Safety Study of an Accident at Project Site

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Construction of large Projects is a growth engine for economy, enhancing GDP and brings prosperity to a country provided projects are executed meeting eco-friendly environmental conditions. However, construction of projects becomes the curse when devastates the green earth against God nature and causes accidents which bring miseries for the society as a whole.

It is also true that Construction sector creates facilities for citizens and development in a country. Its contribution to GDP of India is around 1.4% which is next only to agriculture. It employs around 40 million of work force. This sector has operation budget of around 175000 crores per annum. That is why, the infrastructure and construction sector is growing rapidly with many ongoing large construction projects having huge investment. Due to their multi - party nature, the projects are becoming more complex and risky from safety and accidents perspective. There are many risks in the large and mega construction projects in any country in general and in India in specific. One of the identified risk is accidents and loss of life. Safety is essential part of life in all walks right from home to industry and everywhere.

In view of above, executing projects is a welcome activity but not accidents which bring sorrow, agony and loss of life. It needs to be ensured that accidents are not taking place because due to human fault. There should be a zero tolerance on the accidents caused by the human errors. The natural calamities and analogous events are beyond the control of human beings but the accidental in projects can be eliminated and project execution can be accident free

A Sad Event of an Accident at Project Site:

Project: A large project in a steel plant of one of the largest steel companies of India.

Client: Steel Company which awarded the contract to contractors.

Contractors : Consortium of contractors, well-known of high repute and long experience of project execution, executing the project by employing 3000 workers at site.

Status of The Project Work: Project was in advance stage and contractor' employees were working also at height in night. There was work pressure to complete the project in time, therefore work was going on round the clock.

The Accident:

- Blast Furnace gas, a poisonous and deadly gas, leaked from the existing operating blast furnace in night which was in close location to project site.
- Workers working at height started falling from working places from height after inhaling poisonous BF gas.
- Some fellow workers from other areas rushed to rescue the affected workers and they also inhaled BF gas and became unconscious.

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Impact of the Accident:

- 3 workers died at the spot.
- 10 persons were serious, unconscious, hospitalized and remained in hospital for months with permanent injuries.
- Workers went on strike. Project job was stopped for weeks delaying the important project of the company.
- Contractors lost man hours and money.
- Project site had the atmosphere of fear and total negativity.
- Penal actions were taken on responsible employees for safety violation and lost jobs.

Safety Violation Observations:

- Contractors' employees were working in night without safety clearance and some of the employees were not having safety belts to work at height.
- Workers were not bearing safety gas masks and even safety helmets.
- Shift safety captain was not present at site and fond absent from the project site.
- Nobody was monitoring BF gas leakage and gas level in project area.

Common Causes of Accidents in Projects:

The jobs in projects are more prone to accidents. The following are some reasons of accidents in projects:

- Not wearing personal protective equipment (PPE), common cause of accidents in the workplace.
- Collapse of scaffolding and ladders at project site.
- Improper handling of hazardous materials by untrained workers
- Insecure Equipment.
- Non - Availability or deficient immediate health facility at works site.
- Defects and faults in construction equipment.
- No or deficient safety training.
- Incorrect construction planning and scheduling
- Over exertion and tiredness by working over a long period of time and overtime.
- Where an object typically falls from a height and strikes someone.
- Where a construction worker inadvertently comes in contact with a live electrical wire, causing a fatality.
- Slips, trips and falls of objects.
- Distractions of working persons while working.

- Messy work environments while working at site
- When a worker is caught between two objects, causing a crushing injury.
- Lack of equipment to protect against falls from a height.
- Tripping and falling hazards on the ground.
- Lack of safety equipment or improper safety equipment.
- Malfunctioning power equipment at site due to defect or power failure.
- Exposure to hazardous chemicals without safety gear.

Prevention is better than cure:

Management to ensure that no accidents take place at site. Following actions can help:

- Force to wear PPE at all times by all workers and employees at site.
- Management to enforce Breaks and normal rest foe all working employees.
- Feature Clear Safety Signage.
- Maintain proper health of construction equipment.
- Hold daily regular safety meetings.
- Perform safety Inspections through the site.
- Provide safety train to all employees.
- Protect Workers' Mental Health and Create a Safe Work Area.
- Keep an orderly workplace. Poor housekeeping can cause serious health and safety hazards.
- Inspect equipment's before and after use.
- Continually cultivate a safety standard.
- Proper shutdown for works on electrical. Gas pipeline & heights.
- Ensure authorized permit to work in night & height. Formats to be filled and signed by authorized persons only.
- Working in night if can be avoided, is better.
- Providing proper lighting & illumination.
- Authorizations permit to work on flammable gas line & poisonous gases.
- Proper space to house construction equipment and tools & tackles.
- Ear mark, material and equipment movements.
- Proper safety on welding machine, hand lamp & charged cables, proper earthling of these.
- Assembling point to be decided and declared in case of emergency.
- Ear mask & restrict the area where work is going at height.

- Carry out physical inspection of equipment's & material before installing at site.
- Install material handling and transport of equipment's. This will expedite & speed up.
- Manual works to be replaced & minimized. Proper engineering of such system.
- Overloading of equipment's to be avoided.
- None should be below when transport / transfer items at height.
- No accumulation of material at heights.
- Instantaneous / daily clearance of muck and wastage from project sites
- Ensure proper housekeeping & cleaning at project site.
- Penalty & reward on following safety guideline & measures.
- Declaring one employee as safety captain of month and putting the notice board for updating and motivating all employees.
- Put safety statistics on notice board for information of all employees.
- No alcohol at site.
- Periodical Medical checkup of employees.
- Investigation of serious violations of safety by safety department and third party.
- Conducting safety audits.