CHAPTER 1

INTRODUCTION
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1.1 HISTORY AND PHILOSOPHY OF THE SAFETY MOVEMENT IN THE CONTINENT

The problems faced by the industrial workers during the beginning of the industry revolution were many i.e. exploitation of Labour, long hours of work, child employment, unhygienic working conditions, bonded Labour, child abuse etc. The need for reforms in this sector was felt by many people from the cross section of the society. The initial attempts to introduce controls were opposed by the employers, as, it was treated as bilateral agreement between employer and employee which were not to be disturbed. The continent had better application of Technology for manufacturing processes in Furnace, Germany, Austria, Netherlands etc. In Austria, the first enactment on Child employment Apprenticeship was done in 1786 under the title “Regulation of Child Labour and Apprenticeship”. In U.K. the first enactment was done in 1802 to regulate child employment. The first enactment was to establish the right of the Govt. for legislation intervention on the ground that the working conditions of workers were weak and unorganized, since the Government had a sovereign function like controlling the law and order in the country. The legislation efforts continued based on the demands of the situation. In the initial stages, in U.K. the magistrates were enforcing the Act. Some of the magistrates were employers too. The necessity of appointing exclusive inspectors of factories were felt in 1833.
With the increased application of science, technology and manufacturing activities with steel, power, cotton textiles, pottery, Iron works and chemicals the great strides in U.K. and the continent continued. All these nations provided a good demand for the iron works particularly in the manufacture of guns. Factories like Enfield, British small Arms were well known for the manufacture of guns, increasing their skills in the Iron foundries and steel making. The First world war gave further thrust to the industries. The industrial production in U.K. & Continent were so much that they had to find a market in other places leading to colonization. Also the First World war witnessed the introduction of chemical substances having hazards associated with them like phosgene gas (Carbonyl chloride) against which solders, horses were to be given respiratory protection for survival. The Factories Act in U.K. Was periodically amended and a separate regulation was issued for various purposes. The Act was enforced by specialists having expertise in Mechanical, Electrical and Chemical Engineering. They had extended the coverage from manufacturing Industries to Ports, Docks and Railway premises. A comprehensive enactment was last enacted in 1961. The Safety aspects were regulated in U.K. by different agencies and by multiplicity of legislation. In 1974 Flixborough accident took place in U.K and the U.K. Govt. ordered an enquiry into the accident wherein the difficulties in regulation of the safety was also brought out with a view to examine the whole issue of multiplicity of legislation and the agency. The U.K. Government appointed a committee under the chairmanship of Lord Roben, which examined the whole issue of multiplicity of legislation, need for
extending legislative coverage to the areas which were not touched so far and the means of ensuring safety. A report was submitted based on which a comprehensive and an umbrella type of legislation called "Health and Safety at work" was made in 1974. The report had postulated certain queries like the person who creates a risk must assume the responsibility for safety and the human errors can be controlled by the condition of the mind through training. These approaches were reflected in the law and it seeks to lay down broadly provisions indicating the responsibilities for protection on the owner/occupies/employer which is termed as "Self regulations". The prescriptive law was not considered suitable for changing situations of work place. A general enabling law with powers to the appropriate authority to lay down standards relating to Safety and Health having the force of law was considered as better approach. Based on this, in U.K. non-conformity to the legislative standards might entitle for punishment. Where the legislative standards can not be made applicable, the codes of practices or other accepted standards could be relied up on an appropriate safe practices even by the court of law.

