Critical Analysis of Implementation of Safety Measures in Manufacturing Industry and Corrective Measures for Continual Improvement

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Abstract:
Workplace safety is very important for each and every employee in the industry because all the workers desire to work in a safe and protected atmosphere. Health and safety is the key factor for all the industries in order to promote the wellness of both employees and employers. Accidents are the threat to Industry affecting morale as well as financial aspects. Recent studies show the indirect cost of workplace injury is between 7 and 20 times higher. Indirect costs include such things as absenteeism, loss of productivity, retraining, position backfilling, labour turnover, loss of skill and experience, and decreased morale. Anything with the potential to cause harm, workplace accidents and work-related illnesses are called hazards. Workplace injury and disease impacts heavily on the human and financial resources of organization. Occupational health and safety (OHS) is a discipline and specialty that studies and implements practical aspects of environmental protection and safety at work. In simple terms it is what organizations must do to make sure that their activities do not cause harm to anyone. Risk assessment is a term used to describe the overall process or method where hazards are identified and risk factors that have the potential to cause harm are analyzed and evaluated and effective control measures are identified. This project is aimed to analyze the OHS Implementation in manufacturing industry and finding out corrective measures to improve safety of workmen. In this industry the following process are carried to produce the equipment mainly productions process, chemical handling, material handling, manual process, assembly and cleaning process, loading/unloading process, logistics and delivery process. Although all the standards are implemented theoretically, the practical difficulties are always faced in implementation. Aim of this project is to identify the challenges faced in implementation and finding out practical solution for effective implementation of OHS Standards. Risk assessment and continual improvement form a process of constantly evaluating communication and updating of information. A healthy workplace is one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of workers and the sustainability of the workplace by considering the improvement measures such as leadership & commitment, practical approach towards HIRA, effective objectives & programs, adequate resources & competent people, effective training, behavioral based safety implementation, reward & recognition program, OHS improvement programs, effective evaluation – inspections & audits and action plan for continual improvement. Creating a healthy workplace that does no harm to the mental or physical health, safety or well-being of workers is a moral imperative. Most countries have some legislation requiring, at a minimum, that employers protect workers from hazards in the workplace that could cause injury or illness. So complying with the law, and thus avoiding fines or imprisonment for employers, directors and sometimes even workers, is another reason for paying attention to the health, safety and well-being of workers.

1. INTRODUCTION

Accidents are the threat to Industry affecting morale as well as financial aspects. Recent studies show the indirect cost of workplace injury is between 7 and 20 times higher. Indirect costs include such things as absenteeism, loss of productivity, retraining, position backfilling, and labour turnover, loss of skill and experience, and decreased morale. Workplace injury is a major cause of concern for all involved in occupational health and safety. The factors which cause workplace accidents and occupational illnesses are called hazards. It is important to distinguish between hazard, risk and exposure when undertaking risk management. Hazard is the potential for harm, or adverse effect on an employee’s health. Anything which may cause injury or ill health to anyone at or near a workplace is a hazard. Risk is the likelihood that a hazard will cause injury or ill health to anyone at or near a workplace. The level of risk increases with the severity of the hazard and the duration and frequency of exposure. Exposure occurs when a person comes into contact with a hazard. This results in the need of industrial Safety management and its promotion. Accidents or Incidents and consequent human injuries result in untold misery to the workers and in addition cause damage to product, property and environment. Like production management, the safety management is also given priority by proper Planning, training, organizing, directing and controlling of the human activities. It is well known that accidents do not happen; they are caused by unsafe conditions and unsafe practices. So, prevention of accidents should be given top priority in the present management system of any Enterprise by undertaking safety promotional activities. Safety is the responsibility of all managerial personnel, supervisory staff and workers in any organization. Top management’s commitment to welfare of employees and formulation and implementation of safety policy is increased productivity. Safety measures result in achieving reduced level of occupational stress and improved quality of work life. Safety management can be defined as the accomplishment of safety objectives by first establishing the safety objectives and then by attaining them through process of planning, organizing,
staffing, directing and controlling i.e. motivating and coordinating all efforts to attain those objectives and also innovating to improve them for future. Every major philosophy since the beginning of time has stressed the importance of occupational health and safety (OHS) along with personal moral code to define interactions with others. The most basic of ethical principles deals with avoiding doing harm to others. Beyond that, in different cultures or different times, there have been, and continue to be many differences in what is considered moral behaviour. Nevertheless, within any one culture there are underlying beliefs about what kind of behaviour is considered good and right, and what is considered wrong. It has been an unfortunate but common occurrence however, for these moral codes to be kept in the realm of “personal” codes, and not always applied to business dealings. Clearly, creating a healthy workplace that does no harm to the mental or physical health, safety or well-being of workers is a moral imperative. From an ethical perspective, if it is considered wrong to expose workers to asbestos in an industrialized nation, then it should be wrong to do so in a developing nation. If it is considered wrong to expose men to toxic chemicals and other risk factors, then it should be considered wrong to expose women and children. Yet many multinationals manage to compartmentalize their ethical codes to allow export of the most dangerous conditions or processes to developing countries where attitudes towards human rights, discrimination or gender issues may put workers at increased risk. An unhealthy and unsafe workplace and its affecton business is detailed within the below mentioned figure 1.1.

