CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

The literature on safety related activities in small enterprises is primarily focused on hazardous activities and the ways to prevent accidents. The literature is not limited to only a single discipline, but covers several other scientific disciplines, such as:

a. occupational medicine,
b. hygiene,
c. ergonomics,
d. engineering,
e. psychology, and
f. sociology.

Chaudhary S.K.(2010)
In his research, he has made a SWOT analysis which helps us to understand the Strengths, Weaknesses, Opportunities and threats that the Small scale sector faced. Following are the results of the swot analysis that was performed by him;

Strengths

- Contribution to National economic growth
- Generating employment and increasing the prominence of India in the world
- Regional development
- Sustained industrial development
- Technological innovation
- Export market expansion
- Utilization of local resources

**Opportunities**

- WTO regime
- Bilateral and multilateral trade agreements
- Enhanced credit support
- Support for technological up gradation
- Comprehensive support for cluster development
- Marketing assistance
- Growing domestic and international markets
- Growing service sector
- Tariff reduction by all countries
- Joint Venture

**Weaknesses**

- Lack of funds
- Lack of market skills
- Lack of information
- Poor adaptability to changing trends
- Non availability of technically trained human resources
- Lack of Management skills
- Lack of access to technological information
Threats

- Dumping of goods from developed countries in the developing countries
- Poor incentive structure for entrepreneurs
- Virtual absence if enterprise education Non tariff barriers from developed countries
- Slow improvement quality to meet the international standards.

2.1.1 National Safety Council

Substantial amount of literature is available on the National Safety Council website (www.nsc.org). It was set up by Ministry of Labour, Govt. of India in 1966, as a non-profit making, non-political voluntary organization to generate, develop and sustain a voluntary movement at the national level to promote awareness of safety, health and environment so as to supplement and strengthen government efforts in this field. They have local chapters in all states and offer consultancy services to industries in all areas of safety management. Relevant literature related to several reports was reviewed from the same source. One of the significant observations about the literature on the website is that there has been an alliance between OSHA and NSC. The website states the objectives of the alliance. It also has several sections devoted to safety training. It lays special emphasis on drug abuse too.

Besides the above, literature was reviewed from studies that were done earlier by eminent scholars. Magazines, periodicals and several journals were reviewed. Following are some highlights of the review.

Every Indian organization is supposed to prepare a 'Safety Manual' based on 'The Factories Act, 1948' and state 'Factory Rules' to take care of the health and safety of its employees, covering the various manufacturing activities employed in the company. To what extent these are practiced in reality depends on the commitment of the top management of the organization. Committed managements subsequently adopt various safety management practices to safe guard their employees from work related hazards whereas others try to manage safety of employees by encouraging them to work safely.
2.2  Research on Industrial Safety:

Cohen (1977)

His study involved examining critical elements that should be part of a successful industrial safety program. According to him, the success of an Industrial Safety Program is best defined by lower injury rates and accidents. He concluded that as far as occupational safety is concerned, strong company commitment to safety, and informal/formal communication between various levels of a company are the most contributing factors to make a safety program successful. He also identified several other relevant factors, such as careful staff selection continuous training throughout the lifetime of the concerned worker with the company.

Zohar (1980)

His focus was on the safety climate of an enterprise. Based on a sample in Israel, he considered questioning workers from metal fabrication, chemical, textile and food processing industries. His study dealt with worker’s perceptions about the need for safety training. The study more focused on the workers’ attitude towards safety related factors. His study concluded that safety climate is related to the general safety level in these organizations and can be regarded as a characteristic of industrial organizations. His study underlines the importance of safety related issues in manufacturing environments.

Col S Rajeev (2000)

Bundelkhand university, Jhansi has studied the safety requirement in industrial sector for the precaution of accidents which occurs commonly and affects human being such as employer and employee in his study titled by “Studies on industrial safety in current perspective a few selected industries”. He has undertaken the study about practice of safety in industries with due respect of safety officers, safety rules and regulation, policies and legal provisions. He has analysis that safety measures has positive contribution in development of industry. He concluded that in India most of industries and factory move into production without incorporate without all safety measures and safety arrangement are not keeping pace with the industrial development.
Alli, 2001;

According to his study, worker participation is one of the most essential aspects of the occupational health safety management system of the organization. It is the responsibility of the employer to ensure that workers and their safety are taken seriously. It is their responsibility to consult health representatives etc. They are the ones who are expected to informed the workers about the associated hazards and train them on all aspects of safety, including emergency arrangements, associated with the type of work.

