CHAPTER-6

SUMMARY OF THE FINDINGS, CONCLUSION AND SUGGESTIONS

Brick kilns and stone crushers are important small scale industries in India. It is estimated that more than 100,000 kilns produce about 80 to 100 billion bricks per year in India. The employment in brick kiln industry is approximately eight million people. Stone Crushing Industry involves in manufacturing crushed stone and chips of various sizes depending upon the requirement. It has been estimated that there are more than 12,000 stone crushing units in our country. Yearly turnover of Stone Crushing Industrial is estimated to Rs. 5000 crores. This sector has been estimated to be providing direct and indirect employment of manpower to more than 500,000 people who work in different activities such as mining, crushing plant, transportation of mined stones and crushed products etc. Brick and stone crushing industries supply bricks and different sizes of crushed stones for various construction purposes such as construction of housing sector, bridges, roads, highways, buildings and canals etc. in both rural and urban areas.

According to Pollution Control Board, Guwahati, (2013) the state has 912 permanent brick kilns. There are 182 brick units and 94 stone crushing units in Barak Valley as per the data provided by the Pollution Control Board, Regional Office Silchar, Cachar, Assam.

The area around the brick and stone crushing units are constantly polluted by dusts and smoke that spread in the atmosphere, thus causing damages to the environment and various types of health hazards and respiratory diseases to the
workers of the units as well as surrounding population. The dust also adversely affects visibility, reduces production and growth of vegetation and hampers aesthetics of the locality. The brick and stone crushing industries belong to unorganized industrial sector in the country. There is no workers’ union in these industrial units. The workers of brick industry are seasonal and employed on contractual basis.

Government of India enacted different laws from time to time in order to improve the safety & security, health & welfare of the workers. For prevention of industrial accidents and occupational health hazards, there are different provisions for the safety, health and welfare of the workers of these industries under Factories Act, 1948. For contract labour, there are provisions regarding the welfare and health under the Contract Labour (Regulation and Abolition) Act, 1970. To minimize pollution and prevent occupational health hazard, there are provisions under Air (Prevention and Control of Pollution) Act, 1981, Environmental Protection Act, 1986, Noise Pollution (Regulation and Control) Rules, 2000, and Water (Prevention and Control of Pollution) Act, 1974.

In order to prevent/control pollution, Central Pollution Control Board has already evolved Emission Standards and guidelines in 1989, which has been notified under Environment (Protection) Act, 1986. Realizing the trend of pollution in various environmental media like air and water, soil etc., Government of India adopted multi-pronged strategies in the form of regulations, legislations, agreements, fiscal incentives and other measures to prevent and abate pollution.

In the present research work an attempt has been made to the study of the state of implementation of legislative provisions regarding prevention of industrial
accidents and occupational health hazards in brick and stone crushing industries of
Barak Valley, Assam.

Willing co-operation on the part of workers towards the smooth functioning of
the organizations in general and the continuance of uninterrupted production in
particular, is an agreed condition for the normal functioning of the organizations.
Nevertheless, the willing co-operation by the workers alone cannot ensure the
delivery of the goods in time and properly. In to-day’s highly mechanized industrial
system, machines and chemicals etc. play an important role in increasing quality and
quantity of production in spite of the fact that these machines and chemicals often
leave some harmful effect on the environment and health of the workers and
surrounding people. The industrial workers are the worst sufferers of industrial
pollution. They have to bear the brunt of accidents and hazards, sometimes impeding
the industrial activities for a short duration and sometimes for a long period.

Therefore, the protection of workers from the risk of industrial accidents and
occupational health hazards would naturally place them in a better position to
contribute towards the attainment of better organisational objectives.

Thus, protective measures must be taken from different quarters/corners to
save the workers’ health from the ill-effects of the machines and chemicals. However,
unwillingness of the employers (mostly private) primarily for profit motive, lack of
awareness among the workers over the matter, lacklustre arrangement and supervision
by the Governments concerned etc. are the reasons which could not lead to the
effective arrangement for prevention of and cure against the industrial accidents and
occupational health hazards. The Governments nowadays, of course, have made some
provisions in this regard, aiming at improving the situation.
To have proper safety and precautionary measures against industrial accidents and occupational health hazards is the fundamental right of all workers. In *Subhash Kumar v. State of Bihar Case*, the court held that right to life includes the right to enjoy unpolluted air and water. If anything endangers or impairs the quality of life in defiance of law, a citizen has a right to move the Supreme Court under Article 32 of the Constitution. Expanding upon this theme in a town planning case (*Virender Gaur v State of Haryana*), the court observed that Article 21 protects the right to life as a fundamental right. Enjoyment of life (including the right to live) with human dignity encompasses within its ambit, the protection and preservation of environment, ecological balance, freedom from pollution of air and water, sanitation, without which life cannot be enjoyed. Any contrary acts or actions would cause environmental pollution. Environmental, ecological, air, water pollution, etc., should be regarded as amounting to violation of Article 21. Therefore, hygienic environment is an integral part of right to healthy life and it would be impossible to live with human dignity without a humane and healthy environment. There is a constitutional imperative on the State Government and the municipalities, not only to ensure and safeguard proper environment but also an imperative duty to take adequate measures to promote, protect and improve both the man-made and the natural environment.

In India, a large number of people die in industrial accidents and occupational disease. World Health Organisation (1997) estimated that 10 to 30 per cent of workers in developed countries and up to 30 per cent of the workers in developing countries are exposed to physical hazards and it is found that accidents in industries can be reduced by 50 per cent with the adoption of safety system and changes in behavioural and management practices. It has been estimated that 250 million occupational
injuries and 3, 30,000 fatalities occur each year. However the provisions made in this regard to ensure the improvement in the situation are only to a minimal level.

The reason behind it probably is that the governments feel that to ensure the compliance at a minimum level is their unavoidable responsibility and if the employers concerned are willing and can afford to do more in this regard they are free to do so.

In such a situation where the employers’ poor financial conditions and also their unwillingness (for profit motive) do not permit them to do more than what is needed in this regard (in most of the cases), coupled with the fact that the workers are neither greatly aware about the long term ill impact of the menace nor they are properly united, it becomes very important to have a review of the state of implementation of the legislative provisions regarding industrial accidents and occupational health hazards in our industries.

For reasons, largely related to convenience, it has been decided to probe into the affairs of Brick Industry and Stone Crushing Industry in Barak Valley, Assam on the matter. These industries have also been selected for the reason that emissions caused by these units affect the environment badly, and there is need for implementation of the different relevant acts to prevent and control industrial accidents and occupational health hazards.

The Government of India provides different provisions for the rights of the workers of both organised and unorganised sectors and also lays down the different Acts such as Factories Act, 1948, Welfare and Health of Contract Labour under the Contract Labour (Regulation and Abolition) Act, 1970, Employees’ State Insurance Act, 1948, Workmen’s Compensation Act, 1923, which set an aim to which the
activities of the nation are to be guided properly. These provisions provide for securing the health, welfare, safety and strength of employees/workers both men and women in the industrial unit. The Government has taken various steps by different legislations to secure the participation of the representative of employees/workers in the management of government or non-government undertakings, establishments or other organisations engaged in any industry.

