

# Study Of Influence Of Safety Engineering And Management Practices Industries

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**Abstract:** In the twentieth century, as technology grew by leaps and bounds, associated hazards also grew with it. This resulted in collective efforts and thinking in the direction of controlling work related hazards and accidents. Thus, safety management developed and became an important part of industrial management. While considerable research has been reported on the topic of safety management in industries from various parts of the world, there is scarcity of literature from India. It is logical to think that a clear understanding of the critical safety management practices and their relationships with accident rates and management system certifications would help in the development and implementation of safety management systems.

The objective of this paper is the introduction of basic concepts in safety management needed for the development of so called Safety Performance to get safety assurance in management decisions. Safety policy and targets are the first step of SMS implementation. As a next step safety risk management will identify hazards and support action planning. This approach ensures that all required safety actions will be identified. Result of this approach is a list of risks and actions, supporting safety performance monitoring. The last step of this approach is the safety promotion concept of training, education and communication for a proactive and generative safety culture.

**Keywords:** Safety Management, Safety Climate, Safety Performance

## I. INTRODUCTION

In the twentieth century, as technology grew by leaps and bounds, associated hazards also grew with it. This resulted in collective efforts and thinking in the direction of controlling work related hazards and accidents. A group of delegates including safety professionals, management leaders, public officials and insurance specialists who met in a national safety meeting in New York in the year 1913, had a desire to attack the problem of occupational health and safety which most people considered either unimportant or insoluble. This resulted in the birth of a voluntary organization, named "National Safety Council", which helped to create the safety movement, as we know it today. Later, similar voluntary organizations such as International Labor Organization, British Safety Council etc. came up with support from industries in various parts of the world

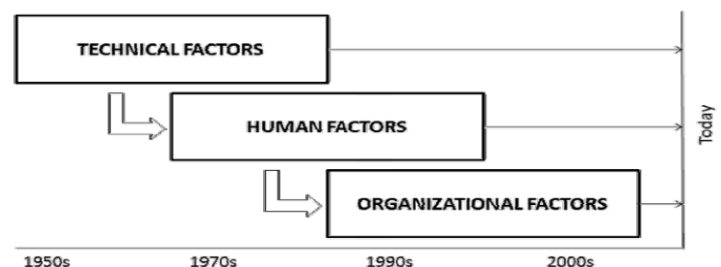


Figure 1: The evolution of safety thinking (James Reason; ICAO 2009)

## II. OBJECTIVE OF THE STUDY

- ✓ To identify critical safety management practices in industries;

- ✓ To develop and validate an instrument to measure critical safety management
- ✓ practices, by an empirical study in chemical/process industry;
- ✓ To find out the relationship between safety management practices and accident rates in industries.

### III. RESEARCH DESIGN

The study based on secondary data which collected from website, journal, Newspaper & reports on safety.

### IV. SAFETY POLICY AND SAFETY CULTURE

A fundamental part of the SMS process is the definition phase. During this phase policies, procedures and organisational structures have to be defined. The safety management concept is using quality management principles (ISO 2007). The requirements on the safety management concept have to be identified. These requirements are influenced by customer requirements and commercial objectives as well as rules and regulations. These requirements must be explicitly referenced into a company policy, and must be fully integrated into the organisation's mission and vision.

The safety policy is typically written and documented under the authority of the highest level of management of the organisation, approved by the State's regulator and communicated to all staff of the organisation. The properly communicated safety policy is a prerequisite for the creation and development of positive safety culture inside the aviation organization.

### V. CRITICAL SAFETY MANAGEMENT PRACTICES IN INDUSTRIES

The following critical safety management practices have been identified discussions with the safety professionals and safety managers from various industrial units.

- ✓ Management Commitment (MC)
- ✓ Safety Training (ST)
- ✓ Worker Involvement in Safety (WI)
- ✓ Safety Communication and Feedback (SC)
- ✓ Safety Rules and Procedures (SR)
- ✓ Safety Promotion Policies (SP)

#### A. MANAGEMENT COMMITMENT

Safety improvement of the system is the responsibility of top management, though an important role is played by workers and team members in order to achieve the overall objectives of the company.

#### B. SAFETY TRAINING

Safety training provides the means for identifying actions leading to accidents. The basic difference between safe employees and those who frequently get hurt is that safe.

#### C. WORKER INVOLVEMENT IN SAFETY

Worker involvement is a behavioural-oriented technique that involves individuals or groups in the upward communication flow and decision-making process within the organization.

Employees close to the work are recognized as often being the best qualified to make suggestions about improvements. Participative managers will solicit opinions from other individuals or groups before making final decisions, especially for those that affect the employees. The empowerment of employees is both a management style and attitude.

#### D. SAFETY COMMUNICATION AND FEEDBACK

One way an organization transmits its culture to employees is by feedback. Employees learn to associate their level of performance with its consequence. When managers provide positive feedback, they reinforce a behaviour; in contrast, negative feedback reduces frequency of future behaviour.

#### E. SAFETY RULES AND PROCEDURES

Manufacturers of equipment and machinery conduct safety audits of their product as a part of product safety management programme during the design and manufacture. Managers, supervisors and workers will be trained by the manufacturer to use the equipment safely and correctly. In addition to new equipment and machinery, all activities including operation and maintenance of all machinery and equipment will have documented safe procedures (e.g., work permit systems, use of personal protective equipment).

Every country has rules and regulations to safeguard the health and safety of employees. In India, 'The Factories Act, 1948' is the guiding document and various states.

#### F. SAFETY PROMOTION POLICIES

Activities from the management side to promote safe behaviour include conducting recreational activities at relevant occasions to inculcate safety awareness among employees, giving rewards/incentives for notable contributions to improve or promote safety, giving safety records of employees due weightage in job promotions etc. The use of incentives, awards and recognition to motivate employees to perform safely is an accepted feature of both organization behaviour management and total quality management models.

### VI. SUMMARY AND CONCLUSION

Safety awareness that is spreading to all walks of life and all types of organizations has made 'Safety Management' a potential area of research. While considerable research has been done on the topics of safety management and safety culture/climate in developed countries, such work is not to be seen reported in India. Globalization and economic reforms warrants Indian industries to adopt better safety management

to stay competitive in international markets. It is observed that industrial accidents, associated financial losses, and compensation claims eat away considerable portion of the profit earned by organizations. These also damage the reputation of organization and lower the morale of the employees. Captains of industries are still faced with the challenge of understanding the key issues in safety management so as to provide healthy and safe work environment to their employees. This underscores the need to study the various factors that influence industrial safety management, especially in high-risk industry such as chemical/process industry.

The ultimate aim of safety management is to reduce accidents. As the level of safety management increases, accident rate has to reduce. This research also explored the predictive validity of safety management practices along with comparison of safety management practices in industrial units grouped based on accident rate.

#### VII. CONCLUSION

This study has established the importance of understanding the factors that influence safety management so as to enable industrial units at lower levels to improve their

performance. This research could bring out the factors in chemicals/process industries.

This research was a very important learning experience for the researcher and has significantly contributed to his appreciation for the area of safety management and research methodology.

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