



## Aspects of environment, health and safety at construction

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### Abstract

The largest segment of workforce in the country belongs to the unorganized sector. The Planning Commission set up a working Group which identified seven sectors namely- agriculture, construction, shops and establishments, beedi and cigar manufacturing, homework, eating places and waste management, as most common in un-organized sector out of which the construction sector is most important. Present paper is an attempt to evaluate the Environmental and Safety aspects of construction sites in India.

### Keywords:

### Introduction

Construction sector in our country has significant contribution to GDP and employed around 33 million people. This is the second largest contributor to the GDP after the agriculture sector. It generates substantial employment and provides growth impetus to other manufacturing sectors like cement, bitumen, iron and steel, chemicals, bricks, paints, tiles etc. Therefore, the issue of environment, safety and health of construction sites in India is now gaining utmost importance.

### Construction Activity: An Overview

Construction industry is an integral part of infrastructure sectors, like irrigation, roads, telecommunication, energy, industrial sectors, industrial areas, railway network effluent treatment facilities, etc., which leads to an economic growth and development of the country. Indian construction industry comprises of about 200 large firm including large public sectors. Construction sector comprises of 90,000 medium to large firms known as class A contractor (registered with government bodies) and 6 lakhs small firms of contractors and subcontractors who execute small jobs including repairing. Construction Projects cover a vast field of activities in engineering,

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mechanical and civil process. The Indian construction projects have many special features, which are adversely affecting the environmental, safety and occupational health conditions of those who are working in such an environment. Basic problem arises from the following aspects:

- Temporary duration of work site, Seasonal employment,
- Extensive use of migrant labour
- Small size of most construction firms
- Extensive use of sub- contractors
- Effect of weather, including spell of long working hours to compensate for bad weather
- High labor turnover
- Welfare problems of construction workers
- Competitive tendering
- Environmental Conditions of the surrounding

As the sector is unorganized and enforcement has not yet started to construction projects fullest extent, no accident reporting system is followed by the construction companies and hence, there is no reliable and accurate accident statistics for the construction sector. During the period of 2003-05, 8 fatal and 1 major accidents were reported to the office of Chief Labor Commissioner, Central. Whereas for another survey for construction projects, expected account for 20 percent of all



workplace fatalities. As per the report of a survey conducted by ILO, 165 per 1,000 workers get injured during construction activities. In addition to that the workers are exposed to a host of hazardous substances, which have a potential to cause serious health and occupational diseases such as asbestosis, silicosis, lead poisoning etc. The Accidents of workers are high in the construction industry, as can be non-compliance with safety regulation or with simple common sense. There are costs involved in achieving full compliance, and those costs include money, time and behavior change. Financial cost is the most obvious, but behavioral change is the most difficult.

### Unsafe Acts and Unsafe conditions

The technologies being investigated is the idea of workplace observations on unsafe/ safe acts and conditions. The statistically-significant connection could be made between workplace construction and safety system, than it will provide more accurate measurements for managing of workplace safety and environment. Various steps to be followed during the observations are summarized below:

- Collection & Characterization of unsafe acts and environmental conditions on workplace site activities from the EPCC's Contractors for various parameters.
- Literature collection on job activities for hazards and risk identification.
- Collection of primary and secondary data related to safe construction at workplace, level of technology, safety and environmental management practices in various construction industries.

### A Ranking observation Analysis

A Ranking observation Analysis is a procedure which helps to put together accepted safety and health principles and practices into a particular task or construction activities. In a Ranking observation Analysis, each basic step of the construction activities is to identify potential hazards and to recommend the safest way to do the construction activities by setting the target based objective.

Methodology is based on the idea that safety of man, machine and environment is an integral part of every construction activity and not a separate entity. In the observation, only occupational health and safety aspects are considered. The major

advantages of this analysis include that it does not rely on individual memory and mental status and that the construction activities based prompts recognition of hazards.

### Steps for setting the objectives for Ranking Analysis

- First objective would based on legal requirement / technical standards
- Observed the construction site for two week and note down the observations in tabular form.
- Row wise and column wise to find out the maximum number of observations.
- Set the objective for particular construction actives and unsafe acts / conditions and environment.
- Observe the observations of unsafe acts/ conditions and environment after implementation of safety measures at site.

### Sample form for Ranking Observation Analysis

Location	Construction Activity	Date and Time	Observing By
Sub Station	Painting	11.06.2010	Ajay Singh
<b>Observations</b>			
1	Unsafely personnel shifting the location while painting.		
2	Unsafe ladder being used by painter.		
3	Painters are found without nose mask and hand gloves		
4	Hanging of paint unsafely on ladder.		
5	No cordon off location nearby area of painter while painting work in progress.		

### Conclusion and suggestion

The unsafe act and conditions are one of the major workplace safety concerns in construction industries. The unsafe acts and conditions at construction site comparatively high as most of the other industry, where more improvement is required. Ranking observation analysis is a very simple analysis to prevent the unsafe acts and conditions at construction work place. By analysis

of the accountability and responsibility of construction company in context of unsafe acts / conditions and environment can be resolved at help in enhancing the safety, health and workplace itself which further reduces the chances environmental conditions of the construction site. of unsafe acts/ conditions and environment and thus

### Setting of objectives for Control Measures

Leading Indicator of safety lapses	Construction activities			
	Earth Work	Brick Work	Painting	Frequency
Movement	5	7	9	9
Stacking	3	3	7	7
PPE	5	3	6	6
Frequency	5	7	9	Max 9

**Result:** Setting the objective for Movement of person for painting works.

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