Apart from these, the Workmen’s Compensation Act, 1923 is one of the earliest labour welfare and social security legislation enacted in India. It recognizes the fact that if a worker is a victim of accident or an occupational disease in course of his/ her employment, he needs to be compensated. The Act does not apply to those workers who are insured under the Employees’ State Insurance Act, 1948. Section 53 of the Employees’ State Insurance Act, 1948 provides an insured person or his dependents shall not be entitled to receive or recover whether from the employer of the insured person or from any other person any compensation or damages under the Workmen’s Compensation Act, 1923 or any other law for the time being in force or otherwise in respect of an employment injury sustained by the insured person as an employee under this Act. Awareness among workers should be increased on safety, health and welfare, and environment etc. during the working hours in brick and stone crushing industries.


Reviewing the works related to various legislative provisions on industrial accidents and occupational health hazards; it has been found that there had been few studies Ghosh Suparna and Nayan Barua (2009), Patil et al (2009), Pandit Kameshwar, et al (2009), Roy Sunita (2009), Saini S. Debi (2009), Sebastian Gilbert (2009), Labour Bureau (2004)] dealing with various legislations on labour welfare, working of the Contract Labour Act, labour law etc.

In addition to the above mentioned, some studies are highlighted on works related to implementation and perception of different provisions of Acts, social security legislation and other related works including brick and stone crushing industries Majumder Rituparna (2009), Naagarajan R. (2010), Bhattacharjee Suchismita et al (2011), Kumar Anil (2009), Deboucha Sadek and Hashim Roslan (2011), Saha Arpita (2009), Jha Praveen (2009), Modiyani, L. Manojkumar et al (2009), Pandey, Ashish Kumar (2009), Srivastava and Sachdeva (2009), Saha Dulal
Chandra et al (2011), Garg Committee (1985), Pani Sankar (2010). The present study is made to fill up these gaps and to give a full fledged explanation with special reference to the selected brick and stone crushing industries in Barak Valley, Assam.

Therefore, it is observed from the review of literature that though a good number of studies have been made on industrial accidents, occupational health hazards, labour legislation and its implementation and also the studies on brick and stone crushing industries, but no study was conducted on the state of implementation of the legislative provisions regarding prevention of industrial accidents and occupational health hazards in brick and stone crushing industries of Barak Valley, Assam.

The study also concentrated on the judicial decision to control industrial accidents and occupational health hazards. The main and prior function of the judiciary is to deliver justice to all without fear or favour. The courts are intermediary between people and other organs of the State. It has powers to scrutinize legislations and administrative actions on the anvil of the Constitution and the law, in matters brought before it for adjudication or reference. The judicial decision, order and notice etc. are very important not only for the settlement or negotiation of any claim but also to ascertain whether the industries, firms, factory and mills are complying with the provisions of The Environment (Protection) Act of 1986, The Workmen’s Compensation Act 1923, The Evidence Act, 1872, and Bhopal Gas Leak Disaster (Processing of Claims) Act of 1985 for functioning properly. The Supreme Courte has also issued directions for preventing pollution in the workplace for people.

Moreover, in the present study, some important suggestions have been recommended for prevention of industrial accidents, occupational health hazards and
diseases of workers and also to make pollution free environment in the surrounding of the brick and stone crushing industries of Barak Valley, Assam.

**Objectives of the Study**

The following are the main objectives of the present study:

1. To study the legislative provisions and its implementation regarding prevention of industrial accidents and occupational health hazards in Brick and Stone Crushing Industries of Barak Valley.

2. To study the perceptions of the workers, and the employers/managers of Brick and Stone Crushing Industries with regard to the state of implementation of legislative provisions regarding prevention of industrial accidents and occupational health hazards in Brick and Stone Crushing Industries of Barak Valley.

3. To recommend the remedial measures, if so required, that could help in reducing/eliminating the possibilities of poor or non-implementation of legislative provisions regarding prevention of industrial accidents and occupational health hazards in both the Industries of Barak Valley.

**Hypotheses of the Study**

The following hypotheses are framed keeping in mind the objectives of the study:

1. There is no significant difference between the perception of the workers and employers/managers of two categories of industries chosen for the study with regard to the state of implementation of legislative provisions.

2. The perception of the workers regarding implementation of preventive measures for protection against industrial accidents and occupational health
hazards and the selected variables (such as – sex, age and education) in both the industries under the study is independent.

**Methodology of the Study**

The study was carried out with the help of both primary and secondary data. The secondary data were collected and used in the form of existing legislative provisions regarding prevention of industrial accidents and occupational health hazards, different books, journals, periodicals, Government and Non-Government reports, judicial decision, statistical information, data available in different handbooks published by Government of Assam and India etc. as well as from relevant websites.

The primary data, on the other hand, were collected from 50 employers/managers and 335 workers of brick and stone crushing industries by using questionnaires/schedules. This research work is conducted on 50 numbers of brick and stone crushing units in Barak Valley, Assam. Out of 50 units, 20 bricks units and 30 stone crushing units have been selected for the study.

Moreover, interview was conducted with the Officers/Executives of District Pollution Control Board, Officer, Factory Office, District Cachar, Karimganj & Hailakandi, Managers & staff, District Industry and Commerce Centre, Labour Officers/Inspectors and Medical and Health Officers of all the three districts to gather the rules and regulation and preventive mechanism and implementation of the legislative provisions regarding industrial accidents and occupational health hazards of all the two categories of industries chosen in Barak Valley. Data and information have also been collected by arranging interviews with the employers, dealers, technical experts and other related persons of the selected /chosen two categories of industries.
The collected data were analysed and tabulated by using different statistical tools and techniques like percentages, average, Z test, chi-square test etc. By using Excel, diagrams, graphs and charts were also drawn in order to make the data visible and attractive.

To analyse the perceptions, a Likert type five-point ranking scale which ranges for fully implementation of legislative provisions to not at all implementation of legislative provisions, has been developed and Z test has been conducted for testing the null hypothesis.

To find out association, if any, between the selected variables in the study such as age, sex and education and perception of the workers of all the two categories of industries chosen for the study towards the different provisions of Acts under study, the chi-square test has been used.

Limitations of the Study

The following are the limitations of the study:

1. As the selected industries fall in the unorganised sector, time series data regarding industrial accidents and occupational health hazards are not generally recorded by the owners.

2. Because of the sensitivity of legal information, there was no attempt to determine the actual implementation of all the provisions of laws which are basically related to prevent and control of industrial accidents and occupational health hazards in the selected categories of industries.

3. One important limitation of the primary data is that most of the workers are unaware of different laws which have been enacted from time to time for their
safety and security, due to illiteracy and less education. Even they do not know their legitimate rights during the working hours in the unit. Though owners and managers are educated but most of them are not adequate aware of the various legislative provisions relating to industrial accidents and occupational health hazards.

4. Another important limitation is related to memory bias of the owners/managers and workers. Owners are generally maintaining very limited record of their units in respect of accidents and health hazards of workers. Therefore, the information supplied by the illiterate and unaware respondents may suffer from the limitation of their memory. Hence, data and information cannot be expected to be completely free from memory bias.

5. The study does not cover financial matter, marketing sector, profit and risk, and other technical aspects of both the categories of industries.