In the light of some spectacular company collapses following serious lapses and shortcomings in safety, health and safety is now on the very top of the project-management agenda. Apart from the pain and suffering caused to employees and the public by accidents attributable to lax maintenance of safety standards, the inability to provide high standards of safety and a healthy. Environment is just bad business. Good reputations built up over years can be destroyed in a day due to one serious accident caused by negligence or lack of attention to safety standards. In addition, under the Corporate Manslaughter Act 2007, directors of companies can now be held responsible for fatalities caused by contraventions of Health and Safety regulations. It is for this reason that the British Standards Institution’s ‘Guide to project management in the construction industry’ BS 6079 Part 4: 2006 has placed the ‘S’ for safety in the Centre of the project-management triangle, indicating that a project manager can juggle the priorities between cost, time and performance, but he must never compromise safety. An overview of stress accident.

Most countries have some legislation requiring, at a minimum, that employers protect workers from hazards in the workplace that could cause injury or illness. Many have much more extensive and sophisticated regulations. So complying with the law, and thus avoiding fines or imprisonment for employers, directors and sometimes even workers, is another reason for paying attention to the health, safety and well-being of workers. An overview of an healthy workplace model is given in figure 1.2

Under the Constitution of India, labour is a subject in the concurrent list where both the Central and the State Governments are competent to enact legislation subject to certain matters reserved for the Central Government. The Constitution of India provides detailed provisions for the rights of the citizens and also lays down the principles in the governance of the country called as “Directive Principles of State Policy”. These Directive Principles provide for securing the safety and health and strength of employees, men and women, that the tender age of children are not abused, that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength (Article 39), just and humane conditions of work and maternity relief are provided (Article 42), that the Government shall take steps, by suitable legislation or in any other way, to secure the participation of employee in the management of enterprises, establishments or other organizations engaged in any industry (Article 43A), for ensuring that no child below the age of 14 is employed to work in any factory or mine or engaged in any other hazardous employment (Article 24). Occupational Safety and Health is one of the subjects allotted to Ministry of Labour& Employment under the Government of India Allocation of Business Rules. The Industrial Safety and Health branch of the Ministry discharges the overall functions relating to policy decisions and laying down guidelines for countrywide adoption of legislation. On the basis of Directive Principles as well as international instruments the Government of India, Ministry of Labour& Employment, had declared the National Policy on Safety, Health and Environment at Workplace (NPSHEW) on 20th February, 2009. The purpose of this National Policy is to establish a preventive safety and health culture in the country through elimination of the
incidents of work related injuries, diseases, fatalities, disasters and to enhance the well being of employees in all the sectors of economic activity in the country. This creates a legal framework for employers to ensure that a working environment is maintained in which accidents and unhealthy and hazardous practices are kept to a minimum. Subsequent legislation included:

2. METHODOLOGY AND CONTINUAL IMPROVEMENT

2.1. STUDY ABOUT IMPLEMENTATION OF OHSMS

Although lot of management principles are available, the effective implementation of those principles is very difficult to practically implement. So in order to correctly implement Trainings need to be designed in such a way that behavior of staff and workers get aligned to OHS standards.

The objectives of the OHSMS Elements are to:

- Set and formalize expectations;
- Provide auditable criteria; and
- Provide a basis from which to drive continual improvement.

Implementation must include the following five characteristics of an effective management system:

- Policy Awareness - The OHS Policy represents OHS Support’s commitment to OHS excellence, at all levels of the organization.
- Plan - Planning is used to identify potential OHS risks from activities, products and services, and to evaluate the types of programs and goals to minimize those risks.
- Implementation and Operation - This part of the management system defines the people, systems, strategies, resources and structures necessary to meet OHS goals.
- Review and Measure – The Review and Measure portion is designed to monitor and record performance, and implement corrective and preventative actions for continuous improvement. The ongoing progress towards meeting the requirements of the OHS Management System is assessed by management.
- Improve – Process integrated within the OHS Management System to ensure the correction of program deficiencies and the ongoing improvement of performance.