Gupta (2002) J.P.

Department of Chemical Engineering, Indian Institute of Technology Kanpur, has point out the major causes of this accident as, indifferent attitude of the management towards safety and lack of enforcement of existing regulations by regulatory bodies in his study “The Bhopal gas tragedy: could it have happened in a developed country?” In his study he has focused on 41 tones deadly MIC release within a period of less than 2 hr without warning or intimation to authorities of the consequences. According to him the tragedy was exit due to lack of financial problems, reduction in workers amenities, cost cutting procedure and lack of safety. He conclude that Bhopal type accident could have happened in 1984 even in a developed country as long the management gave only lip service to process and personnel safety and the governments did not ensure compliance with the regulations. Fundamental R&D is needed in the causes of accidents and in manufacturing processes used in the chemical process industries.

Girish Gundesha (2003)

University of Pune studied risks and hazards which makes the employees acute and permant handicap in his study titled by “Impact of Industrial Accidents and the role and responsibility of employees, union ,management and society in the prevention of accidents in public limited companies in pune city” According his study this happens due to unsafe working condition, defective plants, inadequate ventilation, insufficient space in or movement inside the plant. He has analysis the role and responsibilities of employers, union, management and society. He concluded that precautionary measures must be taken to make the work place more safe and
should provided proper space to the employers to avoid accidents. According to his study accidents has an impact on overall condition of employer as well as employees.

**Beriha, G S et al. (2011)**

The authors above conducted a study entitled Safety performance evaluation of Indian organizations. The intention of the research was to create an appropriate standard for benchmarking occupational health and safety performance. The study was performed in an industrial setting so that shortcomings with regards to safety could be highlighted. The major purpose of their study was to evolve strategies to improve the performance and efficiency of the workers. A major finding in the study was that expenses in safety training were relatively more sensitive for improving safety performance of the organization as compared to expenses in health care. The study underlines the importance of prevention over cure.

**Manjunatha et al. (2011)**

The authors studied the health status of workers. The objective of their study was to identify occupational health hazards of iron and steel industries. Some of the interesting findings of the study were that from the total of 2,525 workers who were questioned, the proportion of sickness absenteeism was nearly 67%. A blue collar employee lost almost 22 days compared to 12 days by a white collar worker.

**Taderera, 2012**

A study entitled Occupational Health and Safety Management Systems (OSH-MS) on Institutional & Regulatory Frameworks, was conducted in Zimbabwe. The study discusses the scope and implementation of OSH-MS, which was introduced by the International Labour Organization, which is an agency set up by the United Nations, that deals with labour issues at an international level. The International Labour Organization (ILO) planned to facilitate the implementation, creation, and appraisal of occupational health and safety management system (OSH-MS) at different levels in all countries.
The primary objective of ILO was to provide a unique international model to promote occupational health and safety. When searched further, it was found that under given conditions, India indeed responds reasonably well to initiatives by taken up by the ILO.

Gouri Shanker et al. (2012);

The authors conducted a study entitled “Assessment of occupational health practices in Indian industries” to review the perception of safety officers on Occupational Health and Safety (OHS) norms extended to the workers from Indian industries. The study targeted to understand implementation levels and found out deficiencies that existed. In the study, focus was on industries that required heavy equipment used unsafe and primitive tools, injurious materials, and processes which produced injurious dust. It was found out that management and safety officers have the opportunities to influence the sense of safety and the quality of work environment. It was found in this study “that the workers who are overexposed to occupational injury know little or nothing about their rights or duties, or about the prevention methods available to them.” It is quite evident that the study underlines the importance of the workers knowing about their rights and duties. As a matter of fact, the workers would know their rights and duties only after understanding the relevant provisions of law. The study made by the authors fails to make an enquiry into knowing whether the workers know at least, the basic provisions of the Factories Act.

2.3 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 (Hagan et al., 2001). This results in establishing the correct and safe operating and maintenance procedure for the equipment and these details will be supplied to the user on purchasing the same. 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
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 have made Factories Rules based on the above central Act (e.g., 'The Kerala Factories Rules, 1957'). Every organization has to prepare a 'Safety Manual' based on these documents, covering the various activities employed in the organization. To what extent these are practiced in reality depends on the supervisors or first line officers who supervise the work.