6. One of the important limitations is that most of the brick units are unregistered because for setting-up of brick unit, registration is not mandatory. As a result, some unregistered brick units might have been dropped from the present study.

7. A further limitation of the study is that methodology used may not gauge the qualitative attributes of the respondents like educational and moral standards, social beliefs and legal bondages etc.

8. Moreover, the correctness of the findings of the study will be dependent upon the correctness of the responses made by the sample workers or employees, and employers or managers in Brick and Stone Crushing Industries in Barak Valley, Assam.
Relevance of the Study

The present study is the first attempt to examine the selected categories of brick and stone crushing industries in Barak Valley, Assam keeping in mind the objectives laid down for this purpose. This type of intensive study on the status of a particular class of people, workers of brick and stone crushing industries, is necessary for the Government and the policy makers to formulate policy for their socio-economic upliftment. Further, the present study will help to make relevant rules and regulation for prevention of industrial accidents and occupational health hazards in the unorganised sector.

The present study may also draw a special attention of the social scientists and prospective research scholars taking up research projects on other issues related to brick and stone crushing industries. The findings of this study may be helpful to settle the industrial dispute arising from compensation claimed by the injured workers due to any industrial accidents and occupational health hazards. This will create a congenial atmosphere and improve the employer-workers relationship in the industry.

The success of any plan depends, to a large extent upon its proper implementation of laws, the rules and regulations in order to the plan and programme. This is also applicable for brick and stone crushing industries. The present research work has examined the status of implementation of various Acts related to brick and stone crushing industries. From the findings of the study, some recommendations may be put forward which can plug the loopholes of implementation. The inferences drawn from the study presumably act as a guideline for the policy makers with regard to their future course of action concerning the recording and implementing of the
various provisions and guidelines framed by the Government regarding prevention of industrial accidents and occupational health hazards in both the categories of industries of Barak Valley.

Moreover, this study is also important from the point of view of recording and implementing the relevant provisions which are laid down in India Laws, Acts, Rules and Regulations, Government Guideline, and Notifications etc. in connection with the operations of brick industry and stone crushing industry. The data and information of the study have been covered a period of ten years from 2002-2003 to 2012-2013. The study is also helpful not only for owners but also for workers in any types of unorganised sectors. This research work, therefore, may be adequate disclosure of information for implementation of provisions of the Environmental Acts which must be beneficial to all citizens in the country to live in pollution free environment.

Scope of the Study

The study area includes Karimganj, Hailakandi and Cachar Districts which constitute the Barak Valley Zone in Southern Assam. Brick and Stone Crushing Industries are the purview of the Factories Act, 1948. For the fulfilment of the first objective of the present research work, i.e. to study the legislative provisions and its implementation regarding prevention of industrial accidents and occupational health hazards in Brick and Stone Crushing Industries of Barak Valley, the relevant provisions of the Factories Act, 1948, are studied. For contract labour, there are provisions regarding the welfare and health under the Contract Labour (Regulation and Abolition) Act, 1970. In order to prevent pollution and protect environment, there are provisions under Air (Prevention and Control of Pollution) Act, 1981,

Chapter Planning

The whole study is divided into six chapters namely:

Chapter-1: Introduction

Chapter-2: Profile of Brick Industry and Stone Crushing Industry in Barak Valley.

Chapter-3: Legislative Provisions to Prevent Industrial Accidents and Occupational Health Hazards.

Chapter-4: Judicial Approach to Control Industrial Accidents and Occupational Health Hazards.

Chapter-5: Analysis of Data and Interpretation of Result.

Chapter-6: Summary of Findings, Conclusion and Suggestions.

6.1. OBJECTIVE WISE SUMMARY

The brick and stone crushing industries play an important role in the socio-economic development of the region. These industrial sectors provide a large number of employment opportunities to the rural unskilled illiterate and less educated people. Fired bricks and different sizes of crushed stones/chips are the basic materials of different types of construction like road, bridges, building, etc. The construction sector is a vital part of the Indian economy with the contribution of 10 per cent in the GDP and is registering an annual growth of 9 per cent.

Brick and stone crushing industries by emission of substantial quantity of fine fugitive dust create the problem of health hazards to the workers of the unit as well as surrounding population. Many workers of these industries suffer from various diseases such as eye problem, skin allergy, throat and lungs diseases due to living and
inhaling in the polluted air in and around the units. The dust also adversely affects visibility, reduces production and growth of vegetation and hampers aesthetics of the locality. There are a number of sources from which high pollution level is generated, some continuously and some intermittently.

Due to different activities of brick and stone crushing units, pollution levels have been a matter of concern. To regulate and control of pollution, the Government has enacted various guidelines under the Environment (Protection) Act, 1986. Government of India has passed various measures in order to prevent industrial accidents and occupational health hazards. The provisions regarding the safety, health, welfare of the workers are laid down in the Factories Act 1948, and also the various provisions relating to hazardous processes are mentioned in Sections 41-A to 41-H of the Factories (Amendment) Act 1987.

6.1.1. The Findings of the First Objective

The following are the main findings that have emerged out from the study of the first objective:

1. **Fencing of machinery**: It has been found that only 5 stone crushing units are having fencing of machinery, others do not have any fencing of machinery. So, this provision is partially implemented for safety of workers in stone crushing industry. This provision is not applicable in brick industry, since it is manual industry.

2. **Work on or near machinery in motion**: The study has revealed that sometime injuries take place in stone crushing industries while cleaning of machine for which caution and training may be imparted. In case of brick industry, the provision is not relevant as the operation system is manual.

3. **Employment of young persons on dangerous machines**: Both employers/managers and workers have opined that the operation of the machine is not risky and there is no need for any training for the operation. However, this Section under Factories Act, 1948 is not relevant in brick industry as no machine is required for manufacturing purposes.

4. **Striking gear and devices for cutting off power**: Thus, the cut off power arrangement was found for locking the machine in safe position to prevent accidents in all the stone crushing units. In view of the brick industry, there is no need for such provision because of nature of the industry for production is manual.
5. **Casing of new machinery:** It has been observed that all the selected stone crushing units are maintaining this provision. This is implemented in all stone crushing units. This provision is not relevant to brick industry as the operation system is manual.

6. **Revolving machinery:** The survey revealed that the provision is adequately maintained by all stone crushing units in Barak Valley, Assam. In case of brick industry, this provision is not relevant, since brick industry is basically based on manual processing of production.

7. **Floors, Stairs and means of access:** Steps, stairs etc. were found in all the selected stone crushing units for prevention of accidents. In case of brick industry, it is not applicable.

8. **Excessive weights:** It has been found that all the stone crushing units have installed excavator cum loader (pay loader) for lifting or moving raw materials as well as finished products. While 6 units out of 20 brick units also use excavator cum loader (pay loader) for carrying and moving raw materials for its production purposes.

9. **Protection of eyes:** The survey has revealed that 90 per cent of the workers of brick and stone crushing industries do not use suitable goggles during the working hours. The measure, therefore, is not implemented fully. The workers require awareness from employer for wearing suitable goggles for protection of eyes.