An outline of the methodology for OHSMS implementation and effective corrective action is given in figures

3. OHS TARGET AND OBJECTIVE PROGRESS

The Company, operating segments and locations shall develop challenging objectives, targets and programs to provide for continual improvement in OHS and business performance.

Objectives and targets shall:

- Fulfill the commitments in the OHS Policy and Management System Commitment
- Consider significant OHS risks, legal and other requirements
- Address OHS risk and opportunity and improve OHS performance
- Measure OHS and business performance and be tracked and reported to internal and external stakeholders
- Consider input from the business, stakeholders, and other interested parties

Programs shall:

- Be developed to achieve objectives and targets
- Include time frames, resources and identify responsibility for achieving OHS and business objectives and targets

3.1. ANNUAL RISK ASSESSMENT

An Annual Risk Assessment is a risk assessment done once a year that covers all regular society activity during that year period. It is designed to cover small scale activity that your society undertakes, larger-scale events and activities will need to be risk assessed separately and in more detail depending on the type of event.

- Health & Safety Risk Assessment
- Environmental Risk Assessment
- Machinery Risk Assessment
- Chemical Risk Assessment
- Fire Risk Assessment

3.2. TRAINING

Although on-the-job accidents happen all the time, even just a single accident is unacceptable, especially one that causes personal injury. Companies can minimize on-the-job injuries and accidents with a robust safety training program. Safety training aids staff members in identifying safety hazards and addressing them. Training helps employees understand approved practices and safety expectations. Safety training is crucial for workers gaining a solid knowledge of safety topics associated with their jobs. If safety isn’t made explicitly
relevant to employees’ jobs, they will be at greater risk for injury, illness or even death.

**First Aid**
First aid is an emergency action and service. Emergency can occur at any time, even when every precaution has been taken to prevent and avoid them. It is a situation which requires immediate action. First aid is the immediate care given to the victim of injury or sudden illness until more advanced care can be provided. Aims of first aid:
- O To save life
- O To protect the victim
- O To prevent the condition from worsening and to relieve plan.
- O To Promote recovery

**Firefighting training**
Firefighting is the act of attempting to prevent the spread of and extinguish significant unwanted fires in buildings, vehicles, woodland, etc. A firefighter suppresses and extinguishes fires to protect lives and to prevent the destruction of property and of the environment. Firefighters may provide other services to their communities.

**HSE Training**
Many trainings looks to be very theoretical like classroom sessions. But we found that those type of trainings only act as a temporary measure and do not cause long impact in the human behavior. Training needs to be conducted in the form Practical demos or dramas which depict the seriousness of risk involved in the job
- Ensure that people who work for you know how to work safely and without risks to health.
- Develop a positive health and safety culture, where safe and healthy working becomes second nature to everyone.
- Meet your legal duty to protect the health and safety of your employees.

**3.3. OHS LEGISLATIVE COMPLIANCE REPORTING**
- Labour Law and safety regulation compliance
- Noise - Analysis of High Noise Areas.
- Light assessment
- Ergonomics assessment
- Air quality assessment
- Fire safety assessment

**3.4. AUDITING**
The expectation is that project tasks and services are compliant with the requirements defined by our management system, elements and standards. To provide assurance that the OHS Management Standards requirements are implemented in the business and are effective in reducing OHS risk, periodic OHS Audits will be conducted. The execution of the audits utilizes a risk-based approach and cover regulatory compliance, risk management, communications, document tation and contractor compliance.

**4. CONCLUSION**

This phase II project report is a part of my 2-year master program (Master of Engineering in Industrial Safety Engineering). This phase II project report has covered 100% of the project study towards “Critical Analysis of Implementation of Safety Measures in Manufacturing Industry and Corrective Measures for Continual Improvement” Practical Approach towards HIRA, Behavioural Based Safety Implementation, Reward & Recognition Program, Effective safety training are the few ideas which really made the improvement in safety within the Industry. Operational Safety controls with respect to HSE motivational programs, Working at Height, Contractor HSE Management, Electrical Safety, Manual Handling General facility rules, PTW& LOTO, Road Safety Management, Machine Guarding, noise are the areas were more effective measures and implementation needs to be in place. Hence With just a few corrective measures to the existing EHS policies and few correction in implementation of the same, accident rate can be significantly reduced and EHS standards of the Industry also can be improved.

**5. REFERENCES**