

## Effective Implementation of Safety Management system (SMS) in Industries

**Mr. Ripan Kumar Nayak**, B.Tech, PDIS RLI-Kol, ISE-ICCOHSEM, SMISE, AM Safety-Usha Martin Ltd., Ranchi

**Email id:** ripan.nayak@gmail.com

### Abstract

*Effective implementation of Safety Management system (SMS) is very important for every industry. Ineffective implementation of Safety Management system (SMS) always causes of organisational harm and it results injury, property damage, poor organisation reputation etc. Effective Safety Management system helps to prevent industrial accident and increase productivity. The main objective to publish this paper is to analyse the effective safety management system in industries to minimise the Risk and prevent any harm that occur inside industries.*

**Keywords:** Safety Management system (SMS), Element of Safety Management System, Effective method to implement SMS, Benefit of safety Management system

### Objective:

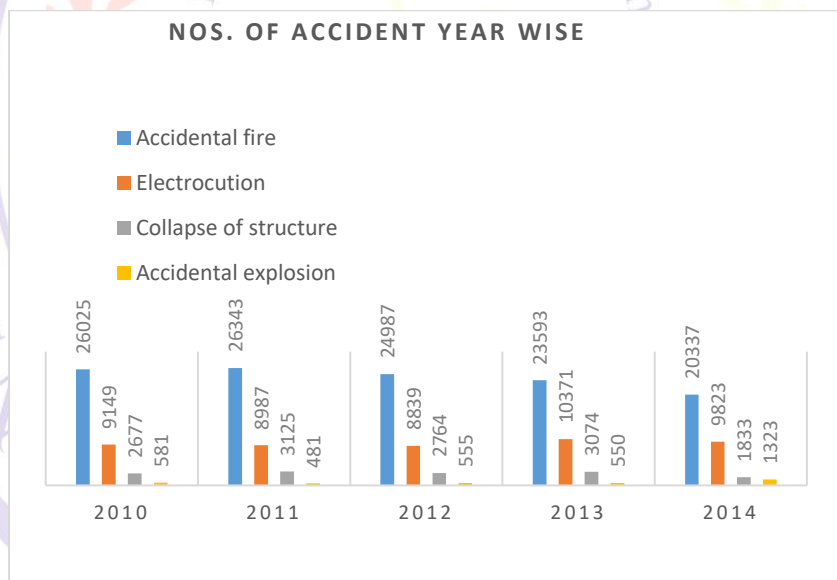
- Help to create safe Healthy work environment
- Reducing work place injury
- Increasing business opportunities
- Increasing moral of employees
- Protection from prosecution by legal authority
- Provide measurable systems for verifying Safety performance & finding opportunities for improvement.
- Enhancing organisation reputation.

### I. Introduction

Safety management system (SMS) is systematically and effective approach to managing health and safety risk at workplace in industries. Effective Safety management system helps to minimise risk as low as reasonable practicable (ALARP) & creating safe healthy work environment. SMSs help to improve safety performance. As per The Factories Act 1948, Occupier is responsible to take all practicable steps to ensure safety of their employees and associates. Occupier means, a person that have ultimate control over the factories. As per The Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Central Rules 1998, Employer is responsible to ensure safety of employees and

associates. Good health and safety management practices encourage higher staff retention and increased productivity.

Safety Management system (SMS) plays vital role to create safe healthy work environment and improve organisation safety performance. Organisation means industries and it may be process industries or production industries or construction industries or other nature of industries. Organisation always effect due to poor SMS system and at current scenario effective SMS required for every organisation to manage SMS at workplace and growing their business. Now Numbers of governmental and non-governmental organisation working in field of Safety to protect the environment as well as human beings. Safety is important because it protects to person, organisational property & Environment. SMS help to increase profitability of any organisation and help to protect from prosecution, maintain good relation with stakeholder. Management, Legal and Social point of view effective SMS required on priority basis for every organisation.