10. **Precautions against dangerous fumes:** The study clearly showed that only firemen are allowed to check the brick during the period of burning and skilled workers who are having experience and knowledge for unloading of fired bricks from the kiln are allowed to enter in the kiln of brick unit. In stone crushing
industry, this provision is not generally applicable. Only 8 stone crushing units have installed generator set with canopy for production purposes. It is admissible while using generator set.

11. **Precaution in case of fire:** It is clearly shown that none of the unit has installed fire extinguisher which is also a precautionary equipment of fire. Therefore, the employers should be more cautious to prevent the risk of fire.

12. **Power to require specifications of defective parts or tests of stability:** It has been observed that the provision under Sec.39 of the Factories Act 1948 is maintained in all the selected brick and stone crushing units in Barak Valley, Assam.

13. **Safety of buildings and machinery:** The survey has revealed that there is no use of machine in brick industry. In case of stone crushing industry, no machinery was found and reported in a dangerous condition. Protection against human life or safety of the workers is maintained in all the units.

14. **Implementation of the rules made by State Government/Pollution Control Board:** All the units of brick and stone crushing industries were found to follow the guidelines, rules and regulations which have been framed by State Government and Pollution Control Board for preventing and controlling occupational health hazards of human life or the safety of the workers.

15. **Cleanliness:** It was found that the production process of brick and stone crushing industries is carried out in the open campus of the unit. However, cleanliness is always taken as preventive measures for maintaining good health of the workers in all the units. Therefore, it is observed that the campus of the industry is neat and clean which is maintained by all the units of the industries.
16. **Disposal of wastes and effluents:** According to Section 12 under Factories Act as amended in 1976, no disposal of wastes and effluents was found in brick and stone crushing industries. Almost all waste products of both the industries are sold and used as an input in various construction purposes.

17. **Dust and Fume:** The survey has revealed that for controlling of dust and fumes, the brick industry uses water spraying, installation of fixed chimney, plantation etc. and stone crushing industry has also installed water sprayers, inductor fan and bag filter system (i.e. Equipment of Pollution Control Measures), etc. They also go for plantation in the campus. It is observed that the workers of stone crushing industries use nose protector for protection of health hazards. All the firemen of the brick industry also use nose protector for protecting themselves from the evil effects of dusts and fumes.

18. **Drinking water:** Sufficient number of water points was found in all the units of brick and stone crushing industries. It has also been observed that the main source of drinking water is tube-well of 90 percent of the units. The workers drink filtered tube-well water. From this point of view, the provision is fully implemented due to the existence of the drinking water facilities.

19. **Latrines and Urinals:** Sufficient numbers of latrines and urinals were found separately for both male and female workers in all the units of brick and stone crushing industries. It is also revealed that latrines and urinals are kept neat and clean. Therefore, this provision is implemented fully in both the categories of industries. According to Sec. 18 of Welfare and Health of Contract Labour under the Contract Labour (Regulation and Abolition) Act, 1970, a sufficient number of latrines and urinals are available for the contract labour employed in brick
industry. Latrines and urinals are separately for both male and female contract
labour in brick units.

20. Spittoons: Not a single spittoon was found for using of the workers in brick
industry. But in stone crushing industry, 8 units out of 30 have provided spittoons
in the front of office room, no spittoon has been provided in the working place in
any of the units. Providing spittoons in the work place helps in a clean and
hygienic condition also protect to spread diseases like tuberculosis (TB) among
the workers in course of employment in brick and stone crushing industries.

21. Washing facilities: It has been observed that adequate and suitable washing
facilities are available in every brick and stone crushing unit. There are separate
provisions for male and female workers. It is also revealed that this provision is
rightly implemented in all the units of both the categories of industries.
According to Sec. 18 of the Contract Labour (Regulation and Abolition) Act,
1970, washing facilities are available for the contract labour employed in brick
units. It helps to protect the workers against occupational health hazards and
occupational diseases.

22. Facilities for storing and drying clothing: The survey has revealed that the
employers of the brick and stone crushing units provided the facilities for keeping
clothing of workers. The workers are also provided the facilities for storing and
for drying of wet clothing during working hours. Thus, the provision is
implemented in all the units for the welfare of the workers and minimizing the
health hazards of both brick and stone crushing industries.

23. First-aid appliances: The study is clearly showed that there is a provision for
first-aid appliances for the workers in every brick and stone crushing unit as per
Sec. 45 of the Factories Act 1948. Thus in case of accident or diseases the first aid
medicine is provided to the workers. If the injuries or sickness is acute, the owners/managers of the units also send the workers to the Government hospital for treatment. The medical expenditure of the worker is borne by the owners. There is not a single unit where more than 500 workers are working. So there is no ambulance facility in any unit. As per Sec. 19 of Welfare and Health of Contract Labour under the Contract Labour (Regulation and Abolition) Act, 1970, there is provided and maintained the first-aid facilities by the employer of brick units for their workers during the working hours. But the contractor does not provide and maintain the first-aid box equipped with the prescribed contents at work place for contract labour in brick industry.

24. Shelters, rest rooms and lunch rooms: Thus, data revealed that shelter and rest rooms with drinking water facilities are provided to the workers by all the units where workers may eat meals brought by them. According to Sec. 17 of Welfare and Health of Contract Labour under the Contract Labour (Regulation and Abolition) Act, 1970, rest rooms or such other suitable alternative accommodation within such time is provided by the employers of brick units for taking rest which can reduce the occupational health hazards of the workers. It is also revealed that the contractor or middleman does not provide or maintain such number of rest rooms or such other suitable alternative accommodation to the contract labour of the unit.

25. Constitution of Site Appraisal Committees: The survey has revealed that the brick and stone crushing units are set up under the guidelines issued by the State Pollution Control Board/State Government. It is observed that all the units of both the categories of industries are visited by the Regional Pollution Control Board, Silchar, Cachar, from time to time and are advised to adopt various provisions to
prevent pollution which may cause health hazards of workers in the units. Although brick and stone crushing units do not deal with chemical/substances etc. for its production purposes, pollution is being caused by both the industries. Therefore, this provision is also mandatory for site selection in case of any polluting industry. The local civil administration issues the certificate for selection of location of both the industries. The State Government or State Pollution Control Board verifies everything properly and then issue the permission for commencement of production.

26. **Workers’ participation in safety management:** Not a single committee was found to workers’ participation in safety management in any of the units of the two types of industries for prevention of accidents during the working hours.

27. **Disablement:** No instance of injuries was found which has caused permanent total disablement or partial total disablement in brick and stone crushing industries.

28. **Child care and maintenance:** No appointment of another guardian is found to take place and the provision for child care and maintenance of the child was not required in both types of industries.

29. **Employees’ State Insurance Fund:** No Employees’ State Insurance Fund is maintained in brick and stone crushing industries in Barak Valley.

**Pollution Control Board has issued some guidelines for setting up and running the brick and stone crushing industries. These are hereunder:**

30. **Site Selection:** It has been found that as per the guidelines of Pollution Control Board, all brick kilns as well as stone crushing units have been set up on non-agricultural land which was certified by the Circle Officer of Revenue
Departments of the Government of Assam and “No Objection Certificate” was issued by the Gaon Panchayat for establishment of the brick unit. In fact none of the selected brick kilns and stone crushing units has found to establish in urban area.

31. **Sign Board:** The survey revealed that all the selected stone crushing units and 16 brick units out of 20 have installed Sign Board.