It is reported that, only if the supervisors are given the responsibility of workers' safety, with authority to stop work for safety lapses and award punishments to workers for noncompliance, the required priority will be achieved (Zohar, 1980; Hansen, 1993). Hagan et al. (2001) point out that safety of employees should not be considered as the botheration of the safety officers, but responsibility of all those who manage work and proper delegation of authority should accompany responsibility.

In spite of all efforts, workers tend to deviate from correct and safe operating and maintenance procedures due to reasons such as work pace, over-experience, indifferent attitude, over-confidence etc. Enforcement of safety rules and procedures by supervisors achieve significance in such situations. Glendon and Litherland (2001) reported this as reliable after analyzing the data collected from construction workers. Lee (1995), Donald (1995), Cox and Cheyne (2000), Flin et al. (2000) and Silva et al. (2004) considered safety rules and procedures as a factor influencing safety performance of employees in their studies.

2.4 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 (Hagan et al., 2001). They can add
interest to an established hazard control programme which could enhance self-protection action on the part of the workforce (Cohen et al., 1979). Individuals are motivated to behave in particular ways that lead to preferred consequences. People are known to change their behaviour to conform to the prevailing cultural norms especially if it is apparent that compliance will lead to a desirable result. There is a strong connection between behaviour and consequences. Human beings are known to learn culture through this connection.

Thompson and Luthans (1990) state, "Organizational culture formation, maintenance, and change occur in a setting where there are multiple reinforcements and reinforcing agents. Changing the organization involves the identification of the various reinforcing agents so that an understanding of their effects on the change process might be determined".

Incentives are being employed as a motivational tool in virtually all areas of business and industry, these include incentive programmes specifically designed to improve safety. It is reported that reward system can be used to reinforce employees who call attention to safety problems and those who are innovative in finding ways to locate and assess and remove workplace hazards (Ostrom et al., 1993).

Laws (1996) has reported that, when the city of Port Lavaca, Texas implemented a new reward system, accidents almost immediately dropped by more than half. Port Lavaca based its incentives on a full year's behaviour. Employees were required to attend safety meetings and submit reports that, identified potential hazards. The city took care to ensure that its incentive system was easy for the employees to understand. With any policy, one can say that the effort to build a well-built safety culture is unlikely to be successful if the firm is not reinforcing the desired behaviour. At the same time an organization should not reward contradictory behaviour. A well-designed incentive policy offers recognition. When efforts are recognized, it leads to positive behaviour. Thus it is necessary to set up a good incentives plan, a good compensation and remuneration plan for maintaining a healthy climate in the organization. According to Vredenburgh (2002), an important feature of a good incentive programme is that it receives an
elevated level of visibility inside the organization. Participants must be competent to understand what the incentive programme is designed to achieve and they must be made aware about how their performance would be measured (Halloran, 1996). It does not mean that the management should simply start distributing prizes. It is necessary that the prizes/ rewards are paired with a clear, and dependable set of standards. If wrongfully done, it may increase the undesired behaviour and more accidents would occur

Swearington, 1996

A properly planned safety-incentive programme rewards the reporting of a vulnerability or an unsafe act that leads to an accident while giving bonuses for lesser lost-time accidents. A safety incentive programme must be a part and parcel of a drive that runs parallel to safety training programs. It should be intended for preventing accidents and not penalty after an accident takes place (Peavey, 1995). Social recognition, Informational feedback, and tangible reinforcers (bonuses, incentives, etc.) have been used as well as non-monetary (perquisites) privileges (Komaki et al., 1978).

2.5 Motivating factors for the present research:

A number of research scholars have studied the special characteristics and culture of small scale manufacturing units. While they focus on several other aspects, their emphasis on occupational health and safety seems to be limited. What many of these research studies do, is that they equip their readers with a vital They do, however, provide important inputs for a deeper understanding of the way small scale industries work and their limitations with regards to several policies that may contribute to the safety of industrial workers. They effectively study the aspects related to resources, reactions and motivations of the workers in small enterprises.