1.2 HISTORY AND PHILOSOPHY OF SAFETY MOVEMENT IN INDIA.

Bombay province was one of the major ports in India. Due to the availability of black cotton soil, conducive weather conditions the textile mills were established in the city prior to 1870. In Ganganagar of Rajasthan, Engineering & Iron Works were established. In Calcutta due to the availability of Iron ore & Coal in the Eastern region Iron works were established. The Railway repair
and maintenance work shops were established for the entire Railway system in the country which was given priority for British officials and their troop movements. The working condition of textile mills were unhygienic, with dawn to dusk work resume. A Royal Commission was appointed to look in to the details of working conditions for which the social activists like Shri. Lokhande and Shri Shapoorji Sorabjee Bengali (Shri S.S.Bengali), a cotton agent and a parsee philanthropist were making demands. Series of fires in cotton ginning factories in Ganganagar brought out clearly the need for legislative interventions and protection of workmen. Besides, the cotton textile mill owners of India were also becoming prosperous and rich because of the unregulated activities and proven to be keen competitor to Lankashire Textile Ltd. Fearing the loss of business, Lancashire Textile Ltd. prevailed upon the Secretary of State Government of India to introduce similar legislations like the Factories Act of U.K. to introduce in India. Sir Alexander Redgrave was the first H.M.of Factories. Major More, Mr. Ballard, English men were sympathetic to the cause of the legislative intervention for protection of workers in Indian Factories. With the efforts of such people the first Factories Act was enacted in India in 1881. When Lord Canning was the viceroy of India, the initial efforts of the Factories Act were made for the purpose of regulating hours of work and regulation of child employment etc. There after, the Act was amended periodically in 1891, 1911, 1922 and 1934. The improvement in 1881 Act was extended to the coverage to all the factories employing 50 or more workers and raising the minimum age of child employment to 9 years. The 1911 amendment of the Act was similar to the
U.K. Act, 1833 i.e. formation of inspectorate to enforce the provisions. The 1922 amendment included Industrial undertakings employing 20 workers or more. The 1934 Act amendment included 48 hours of work a week, 10 days holidays with pay for 12 months service etc. The World War II broke out during 1940-45. The Government relaxed the application of the Factories Act as, the factories were gearing up for the war efforts. The factories contributing to the war efforts during the war were exposed to the danger of out break of fire due to the uncontrolled activities. The Government of India established in the year 1945 a Chief Advisor of Factories for advising the Government on the matters concerned with Occupation Safety & Health at work including fire fighting measures. With the attainment of India’s Independence in 1947, a comprehensive central enactment applicable to the entire country for the protection of worker, was enacted in the year 1948 and came in to force on first April 1948. The work of consolidating and amending the Factories Act was entrusted to the Chief Advisor of Factories (CAF) presently called as “Directorate General Factory Advice Services & Labour Institutes (DGFASLI)” under the Ministry of Labour, Government of India. Soon after the Independence, a committee under the chairmanship of Sir Wilfred Garrett, who was the first CAF and also ex H.M.CIF, U.K. was appointed to go in to the details of the Factories Act 1948. He recommended that there should be an arrangement at central level to train the Factory inspectors and to provide support research facility for setting standards relating to the Safety & Health, which paved the way for establishment of Central Labour Institute, Bombay, Regional Labour Institutes (Kanpur, Calcutta and Madras) in India. Another
A historic development in the world which gave strength to the Safety movement was the establishment of International Labour Office (ILO) in 1919 (at Washington) which formulated International Labour Standards including Safety & Health standards. India, being the founder member of ILO, became committed to the International Labour standards and gave effect to some of them by suitably modifying the Factories Act. The First set of major amendments to the Act was done in 1954 under the stewardship of Shri. V.V. Giri, the then Labour Minister, Government of India who ratified the ILO conventions and strengthened the provisions of Safety and Health. The Factories Act underwent in 1976 another amendment in a significant manner. The worker definition was amended to include the contract workers. The institutionalization of Safety profession rendered possible because of compulsory appointment of the Safety officer with requisite qualification and experience and the concept of minimum penalty for violation of Safety provision including permission related to dangerous operations & processes, were introduced. Consequent to Bhopal disaster in 1984, the Factories Act was amended in a comprehensive manner. For the first time, the Act had provisions related to its physical location with respect to its neighborhood, amended in 1987, with three principal objectives namely

i) To site the Factory in such a manner which does not cause adverse affect to its neighbourhood.

ii) To provide for the measures of protection against the danger of handling hazardous substances.

iii) To enable the participation of worker in the Safety Management.
Some of the concepts enshrined in the comprehensive ILO convention number 155 covering occupational Safety, Health & work environment were also incorporated in this amendment. i.e. compulsory disclosure of information to the worker and the worker’s right to get trained etc. The concept of self regulation was also introduced during 1987 amendment vide section 7(A) sub section (1). The importance of training of workers on the matters related to Safety and Health was emphasized as one of the general duties of the occupier and right was given to the worker to demand for training on Safety & Health. The worker has a right to warn the employer about the imminent danger of Health & Safety. Besides strengthening of personal provisions over a period of 50 years, amendment in 1987 after Bhopal tragedy, the work place safety & Health requirements had brought a sharp National focus. Several institutions other than the present Directorate General Factory Advice Service and Labour Institutes (DGFASLI) were established and became active.