32. **Plantation:** It has also been observed from the field study that in the surrounding of brick and stone crushing units, there is a very limited plantation or growing of green trees along the periphery.

33. **Fixed chimney:** The survey has also revealed that the tin sheet chimney kilns converted into fixed unmovable chimney as per the direction of the appropriate authority.

34. **Dust control measures:** The study has observed that brick and stone crushing units have adopted water spraying system in the units as dust control measures.

35. **Abnormality in the machine:** No machinery is reported abnormal leading in the brick and stone crushing units of Barak Valley, Assam.

6.1.2. The Findings of the Second Objective

**After studying the second objective, the following findings have emerged out:**

1. It is found that 38 per cent employers/managers of brick and stone crushing industries admitted ‘full implementation’ of the legislative provisions for prevention of industrial accidents and occupational health hazards, while 44 per cent replied that implementation of the provisions were done in ‘large extent’, 14 per cent replied that implementation of the provisions were also done in ‘some extent’ and remaining 4 per cent admitted ‘poor implementation’ of legislative provisions.
2. It is observed that 17.46 per cent workers of both brick industry and stone crushing industry admitted ‘full implementation’ of the legislative provisions for prevention of industrial accidents and occupational health hazards, while 32.39 per cent replied that implementation of the provisions were done in ‘large extent’, 30.99 per cent replied that implementation of the provisions were also done in ‘some extent’, and also 12.39 per cent opined ‘poor implementation’ of legislative provisions, and remaining 6.76 per cent replied ‘no implementation’ of the provisions.

3. It is revealed that 20 per cent employers/managers and workers of both brick and stone crushing industries admitted ‘full implementation’ of the legislative provisions for prevention of industrial accidents and occupational health hazards, while 33.83 per cent replied that implementation of the provisions were done in ‘large extent’, 28.36 per cent replied that implementation of the provisions were also done in ‘some extent’, and also 11.36 per cent opined ‘poor implementation’ of legislative provisions, and remaining 5.92 per cent replied ‘no implementation’ of the provisions.

4. It is seen that 21.6 per cent employers/managers and workers of the brick industry admitted ‘full implementation’ of the legislative provisions for prevention of industrial accidents and occupational health hazards, while 33.6 per cent replied that implementation of the provisions were done in ‘large extent’, 26.8 per cent replied that implementation of the provisions were also done in ‘some extent’, and also 12.8 per cent opined ‘poor implementation’ of legislative provisions, and remaining 5.2 per cent replied ‘no implementation’ of the provisions.
5. It is appeared that 17.42 per cent employers/managers and workers of the stone crushing industry admitted ‘full implementation’ of the legislative provisions for prevention of industrial accidents and occupational health hazards, while 34.19 per cent replied that implementation of the provisions were done in ‘large extent’, 32.26 per cent replied that implementation of the provisions were also done in ‘some extent’, and also 9.03 per cent opined ‘poor implementation’ of legislative provisions, and remaining 7.1 per cent replied ‘no implementation’ of the provisions.

6. The first null hypothesis was tested by using Z test and it was rejected at both 5% and 1% level of significance. The implications of these tests are that there are differences of opinion between the owners/managers and workers in both the categories of industries. So, it is statistically established that there exists significant difference between the perception of the workers and employers/managers of two categories of industries chosen for the study with regard to the state of implementation of legislative provisions. In other words, they continue to hold different opinions with regard to the state of implementation of legislative provisions regarding prevention of industrial accidents and occupational health hazards in brick and stone crushing industries.

A set of other related hypothesis were also tested (page No 368-373 in chapter -5). The study revealed that the responses given by the employers/managers of both types of industries do not continue to hold different opinions with regard to the state of implementation of legislative provisions regarding prevention of industrial accidents and occupational health hazards. Similarly, the responses given by the
workers of both types of industries do not continue to hold different opinions with regard to the state of implementation of legislative provisions regarding prevention of industrial accidents and occupational health hazards.

7. It is also revealed from $\chi^2$ test of the second hypothesis that the perception of the workers regarding implementation of preventive measures for protection against industrial accidents and occupational health hazards and the selected variables such as sex, age and education in both the industries under the study is independent.

It is observed that there is disagreement between the perception of the employers/managers and workers of brick and stone crushing industries with regard to the state of implementation of legislative provisions. From the part of the employers/managers, the reason may be that owners/managers are not interested to disclose rightly the matter regarding the implementation of legislative provisions, unawareness about the implementation of provisions or data and information provided by the employers/managers are not accurate. On the contrary, most of the workers of brick and stone crushing industries are illiterate or may literate in their own regional language, they might not have any knowledge regarding the legislative provisions and its implementation, or data and information provided by workers are not proper.

Moreover, the employers/managers and workers belong to two separate groups, as a result there may be intentional conflict from the point of view of status of existence. We may not deny the difference of views of the selected two groups of persons, because brick and stone crushing industries belong to unorganised industrial
sector where profit earning is the prime motto of the owners of the units. The intention of owners is to provide very meagre facility to their workers in respect of safety, health and welfare. Sometime owners are least interested to provide even the preventive measures such as helmet, nose protector, ear protector, safety shoes, goggles for eyes etc. to their workers. The workers are unaware regarding the enactment of different laws and they do not raise their voice/legitimate claim. Furthermore, the workers may also be in a fear of losing of their jobs and so prefer to remain silent. It is seen from the survey that accidents and injuries occurred in both the categories of industries, but only medical expenditure is provided to the injured workers by the employers/managers. The employers neither maintain Employees’ State Insurance Fund, nor follow the Workmen’s Compensation Act, 1923.

Apart from the above mentioned findings, some other important findings are as follows:

1. The study has revealed that 16 per cent of employers / managers in brick and stone crushing industries opined need for improvement in case of implementation of legislative provisions. Only 01 employer/manager (12.50 per cent) informed scope of improvement in the areas of industrial accidents and 6 employers/managers (87.50 per cent) informed in the area of occupational health hazards in brick and stone crushing industries.

2. It showed clearly from the data that 68 per cent employers/managers and 31.55 per cent workers in both the categories of industries admitted that industrial accident or injury occurred in their units. The survey revealed that 144 minor accidents occurred in brick and stone crushing industries and 01 major accident occurred in stone
crushing industry during the period 2001-2013. It is also found that 01 migrated brick worker died due to cardiological disorder (heart-attack) during working hours in Rahul Brick Industry, Cachar, Assam, in 2002.

3. It is observed that the types of accidents in both the categories of industries are minor, resulting from different causes such as cutting of hand at the time of brick making, falling of brick at the time of carrying, injury on hand at the time of loading, falling of stone on hand at the time of carrying in the unit, finger cutting by belt of machine, injury from repairing of belts of the machine, finger cutting by belt of machine etc.

4. In case of payment of compensation to injured workers, it is found that 144 injured workers in brick and stone crushing industries from 2002 to 2013 have received Rs. 94140.00 for first aid treatment and /or medical expenditure. In addition to this amount Rs.70000 was paid to the family member of the deceased person who died due to cardiological disorder (heart-attack) during working hours. Therefore, the employers pay to the injured workers merely medical expenditure in the name of the compensation and in most of the cases, injured workers are paid first-aid treatment & medicine as compensation in the brick and stone crushing industries in Barak Valley, Assam.