Number of Accident Cases (Source National crime record bureau-India)

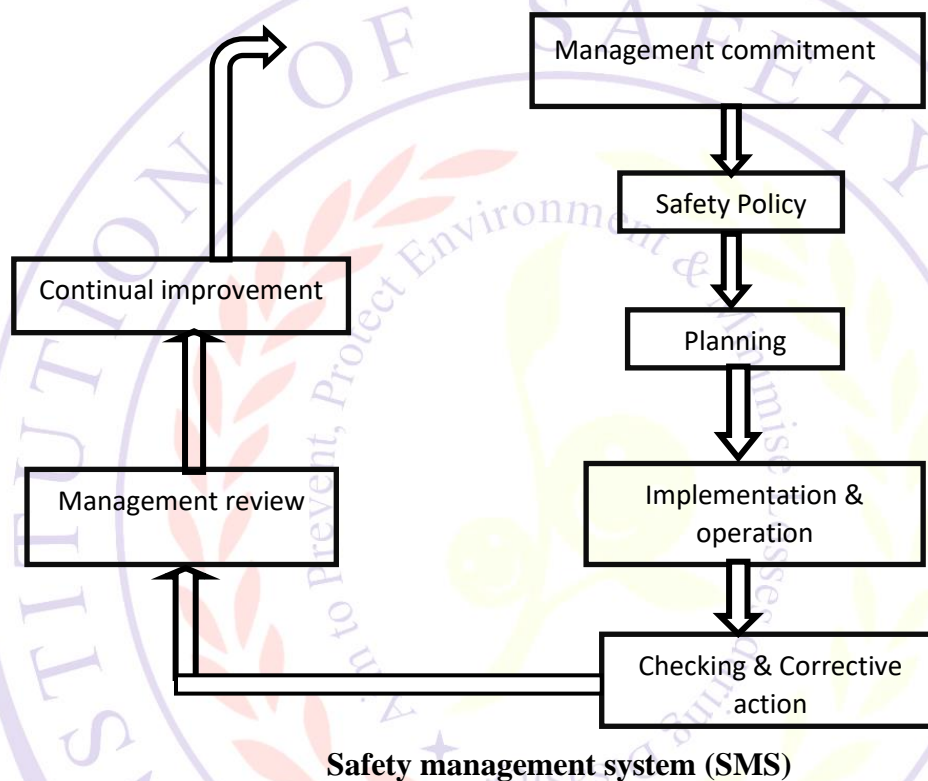
## 2. Elements of Safety Management System (SMS)

Following are element of Safety Management System (SMS) that is used to control work place risk in industries:

- Management commitment & Safety Policy
- Planning
- Implementation & operation
- Checking & corrective action
- Management Review

- Continual improvements

When all elements integrate together and implemented properly then workplace became safe and no any event occurs or less probability of injury except natural calamities. To make Disaster plan and its execution in proper manner can minimize severity of harm that arises due to natural calamities like earthquake, cyclone, tsunami etc.



**Safety management system (SMS)**

Safe work place means, Risk is minimise as Law as reasonable practicable (ALARP) at workplace. Risk is combination of likelihood and consequences of specific hazardous event occurring. Hazard is source or situation that have potential to cause harm. In simple SMSs means workplace hazard are identified and adequate control measure is to be taken to prevent accident or any harm. Effective SMS help to prevent incident, increasing moral of employee and maintain good relation with stakeholders.

Following are steps to an effective SMS and these steps form a continual cycle of SMS performance improvement in a organisation.

## 2.1 Top management commitment and Safety policy

Safety policy is Top management commitment for getting their intent to achieving safety related objective and target. Policy is finalised on based on organisation safety objective. It should contribute all aspects of business performance as part of a demonstrable commitment to continual improvement and the development of human factors including the culture,

attitude and beliefs within the organization. The organization's top management should set in place procedures to define, document and endorse its Safety policy. This policy statement should be signed and dated by the top Management person with responsibility of Safety.

Depending on the type of organization and risks associated with the organization's operations, the policy statement might need to be briefed in more detail. Objective, Target should be measurable with Role & responsibilities to manage safe work place easily inside organisation.