A lot of research has emphasized to develop and validate an instrument to measure critical safety management practices, by an empirical study in specific industries. Most of it was aimed towards testing the validity of safety climate factors obtained in specific industries such as chemical, engineering or construction industries and to find safety climate factors in engineering
and construction industries if necessary. This study covers the small, medium and large scale industries, that too, with a special emphasis on chemical/process oriented industries. It covers the Indian aspect of the Industrial Environment with special reference to the small scale sector. Large or medium scale industries have the ability and the financial power to buy and install safety equipment. But it is not always necessary that the small scale industries would have the financial ability to buy and maintain safety equipments.

Several scholars present research on some particular features of management, stakeholders, the structure of the organization, and public relations of the small scale enterprises. The business aspects of the small scale enterprises has been over-emphasized by several researchers and there are several studies that study the survival aspect of small scale organizations. In these studies, the stake holders are over-emphasized to be the controlling factors who affect anything and everything that goes on in the enterprise. Several references show how the individual values and priorities of the key persons of the organization affect the culture, public relations and the approach of the enterprise. The current study is more focused about safety and the importance of safety measures to keep the workers motivated. Thus study approaches to explain the relationship between safety policies and motivation and makes an attempt to correlate motivation with productivity. Thus it attempts to aim at productivity, efficiency, survival and other aspects of management indirectly.

Based on several references, small enterprises can be explained as enterprises which have to fight for continued existence, with the proprietor as the accountable person who, like a juggler in a circus, has to deal with various issues simultaneously. Though, they are right to a particular extent, these references do not make a valid and complete attempt to describe small scale firms. Health and safety are important and need to be always amongst the top priorities of managers. Health of the workers must be given a fair bit of importance. An owner/manager is responsible to not only the financial well being on an enterprise but is also equally responsible for the wellbeing of the workers. The owner derives a large portion of his identity from his own enterprise and the way he manages it. Managerial philosophy towards safety has been one of the most overlooked aspects of small scale organization. Several studies fail to realize that. If one
needs to understand small scale enterprises, it is the managerial philosophy towards safety and the well being of the employees that should be given a substantial amount of priority. No matter what style of leadership or management is being used by a person in practice to control an organization- what is important to understand here is that a manager or an owner of the enterprise is responsible and must behave responsibly. He cannot think of overlooking the human aspect. One cannot think of using people like machines.

As far as the implementation of statutes in the country is concerned, the central and the state government have been empowered to enforce various acts that are related to safety issues in small, medium and large scale originations. Several laws that have been stated in The Factories Act, 1948., Indian Boiler's Act, Indian Explosives Act, The Petroleum Act etc. have provisions related to safety. Several departments have been set up by the government that can help in implementing and evaluating safety procedures in organizations.

**S. Prabakar (2013)**

In one of his research papers entitled “Re-engineering of Indian Economy-Opportunities & Challenges”, emphasizes that there are several situational factors that contribute to the job satisfaction on a person. In his opinion, when safety measures are implemented as per the provisions of the Factories Act, 1948, it leads to employees being motivated. He also states that today's managers need to adopt a more humanitarian approach as far as industrial safety is concerned. Yet again, this study does not establish a clear relationship between the efficiency of the workers and the safety measures of small scale workers.

Webb (1989), agrees that people are in a better position to work efficiently only if when they are physically and psychologically comfortable stable to perform the allotted task. In his study, he establishes a strong link between implementation of safety measures and business productivity.
Brandt-Rauf (2001), have explained four determinant factors that attempt to explain the link between productivity of the employees and their overall health and safety. The factors are as follows:

1. Using innovative production/working methods to reduce injuries at workplace.
2. Being liberal and just as far as compensation costs go,
3. Increasing productivity without creating mental/physical stress to the employees,
4. Offering good working conditions in order to ensure employee retention.

Pike (2000) states that health and safety should be given a different kind of priority. In his opinion health and safety maintenance should not be considered as a separate function or responsibility by the management. According to him, safety measures should be, in a broader sense, considered as an initiative undertaken to raise efficiency, productivity and profitability of an organization.

According Dubey, A.K. (2000), the working conditions in the majority of the small scale firms are not satisfactory. They pose a great risk to the health and safety of the people who work in such setups. The menace to employee safety is growing several-fold due to additional units being set up that involve working with hazardous processes. These firms do not employ sophisticated working techniques. According to the report he says that there are three major reasons for the present state of things:

a) One man management: A single person does it all,
b) Lack of resources- financial and other resources,
c) Lack of knowledge concerning safety issues.