Moreover, 31.55 per cent workers expressed their views that 112 injured workers of brick and stone crushing industries were provided medicine and sum of Rs.14700.00 as compensation including one injured worker was paid Rs.4000.00 along with salary of one month and another injured worker was paid Rs.5000.00
along with 10 days leave with pay in stone crushing industry. Apart from these, twice burning of workers’ houses in brick industry was reconstructed by the owners.

5. The data revealed that 6 measures for brick industry and 5 measures for stone crushing industry have been taken for prevention of accidents in both the categories of industries in Barak Valley, Assam.

6. It appears that out of 50 employers/managers 20 (40.00 per cent) informed that the workers are using preventive dresses during working hours in the selected brick and stone crushing industries in Barak Valley, Assam. It has been found that 1.74 per cent of workers use Helmet, 3.48 per cent use Shoes, 10 per cent use Goggles for eyes, 5.65 per cent use Nose Protector and not a single worker uses Ear Protector during the working hours in the brick industry. In the stone crushing units, 38.4 per cent of workers use Helmet, 31.2 per cent use Shoes, 10.40 per cent use Goggles for eyes, 76.8 per cent use Nose Protector, and 8.8 per cent use Ear Protector during the working hours.

7. The study has observed that 98 per cent of employers/managers opined that safety inspection and audit are carried out in brick and stone crushing units in Barak Valley, Assam.

8. In respect of preventive measures, 43.10 per cent workers informed that preventive measures have been taken to minimize the accidents in Brick and Stone Crushing Industries.
9. In case of implementation of safety instructions, 1.41 per cent of workers of brick and stone crushing industries opined that work/safety instructions are implemented and displayed in the units.

10. There is no need for the mechanical power transmission belts guarded in brick industry and the mechanical power transmission belts are guarded fully in stone crushing industry.

11. The study revealed that 98.03 per cent of workers of brick and stone crushing industries informed that the hand tools are in good condition in the units.

12. It is appeared from the data that 99.44 per cent of workers of brick and stone crushing industries informed that the safety devices are tested regularly and frequently in the units.

13. It has been observed that 43.49 per cent of workers of both the types of industries expressed their views that switch boxes and distribution boxes are in good condition and closed with covers.

14. The pollution control measures have been notified from time to time for brick and stone crushing industries.

15. As regards to the fuel specifications, 72 per cent of the units are not using diesel generator and fuel specification is not required.
16. The study clearly showed that there are 21 number of ducts for waste discharge in brick industry and 15 ducts for waste discharge in stone crushing industry.

17. The sitting criteria of brick and stone crushing industries is fixed by State Pollution Control Board/ State Government. All brick and stone crushing units (100 per cent) have taken consent to establish the units from the concerned authority.

18. It has been found that 92 per cent of the brick and stone crushing industries installed water sprayers for controlling dust in the unit.

19. The study revealed that 96.67 per cent of the stone crushing units installed vibratory screens grizzlies, and all the units installed belt conveyors and at storage piles and bins, water sprayers and 36.67 per cent of the unit installed drilling operation for controlling pollution in the unit.

20. In regards to controlling noise pollution in stone crushing industry, owners/managers of 29 units replied that they have adopted adequate measures for preventing and controlling noise pollution in stone crushing industry. Generators are installed with canopy for preventing noise pollution.

21. No exposure to harmful substance/chemicals/methods/systems was found in brick industry as well as stone crushing industry.

22. It is revealed that 72.11 per cent of workers are suffering from pollution during working hours in both the types of industries.
23. It is appeared from the data that 95.77 per cent of workers in brick and stone crushing industries did not suffer from any diseases after their joining in the units.

24. The walkways were found clear and free from obstructions in both the categories of industries.

25. It has been found that there is an arrangement of safe drinking water in the working place of the unit.

26. The study revealed that separate urinals and latrines are available for male and female workers in the unit.

27. The data also showed that 48.45 per cent of workers in brick and stone crushing units opined that toilets are kept clean and provided with soap for workers for hand washing.

28. It has been observed that 74.65 per cent of workers in brick and stone crushing units expressed that there is no separate comfortable and hygienic place for dining and rest for workers.

29. The arrangement of first-aid facility was found in all the selected brick and stone crushing units of Barak Valley. It has been clearly shown that there is no other arrangement than first-aid treatment in the unit.
30. In regards to insurance policy, 72 per cent of employers/managers and 95.77 per cent workers have admitted that there is no insurance policy for the workers in both the categories of industries. Only 15 workers of brick and stone crushing industries are having insurance policy.

31. As regards to the approach road to site of the unit, 50 per cent of the selected brick and stone crushing industries is paved the approach road to site of the unit from the nearest metalled public road.

32. The survey has revealed that 85 per cent employers/managers of both the industries opined that no problems faced in adopting the guidelines provided for the brick and stone crushing units.

33. It is found that no technology is used in brick industry, but 80 per cent stone crushing units installed automatic system of operation.

**Test of Hypotheses**

While planning the study, a set of hypotheses have been formulated based on the various objectives of the state of implementation of legislative provisions regarding prevention of industrial accidents and occupational health hazards in brick and stone crushing industries of Barak Valley, Assam. These hypotheses have been tested by using different statistical tests of significance.
The First Hypothesis:

H₀: There is no significant difference between the perception of the workers and employers/managers of two categories of industries chosen for the study with regard to the state of implementation of legislative provisions.

H₁: There exists significant difference between the perception of the workers and employers/managers of two categories of industries chosen for the study with regard to the state of implementation of legislative provisions.

In order to test the above mentioned of the null hypothesis:

The views of owners/managers and workers of brick industry as well as stone crushing industry were taken by using 5 point Likert type of scale.

We find the calculated value of $Z = 5.7904533959$ is more than the critical value of $Z$ at 5% level of significance is 1.96 for two tailed test and at 1% level of significance is 2.58.

Since calculated value of $Z$ is much more than 1.96, the null hypothesis ($H₀$) is rejected at 5% level of significance and 1% level of significance. In other words, we accept alternative hypothesis. Therefore, we may conclude that there exists significant difference between the perception of workers and employers/managers with regard to the state of implementation of legislative provisions in brick and stone crushing industries in Barak Valley, Assam.

Apart from this, the following four categories are to be tested by using $Z$.

For better observation, we want to test additionally for the perception of employers/managers and workers separately in brick industry as well as stone crushing industry with regard to the state of implementation of legislative provisions. The views of employers/managers and workers regarding the state of
implementation of legislative provisions in brick and stone crushing industries were subsequently tested in the same way.

(i) Perception of employers/managers of Brick and Stone Crushing Industries in Barak Valley, Assam,

(ii) Perception of workers of Brick and Stone Crushing Industries in Barak Valley, Assam,

(iii) Perception of employers/managers and workers of Brick Industry in Barak Valley, Assam,

(iv) Perception of employers/managers and workers of Stone Crushing Industries in Barak Valley, Assam.

