Aspects of environment, health and safety at construction

Ajay Kumar Singh¹, Ashutosh Gautam² and Nihalanwar Siddiqui³

Received: 12.08.2012 Revised: 16.11.2012 Accepted: 3.01.2013

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, 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
• Completive 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

Author’s Address
¹Dy Project Manager, NBCC Ltd, Kanpur Uttar Pradesh
²General Manager (Environment and QC), India Glycols Limited, Kashipur, Uttarakhand, India,
³Universities of Petroleum and Energy Studies, Dehradun

E-mail: ashutosh.gautam@indiaglycols.com

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workplace fatalities. As per the report of a survey conducted by ILO, 165 per 1,000 workers get and
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.

<table>
<thead>
<tr>
<th>Location</th>
<th>Construction Activity</th>
<th>Date and Time</th>
<th>Observing By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub Station</td>
<td>Painting</td>
<td>11.06.2010</td>
<td>Ajay Singh</td>
</tr>
</tbody>
</table>

**Sample form for Ranking Observation Analysis**

<table>
<thead>
<tr>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Unsafer personnel shifting the location while painting.</td>
</tr>
<tr>
<td>2. Unsafe ladder being used by painter.</td>
</tr>
<tr>
<td>3. Painters are found without nose mask and hand gloves</td>
</tr>
<tr>
<td>4. Hanging of paint unsafely on ladder.</td>
</tr>
<tr>
<td>5. No cordon off location nearby area of painter while painting work in progress.</td>
</tr>
</tbody>
</table>

**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

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

**Setting of objectives for Control Measures**

<table>
<thead>
<tr>
<th>Leading Indicator of safety lapses</th>
<th>Construction activities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Earth Work</td>
</tr>
<tr>
<td>Movement</td>
<td>5</td>
</tr>
<tr>
<td>Stacking</td>
<td>3</td>
</tr>
<tr>
<td>PPE</td>
<td>5</td>
</tr>
<tr>
<td>Frequency</td>
<td>5</td>
</tr>
</tbody>
</table>

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

**References**

- N V Krishnan, 1983. An Introduction to Safety Engineering and Management, Published by OPS Publisher, Calcutta,