1.3 INDUSTRIAL ACCIDENTS / INCIDENTS AFFECTING THE ORGANIZATION PRODUCTIVITY:

Industrial accidents / incidents are happening in Industries in a very significant way in spite of long struggle for safety movement and the efforts to bring in legislations to counter them through the Indian Factories Act, 1948. Since, Industrial Accident prevention is a matter of great concern, a close look to examine the main details, will be of help to understand how the accidents are caused, how to prevent or to minimize them and what would be possible losses/damages if the accidents are not prevented or not minimized. An industrial Accident is an undesirable event that results in physical harm to a
person or damage to property or both. An accident occurs due to the result of contact with a source of energy above the threshold limit of the body or structure or both. The source of energy may be kinetic, electrical, chemical, thermal, ionizing radiation, non-ionizing radiation etc. The physical harm to the person includes injury, disease, adverse mental condition, neurological changes and Biological changes resulting from an exposure to circumstances encountered during the course of employment. All the industrial accidents affect the productivity of an organization. Any industrial incident is also an undesired event that could down grade the efficiency of the business operation, can cause loss producing event affecting the organization’s productivity. It can be concluded that all industrial accidents are certainly incidents whereas all incidents need not result in accidents but may be treated as near-mis-accidents. It is to be understood that all industrial accidents/incidents do not occur, they are caused and they can be prevented by thoroughly adopting safety rules, regulations and cultivating safe practices. The process of identifying followed by eliminating or controlling either work environment or hazards in the work place or both, is one of the ways of optimizing the company’s resources such as machines, materials and other related assets. The productivity of the organization is defined as providing more quality output with a given level of controlled input resources. The hazard control is a strategic process. It must be integrated with organization’s day to day activities, management systems, organization culture, employee’s attitude etc. The origin of Loss producing/business down grading performance events include i) Plant,
machinery, equipment and tools ii) Material iii) Employees and iv) Work environment.

i) **Plant, machinery equipments and tools:** These are the major source of unsafe conditions leading to industrial accidents/incidents. The equipment, machinery and tools their poor reliability, improper design of controls, displays, inadequate instrumentation, improper guarding etc. are frequently named as source of accident causation resulting in unsafe conditions leading to poor quality output and affecting the organization productivity.

ii) **Materials:** The materials which employees use, or work with or make etc. provide another major source of unsafe condition leading to industrial accidents/incidents. Materials can be sharp, heavy, hot, reactive, or toxic. In all these cases the materials can be regarded as a source of contact that results in business down grading performance due to prevailing unsafe conditions.

iii) **Employees:** It has been well established that the human element is involved in high percentage of industrial accidents/incidents. The unsafe practices such as operating without authority, failure to warn or secure, operating at improper speed, making safety device inoperable, using defective equipments, failure to use personal protective equipment whenever needed etc. are all the evidences of attitude problems or lack of knowledge of the employees. These unsafe acts are also the root cause of business down grading performance resulting in lowered organization's productivity. Such employees are very much accident prone and should be taken care by the management.
iv) **Work environment:** The improper work environment is usually associated with presence of air pollutants in the work place or due to industrial noise pollution or inadequate lighting or due to heat stress etc. This element of improper work environment of the business process represents a disturbed physical and mental health of workers and also a source of ever increasing number of occupational related diseases of employees, increasing absenteeism, poor quality of work, low work performance etc. which downgrade the business performance thereby reduce the organization's overall productivity. Therefore it is very much essential to have a close monitoring and control of safe working of plant & machinery, Equipment and Tools, materials employed, work environment and finally the safety of the employees working in organization in order to attain higher productivity that results in improved quality of work, reduced wastages, elimination/minimization of industrial accidents and the related injuries, avoidance of occupational health problems, reduced absenteeism, improved quality of work life, improved employee morale etc.