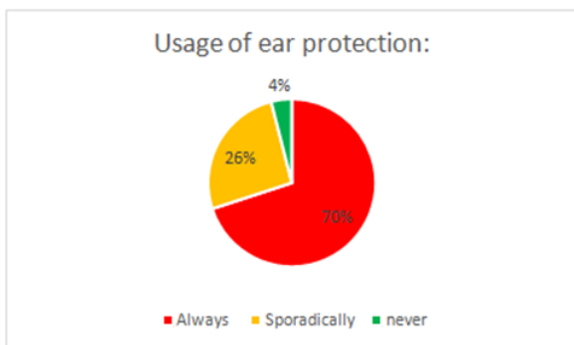


Figure 7 Usage of ear protection.

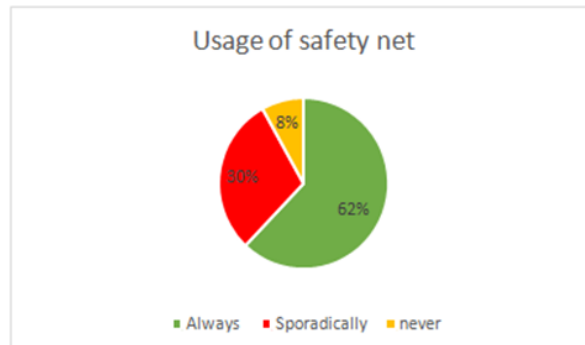


Figure 8 Usage of safety net.

## Findings and outcomes

It explains the result of findings, reasons, logic of findings of construction safety in Bangladesh. It also describes site visit inspection and construction safety in workplace. On the other hand, worker's safety knowledge and applications also describes here to provide few ideas of prevention. This study was done on 42 construction workers, 15 were unskilled (36%), and 27 were skilled (64%) and 30 of them are uneducated whose don't have primary education and other 12 have primary education. Most of them have an experience about construction that more or less of 3 years but less than 1 year experience in those individual sites. Interestingly, they don't have any training on the work of construction industry.

### Few major facts

- I. In Bangladesh (Especially in Dhaka), there is no any construction work is being run with 100% concern and facility about safety.
- II. Contractors are unwilling to give the equipment's to the worker.
- III. High risk hazards are few specific in general (20% more or less) and little amounts of item but most dangerous.
- IV. Illiteracy doing a huge bad role in this case with a specific perspective.

Overall, it can be said that the scenario of Bangladesh about construction safety in construction workplace is absolutely not good enough and not in an acceptable range.

## Conclusion

Bangladesh is a country of huge population. Man power is the main source of economy here. There are more than 60% people doing construction job here. Most of them are worker and most of the workers are illiterate and unskilled. So they are not able to know about their safety and techniques of work. So, our country is staying in backward than developed regions. The construction industry in Bangladesh uses labor-intensive construction methods which is relatively poor safety, and health record due its high accident and fatality rates. This is due in part to the unique nature of the industry, human behavior, difficult work site condition, minimum use of equipment, shortage of adequately trained worker, and lack of adequate infrastructure such as roads, bridges, power generation facilities and poor construction management. To develop the safety rate in construction site co-related with hazard some process can be applied, which are:

### Improve maintain the hazards

Hazards are set on roof or slab or ground of each floor, we can use small spaces on each of the floor and notice by high visible reflected sign board on place to put materials which seems as hazard. That will be noticed to people to be aware from accident.

### Proper use of safe guard

Just not enough safety equipment, they need to be well trained for using this properly.

### Safety campaign

For safety concern they can take campaigns for safe in work.

### Develop the safety culture

In Bangladesh construction workers are not well educated and not

proper trained up. After long time experience, they can use to on this work. Fresh workers can learn from senior or experienced one.

It will be costly to take every worker totally trained up. But we can train those workers for experience.

### Worker psychology

We need to know about worker psychology, some entertained or some mentally relaxed treat they also need. Maximum workers work like reckless, irresponsible that's why maximum accident occurs. They are mostly simple people. This can be explained to them the importance of the emotional and life, they will be concern about safety. It will reduce probability of accident.

### Create Safety environment in every site

Every construction site need also awareness poster that show with picture, some rhythmic gnome, and bill board can use entry way of the gate and living place of workers, it will help also to aware of worker to safe.

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## Conflicts of interest

The author declares there is no conflict of interest.

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