**We have tested Z test:**

In case of (i) Perception of employers/managers of Brick and Stone Crushing Industries in Barak Valley, Assam, in order to test the following null hypothesis:

\[ H_0: \text{There is no significant difference between the perception of the employers/managers of two categories of industries chosen for the study with regard to the state of implementation of legislative provisions.} \]

The calculated value of \( Z = 0.2913212646074662 \) is less than the critical value of \( Z \) at 5% level of significance i.e. 1.96 for two tailed test.

Conclusion: We accept the null hypothesis at 5% level of significance and we may conclude that there is no significant difference in perception of
employers/managers with regard to the state of implementation of legislative provisions in both brick and stone crushing industries in Barak Valley, Assam.

In case of (ii) Perception of workers of Brick and Stone Crushing Industries in Barak Valley, Assam, for testing the following null hypothesis:

\[ H_0: \text{There is no significant difference between the perception of the workers of two categories of industries chosen for the study with regard to the state of implementation of legislative provisions.} \]

The calculated value of \( Z = 1.47767 \) is less than the critical value of \( Z \) at 5\% level of significance i.e. 1.96 for two tailed test.

Conclusion: We accept the null hypothesis at 5 \% level of significance and we may conclude that there is no significant difference in perception of workers with regard to the state of implementation of legislative provisions in both brick and stone crushing industries in Barak Valley, Assam.

In order to test (iii) Perception of employers/managers and workers of Brick Industry in Barak Valley, Assam, we want to test the following null hypothesis:

\[ H_0: \text{There is no significant difference between the perception of the employers/managers and workers of brick industry with regard to the state of implementation of legislative provisions.} \]

The calculated value of \( Z = 3.464115695706704 \) is more than the critical value of \( Z \) at 5\% level of significance i.e. 1.96 for two tailed test.
Conclusion: Since calculated value of Z is more than 1.96, so $H_0$: may be rejected at 5 % level of significance and 1 % level of significance. We may conclude that there exists significant difference in the perception of workers and employers/managers with regard to the state of implementation of legislative provisions in brick industry in Barak Valley, Assam.

In case of (iv) Perception of employers/managers and workers of Stone Crushing Industries in Barak Valley, Assam, to test the null hypothesis:

$H_0$: There is no significant difference between the perception of the employers/managers and workers of stone crushing industry with regard to the state of implementation of legislative provisions.

The calculated value of $Z = 4.858398533962065$ is more than the critical value of $Z$ at 5% level of significance i.e. 1.96 for two tailed test.

Conclusion: Since calculated value of Z is much more than 1.96, so $H_0$: may be rejected at 5 % level of significance and also 1% level of significance. We may conclude that there exists significant difference in the perception of the employers/managers and workers with regard to the state of implementation of legislative provisions in Stone Crushing Industry in Barak Valley, Assam.

In other words, the employers/managers and the workers maintain certain degree of difference in their opinion about the state of implementation of legislative provisions regarding prevention of industrial accidents and occupational health hazards in brick and stone crushing industries in Barak Valley, Assam. We have also
claimed that this difference in opinion is not marginal and could be because of the conflicting interest that they have.

The Second Hypothesis:

The perception of the workers regarding implementation of preventive measures for protection against industrial accidents and occupational health hazards and the selected variables such as sex, age and education in both the industries under the study is independent.

In order to test of this hypothesis, the perception of the workers was divided into two groups (industry wise):

1. Perception of the workers in Brick Industry on the selected variables such as sex, age and education, and
2. Perception of the workers in Stone Crushing Industry on the selected variables such as sex, age and education.

We set the null hypothesis as

\[ H_0: \text{The perception of the workers regarding implementation of preventive measures for protection against industrial accidents and occupational health hazards and the selected variables such as sex, age and education in both the industries under the study is independent.} \]

\[ H_1: \text{The perception of the workers regarding implementation of preventive measures for protection against industrial accidents and occupational health hazards and the selected variables such as sex, age and education in both the industries under the study is not independent.} \]
The above mentioned null hypothesis is tested under the following six categories by using χ² test for independence of attributes.

(i) Sex and perception of the workers in brick industry,
(ii) Age and perception of the workers in brick industry,
(iii) Educational and perception of the workers in brick industry,
(iv) Sex and perception of the workers in stone crushing industry,
(v) Age and perception of the workers in stone crushing industry,
(vi) Educational and perception of the workers in stone crushing industry.

In all the above cases, the calculated value of χ² is less than the tabulated value at 5% level of significance. Thus, null hypothesis may be accepted at 5% and 1% level of significance and we may conclude that there is no significant difference between sex, age, education and perception of workers regarding implementation of preventive measures for protection against industrial accidents and occupational health hazards in brick and stone crushing industries in Barak Valley, Assam.

It is also revealed from the test of second hypothesis that the perception of the workers regarding implementation of preventive measures for protection of industrial accidents and occupational health hazards and the selected variables such as sex, age and education in both the industries under the study is independent. In other words, they continue to hold independent perceptions without depending upon others with regard to the state of implementation of legislative provisions regarding prevention of industrial accidents and occupational health hazards in brick and stone crushing industries.
By using χ² test at 5% and 1% level of significance, the perception of workers regarding the implementation of preventive measures for protection against industrial accidents and occupational health hazards and the selected variable such as sex, age and education in Brick Industry as well as Stone Crushing Industry in Barak Valley, Assam are independent. We have seen that the null hypothesis is accepted. Since calculated value is less than the tabulated value. Thus, alternative hypothesis is rejected.

6.2. CONCLUSION

Government of India has taken various measures for the prevention of industrial accidents and occupational health hazards. Factories Act, 1948 provides some guidelines for the prevention of industrial accidents and occupational health hazards. The various provisions of the Factories Act regarding the safety of the workers are provided under Sections 21 to 41, provisions relating to health of the workers under sections 11 to 20 and Sections 42 to 50 of the Factories Act laid down the rules for the purpose of welfare of workers, and also Sections 41-A to 41-H of the Factories (Amendment) Act 1987 under a new Chapter lays down the provisions relating to hazardous processes for prevention of occupational health hazards of the workers during the working hours. The Contract Labour (Regulation and Abolition) Act, 1970, to regulate the employment of contract labour in certain establishment and to provide for its abolition in certain circumstances and for matters connected therewith. Workmen’s Compensation Act 1923 (known as Employees’ Compensation Act 1923) makes it mandatory for the employers, brought within the ambit of the Act, to furnish to the State Governments/Union Territory Administration annual returns containing statistics relating to the average number of workers covered under the Act, number of compensated accidents and the amount of compensation paid. The
Employees’ State Insurance Act, 1948 which is primarily focused to introduce these welfare measures provides benefits to the insured workers.