2.6 The new government plans for Manufacturing Units:

We all know that corruption has been one of the most salient features of Indian authorities. Thankfully, the new Government seems to have taken up the issues related to the
blue collar very seriously. The new government seems to have taken the "Make in India" campaign very seriously.

On 17th October, 2014, in a program by the name Shramamev Jayate - organized by the labour ministry, Hon. Prime Minister of India, unfolded half a dozen new schemes for the manufacturing sector in India. A web portal by the name Shram Suvidha, has been implemented where employers will be able to submit a single compliance report for various laws related to labour.

"Let us start with trust"- PM. Narendra Modi.

According to Narendra Modi the scheme will be extremely portable and accessible because it will be equipped with a universal Account numbering system. He rightfully states that if one one wants to understand the problems faced by the workers, one should look at them from the point of view of the industrial workers and not the managers or owners.

The new government is moving fast to get reforms in the labour sector and has approved modifications to 3 key labour laws—

a. The Factories Act, 1948;

b. Apprentices Act, 1961; and

Changes have also been suggested to the Child Labour Act and sooner or later, amendments shall happen.

The government also plans to implement a new web-based labour inspection scheme. Under the scheme, unique account numbers for members of the EPFO (Employees Provident Fund Organization) would be generated. The Rashtriya Swasthya Bima Yojana has also been revamped by the new government. It has plans of introducing a fresh skill development and apprenticeship system. The interesting part of the scheme is that 1,800 labour inspectors will not be allowed to carry out sudden factory visits. Instead, a fully computerized system will randomly guide the inspectors and shall allot the inspecting staff to particular companies.

Due to this, corruption will reduce. The software would do the allotment of the inspectors by considering data trends and some other relevant variables. Inspectors will have to upload their reports within 72 hours after the visit has taken place. The most interesting part here is that the data submitted will be locked and the Inspectors will not have any authority to change the report later.

2.7 Scope for future research:

Research on health and safety in small scale enterprises is relatively new and rapidly developing field. It is important to note that small scale industries contribute to a nation's overall development and cannot be overlooked. Relevant findings can be derived from the literature but it is essential to improve the value of the research with focus on the use of existing knowledge.

The study of the whole process, that leads to implementation and regularization of safety policies according to law needs to be done on a much larger scale.

Applying the findings of the research, one can extend the study to a particular state. This needs to be done in a cost effective manner. However, important research results can now be
utilized by professionals/intermediaries for the implementation of safety related policies for small enterprises.

There is need to have a more action oriented research which would be done with the cooperation of industry professionals and the government. It is only with the help on an action oriented approach, that such a kind of research will become more valuable and useful to the nation at large. Two significant aspects for future research can be accomplished from the decisive comments to the reviewed studies:

**Firstly**, it is necessary to enlarge the coverage of the research. Four elements are mainly important:

1) Use of the existing knowledge from earlier research applying the same research design to a bigger geographical scale.

2) To extend the research to not only small scale enterprises but also towards covering medium and large scale enterprises.

3) Valuation of the impact of preventive activities and

4) Use experimental analysis: Experiments can be conducted in a form of a before-after study and changes in the behaviour and productivity of the workers can be documented.

**Secondly**, it is necessary to develop more inclusive research, in order to learn the whole intervention system- ranging from the government to owners and managers of the small scale firms.

As a matter of fact, cost is a serious constraint for reaching out to a larger number of small scale firms. Thus, it is necessary that funding is made available. With proper funding by the government and other agencies, the research will certainly become more useful.

Thus we can say that there is a huge scope for future research in safety related issues of small scale enterprises.
Industry safety

3.1 Introduction

3.2 Objectives of industrial safety:

3.3 Safety Management

3.4 Safety committees

3.4.1 Tasks performed by the safety committee

3.5 Safety Provisions - Factories Act

3.6 Safety Inspections

3.6.1 Planning

3.6.2 Inspection of Premises

3.6.3 Management

3.6.4 Supervision

3.6.5 Follow up

3.6.6 Inspection under factory Act

3.6.7 Power of Safety Inspector

3.7 Safety equipment that are generally used in the small scale sector

3.8 Safety Climate

3.9 Mahrratta Chamber of Commerce, Industries and Agriculture - MCCIA, Pune - Contribution to Industrial Safety

3.10 National Safety Council's contribution to Industrial Safety