The Safety policy and its statement should be reviewed periodically and revised by top management whenever required and necessary action should be taken to improve Safety performance. Safety policy should be communicated to all person at their work place and concerns interested parties for improving safety performance. Organisation should be define role & Responsibility and should be clear and safety task to be allocated to all individuals for getting organisation objective with in time frame.

## **2.2 Planning**

Planning shows how to deliver Safety policy for getting organisation objective within time frame. It is integral parts of design, development and implementation of risk assessment and determining control concerns with safety. Organisation ensure safety related compliance as per legal requirements. They plan for conducting different types of safety activity like safety inspection, safety training, Formation & safety committing meeting schedules, Safety survey, safety audit etc. for controlling Risk at workplace. The planning address to setting safety related objectives, identifying hazard, assessing Risk and Taking adequate measure to controlling risk.

Effective planning is concerned with designing, developing and ensuring suitable management arrangements, precautions at workplace and their associated risk control systems proportionate to the needs, hazards and risks of the organization and operating, maintaining and improving the system to suit changing needs and process hazards and risks. Identifying legal and other requirements and ensure their compliance. Prepare emergency plan, for saving human lives and environment during emergency like fire, explosion, structure collapse, Toxic gas leakage etc.

## **2.3 Implementation & Operation**

Different activity considered under planning stage must be executed for achieving organisation objective. Organisation structure should be designed, approved and allocate safety Role & Responsibilities to concern individuals. Conduct Safety Training, Safety

awareness program & documented it. Carry out Safety inspection, Safety Audit as per plan and Take necessary action as per observation to eliminate hazards or Minimise risk. As per Hazard identification, Risk assessment and determination control document, take adequate control measure to minimise Risk to Tolerable level. Prepared emergency plan to be approved and implemented for minimising effect of any future emergency such as fire, explosion, and structure collapse as soon as possible (ASAP). Make proper co-ordination between each department and concern person. Communicate safety related message to all organisational people, it will help to ensure safety related compliance.

## **2.4 Checking & corrective action**

It includes Performance measurement, monitoring, Conducting Safety audit, Safety survey, Finding non-conformity and taking appropriate corrective action. All Incident should be investigation and corrective, preventive action should be taken to prevent similar future incident. Manage and keep all Safety record for future purposes. Measure, monitor and evaluate safety performance to determine the effectiveness of risk management and if necessary, take preventive and corrective action.

## **2.5 Management review and continual improvement**

Review and continually improve the Safety management system (SMS), with the objective for improving Safety performance. As per IS 14489:1998, organisation can conduct Safety audit. Safety personnel play major role to develop and implementing effective safety management system in a organisation. Firstly organisation ensure element of Safety audit with the help of Code of practice on occupational safety & Health audit, IS 14489. Safety policy, Organisation structure & Task allocation, Safety Training, Monitoring, Reviewing, Reporting, emergency arrangement and resources are few major element of safety audit. Safety audit help to find deviation of organisation and correcting them.

## **3. Effective Safety Management system in organization**

Following are few major steps used to develop and implementing effective SMSs:

- know your legal responsibilities, Top management set organisation objective and make a commitment to health and safety
- Identify Non-conformity, assess Risk and manage risk at workplace.
- Impart training to aware to people, carry out supervision like activity and take necessary corrective and preventive action.
- Report, record and investigate incidents including Near miss, corrective and preventive action to be taken to avoid similar future incident.

- Involve to employees in safety Mgt. system to improve health and safety culture at workplace.
- Prepare and approve emergency plan and be ready for handling emergencies
- Reporting, Record keeping and necessary action to be taken for manage risk on priority basis.

Proper planning, organising, motivating, training & communicating play major role to ensure effective SMS in any organisation.

#### **4. Effect of Safety Management system:**

SMSs has positive and negative impacts. Positive impacts is result of effective SMS and it help to ensure safe work environment and increase to organisation safety performance. Negative impact means Loss of organisational reputation, getting punishment by legal authorities, Poor relation with stakeholder etc. Finally Poor safety magement management system hampered to business of organisation, So negative impact is always bad for organisation. So every organisation prefer to improve their SMSs on priority basis for growing their business.