Prevention of accidents or injuries in the industry is the joint responsibility of all concerned viz. management; employees, trade unions and government. Accidents can be minimized by imparting safety education, training, etc. It is mandatory that safety officers must visit and inspect the safety measures of brick and stone crushing industries. In this regard, State Government has framed the rules to ensure the safety and security of the workers of the brick and stone crushing industries. Both the categories of industries are also within the purview of Environment Protection Act 1986, Air (Prevention and Control of Pollution) Act 1981 and it is mandatory for these categories of industries to follow the rules enacted by the State Pollution Control Board. From the legal point of view, if any accident occurs, affected families must be provided all types of help, if necessary, in order to save themselves from the exploitation of the employers. It is the primary function of the employer of the industrial unit to follow and observe properly the rules and regulations framed by the Central Government or State Government for preventing and controlling the industrial accidents and occupational health hazards. The employer should implement the various provisions relating to safety, health and welfare of workers under Factories Act, 1948. Many companies have circulated accident prevention programme (APP) among all concerned. They make the workers aware of the need for timely report of injuries, where first-aid facilities are available, how to report against unsafe conditions and practices, what to do in an emergency situation such as fire emergency, earth quake emergency, and the importance of using personal protective equipment. They have constituted safety committee and safety meeting are held regularly.
In case of pollution in industrial activities, it is the obligatory duty of the owner of the industry to install anti-pollution device in the industry as per the guidelines of the Central Pollution Control Board, and different Acts as mentioned in the discussion. In order to minimizing the industrial pollution of brick and stone crushing units, the implementation of the pollution control measures is needed in every unit. So, initiative should be taken to prevent the more sensitive groups from being unduly affected by a level of air pollution or environmental problem.

The judiciary is also taking painstaking efforts to remove industrial accidents and occupational health hazards. We have seen the role of the Supreme Court in several cases like *M.C. Mehta v. Union of India* where the courts directions were not complied with in the same spirit, as the court had desired. In some case like *Taj Trapezium case* the court could succeed in taking appropriate measures. Furthermore, Indian judiciary also tries to prevent and control pollution in industrial atmosphere.

### 6.3. SUGGESTIONS

On the basis of the findings and observations made in the study, certain suggestions have been offered to strengthen the state of implementation of the legislative provisions regarding Prevention of Industrial Accidents and Occupational Health Hazards in Brick and Stone Crushing Industries of Barak Valley, Assam. These suggestions are:

1. Fencing of machinery should be made mandatory for prevention of accidents in stone crushing industry.
2. For safe and for better handling/operating of the machines and equipments, the employers should arrange training/awareness programme for the workers.
3. Employers should employ technical qualified person for minimizing the risk of accidents and better handling of the machines in the units.

4. There is need for installation of Pay loader for carrying of raw materials & finished Products in every brick and stone crushing units.

5. Workers should not be allowed to carry of heavy load during the working hours in brick and stone crushing units.

6. There is a need to install fire extinguishers in every unit for protection of fire in brick and stone crushing industries.

7. Workers should use suitable goggles for protection of their eyes during the working hours in both the categories of industries.

8. All workers should use nose protectors during the working hours in both types of industries.

9. Adequate numbers of spittoons should be installed in the work place for good health of workers in every brick and stone crushing unit.

10. There is also need for check-up of machines properly before starting operations in every unit.

11. Workers should use helmet and shoes for protection of accidents during the working hours in the selected units.

12. Employers/managers should take properly cleanliness which can be reduced hazards and free from pollution in the surrounding of the unit.

13. Shelter and rest rooms with drinking water facilities or alternative accommodation should be provided better quality to the workers by employers of both the categories of industries.

14. Separate comfortable and hygienic place for dining should be provided for workers in the brick and stone crushing industries.
15. Medical and Health Check-up facility should be extended in every unit, so that all workers can get appropriate and adequate benefit if any accident/injury occurs or even for illness of the worker and records of workers should be maintained properly, at the same time some other arrangement than first-aid treatment in the unit for health of the workers.

16. Workers’ participation in safety management should be involved in every brick and stone crushing unit for prevention of accidents and health hazards during the working hours.

17. Every brick and stone crushing unit should form different committees which have been notified by the Government time to time and workers’ involvement should be properly recognized in the every committee of the every unit.

18. Compensation should be paid to injured workers as per compensation Act 1923, if any accident occurs in a workplace in the selected units.

19. Employees’ State Insurance Fund should be implemented in every brick and stone crushing unit as per the Employees’ State Insurance Act, 1948, so that all workers can get the different benefits which have been prescribed under this Act.

20. As per the Welfare and Health of Contract Labour under the Contract Labour (Regulation and Abolition) Act, 1970, contractors/middleman should provide the various facilities to the contract labourers who have been supplied/employed in brick industry.

21. Employers should maintain compulsory insurance including group insurance and health insurance for every worker of brick and stone crushing industries.

22. Compulsory supervision of work is required during the working hours in both types of industries.
23. Awareness among the workers should be made in brick and stone crushing units.

24. The workers should not be allowed without preventive dresses during working hours in the brick and stone crushing industries in Barak Valley, Assam.

25. A Sign Board showing the name, address and capacity of the brick kilns and stone crushing units as well as validity of the consents should be displayed at the entrance of the site.

26. Water sprayers should be installed in every brick and stone crushing unit for controlling dust.

27. More trees should be planted in the surrounding of the unit to make the environment pollution free.

28. Fixed chimney should be installed for prevention of pollution in every brick kiln.

29. Workers should use ear protectors during the working hours in case of stone crushing industry.

30. Safety equipment should be provided to workers during the working hours at free of cost.

31. Talley-wheeler/Vehicles should be installed for transportation of unfired bricks (raw bricks) and finished products (brunt bricks) in every brick unit.

32. Local agro industrial wastes residue should be encouraged for use as internal fuel to replace coal in a phased manner in brick industry.

33. The use of local agricultural wastes residues as a substitute to coal fire should be encouraged and non-hazardous industrial waste such as stone dust, rice husk ash, red mud etc. should be encouraged to be mixed with top soil for brick production.
34. Fly ash should be used in brick moulding in compliance of the notification (as amended) issued under the provision of Environment (Protection) Act, 1986 to manufacture soil – fly ash brick.

35. Brick kiln industry should adopt methods and clean technologies which would lead to improvements in quality and fulfilment of need of good quality construction material market.

36. Both State and Central Government should give more attention in technology adoption as well as in energy efficient brick production by setting examples in the use of green building materials in construction.

37. There is a lack of educational facilities among the children of brick kiln workers, all these brick kiln units are situated in rural non-residential areas in the Barak Valley. The Government should provide the educational facilities among the children of brick kiln workers in the region.

38. A high standard of house-keeping should be maintained by the owners of brick kilns and stone crushing units for reducing health hazards and diseases of the workers who stay in the campus of the unit.

39. Records & statistics for accidents and injuries should be maintained and implemented properly in Brick and Stone Crushing Industries

40. From the field survey, most of the accidents/injuries are minor which could be reduced by the constant supervision of work in both the categories of industries.

41. Work/safety instructions should be implemented and displayed in brick and stone crushing units, so that all workers should aware among themselves.
42. Electric equipments such as switch boxes and distribution boxes should be in good condition and closed with covers which can protect against accidents/injuries of the workers in both the industries.

43. All types of measures for pollution control should be installed and implemented as per prescribed by the State Pollution Control Board / State Government for prevention of occupational health hazards and diseases of workers in both types of industries.

44. Toilets should be kept clean and provided with soap for workers for hand washing in brick and stone crushing units.

45. The workers of both brick and stone crushing industries should be given education regarding the legislative provisions for protection and prevention of occupational hazards and its proper implementation at the workplace.

46. Regular and close interaction with experts of safety and Health Academy and Occupational Health and Safety Inspectorates can help to minimize occupational hazards among industrial workers.