#### **5. Recommendation:**

Know Legal responsibilities, set up objective and top management commitment to be signed and communicated to all individual of organisation with their role and responsibilities. Identify hazard and control at work place by hazard control method. Eliminate the hazard, Isolate the hazard, Engineering control method, Administrative control measure & PPE's are the steps to control hazard. Firstly we try to eliminate the hazard, if unable to eliminate then we control the hazard by next method. This method is also known as Hierarchy of Hazard control technique help to create safe healthy work environment and achieving zero harm. Safety inspection, safety audit like activity should be carry our continual basis for finding non-conformity and taking corrective action. All near miss like incident should be investigated and preventive action must be taken to avoid similar future incident. All recommendations should be specific, appropriate, proportionate, prioritized and timescaled. Safety training to be imparted and reward program to be conducted regularly for increasing Safety awareness among people. All Safety related record should be documented for future purposes. Safety policy should be revised and updated at periodic interval as per organisation future objective for improving their Safety performance.

#### **6. Summary:**

Safety Management System (SMS) plays vital role to grow any organisation. SMS help to identify workplace non-conformity and Minimising Risk up to tolerable level. Safety

performance increases due to effective Safety management system. It helps to delegating and assigning clear role and responsibility for getting Safety objective with in time frame. It minimises Direct and indirect cost those arises due to incident, so productivity increase of organisation. Effective Safety management system also protect from prosecution by legal authorities. An effective safety management system help to control risks at workplace; fulfilling statutory requirements; developing positive culture, increasing moral and work efficiency of person. It is also help to finding solution to improve safety performance and improving business opportunities.

## References:

- Bain, P. (1997). Human resource malpractice: the deregulation of health and safety at work in the United States and Great Britain. *Industrial Relations Journal*, 28(3), 176-191.
- International Maritime Organisation (IMO) (1997). International safety management (ISM) code and guidelines on the implementation of the ISM code.
- Crawley, F. K. (1999). The change in safety management for offshore oil and gas production systems. *Institution of Chemical Engineers, Trans. IChemE*, 77 (B), 143-148.
- Mitchison, N., & Papadakis, G. A. (1999). Safety management systems under Seveso II: implementation and assessment. *Journal of Loss Prevention the Process Industries*, 12, 43-51.
- Xiao, X., Marchant, E., & Griffit, A. (1993). Assuring the quality of fire safety systems in buildings. *Fire Prevention*, 261, 27-31.
- India, The Factories Act 1948 & The Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Central Rules, 1998
- India, IS 14489:1998 Code of practice on occupational safety & Health audit & IS 18001
- Boyd, C. (2003). *Human Resource Management and Occupational Health and Safety*. London: Routledge.
- Bain, P. (1997). Human resource malpractice: the deregulation of health and safety at work in the United States and Great Britain. *Industrial Relations Journal*, 28(3), 176-191.
- Hale, A.R., & Hovden, J, Management and culture: The third age of safety. A review of approaches to organizational aspects of safety, health and environment, 1998. In A.-M. Feyer, & A. Williamson (Eds.), *Occupational Injury: Risk, Prevention and Intervention* (pp. 129-165). London: Taylor & Francis.
- Hopkins, A. (2005). *Safety, Culture and Risk: The Organisational Causes of Disasters*. North Ryde: CCH Australia Limited.
- Petersen, D. (1978). *Techniques of Safety Management*. Second Edition. McGraw-Hill.
- Reese, C. (2008). *Occupational Health and Safety Management: A Practical Approach*. Boca Raton, FL: CRC Press.
- Clarke, S. and Ward, K. (2006). The role of leader influence tactics and safety climate in engaging employees' safety participation. *Risk Analysis*, 26, 1175-1185.
- Burke, R., Clark, S. And Cooper, C. (2011) *Occupational Health and Safety*. Aldershot: Gower.
- Timpe, Psychology's contributions to the improvement of safety and reliability in the man-machine system. In B. Wilpert, & T. Qvale (Eds.), *Reliability and safety in hazardous work systems*, 1993