3.1. Introduction

3.1.1. Review of literature is an essential step in the development of a research project. It enables the researcher to develop insight into the study and plan the methodology. Further, it provides the basis for future investigation, justifies the need for replication, throws light on the feasibility of the study, and indicates constraints of data collection. It helps to relate the findings from one study to another with a view to establish a comprehensive body of scientific knowledge in a professional discipline, from which valid and pertinent theories may be developed. (Abdellah and Levine, 2009).

3.1.2. Review of published and unpublished research and non-research literature is an integral component of any scientific research. It involves a systematic identification, location, scrutiny and summary of written material that contain information regarding a research problem. It broadens the understanding and gives an insight necessary for the development of a broad conceptual context into which the problem fits (Polit and Hungler, 2003).
3.1.3. Review of literature is broad, comprehensive, in depth, systematic and critical review of scholarly publications, unpublished scholarly print materials, audiovisual materials, and personal communications. Review of literature is key step in management research process. It refers to an extensive, exhaustive and systematic examination of publications relevant to the research project. Management research may be considered a continuing process in which knowledge gained from earlier studies is an integral part of research in general, before any research can be started whether it is single study or an extended project, literature review of previous studies and experiences related to the proposed investigations should be done. One of the most satisfying aspects of the literature is the contribution it makes to the new knowledge, insight and general scholarship of the researches, analyzing existing knowledge before delving into a new area of study while conducting a study, when interpreting the results of the study, and when making judgments about applications of a new knowledge in management practice. (Basavanthappa, 2003) 

3.1.4. Review of literature helps in many ways. It helps to assess what is already known, what is still unknown and, what is untested; also it justifies the need for its replication, and throws some light on the feasibility of the study and problem that may encountered. It also helps to uncover promising methodology tools which shed light on ways to improve the efficiency of
data collection and obtain useful information and on how to increase the effectiveness of data analysis. (Best, 2002)

3.1.5. Related research and non-research literature was viewed to

- Broaden the understanding
- To gain insight into the selected problem under study.
- Choose certain methodologies in conducting study

3.1.6. The literature review serves several important functions

- Give credits to those who have laid the groundwork for your research
- Demonstrates knowledge of research problem
- Demonstrate understanding of theoretical issues related to research question
- Provides new theoretical insights or develops a new model as the conceptual framework for your research
- Convinces reader that proposed research will make a significant and substantial contribution to the literature.
3.1.7. Review of related research is organized as per following broad topics

1. Book Review on Disaster Management
2. Worldwide survey reports
3. Nationwide Disasters
4. Studies regarding First Aid and Safety in Schools
5. Training programmes on Disaster Management
6. Role of teachers in disaster management

3.2. Book Review on Disaster Management


The authors, in this book explains the response of individuals and communities to disasters as sudden, unplanned disruptions of the social order. This book highlighted interdisciplinary aspects of disastrous events, acknowledging the interaction between natural hazards and human systems. Two factors have prompted a systematic effort to reexamine the roles and limits of public service agencies in disaster management. These factors are, first, an increased acceptance of public responsibility for the burden of costs engendered by disasters, exemplified by the Disaster Relief Act of 1974, and, second, the continuing movements of civilian populations into hazard-prone areas. While public service agencies have the legally mandated responsibility to protect life and property of citizens in events of disaster, attention and interest have largely shifted.61
3.2.2. Randolph Kent, Disaster Preparedness 2nd Edition UNDP 2008

This training module, Disaster Preparedness, is designed to introduce one aspect of disaster management to an audience who form disaster management teams, as well as to government counterpart agencies, non-governmental organizations and donors. This module is designed to increase the audience’s awareness of the nature and management of disasters, leading to better performance in disaster preparedness and response. The content has been written by experts in the field of disaster management and in general follows UNDP/UNDRO guidelines. In the second part discussed about international collaboration for preparedness with awareness of the roles and limitations of international agencies in coordinating disaster preparedness efforts. The implementation of disaster preparedness plans is discussed in part three from promoting these plans to considering advice based on common pitfalls related to implementation.62

3.2.3. An overview of Disaster Management, 2nd Edition UNDP - 2008

This book is divided into four parts. Part One describes what hazards are, why they become disasters, and how they affect development. Part Two identifies the scope of disaster management, what your role may be in it, and focuses on preparedness aspects. Part Three accepts that some disasters will occur and examines how to respond to them. Part Four
presents disaster mitigation as a set of activities that reduce the risk and impact of disasters. This training module is complemented by two short videos, “The UN and disaster response,” and “Disaster mitigation: how to lessen the damage through proper development.” You would benefit from making arrangements to view these videos and from reviewing the accompanying discussion questions.53

This book is useful to decision makers, stakeholders and respondents. It covers a broad spectrum of disaster management it gives an insight into all stages of disaster management covering concepts and practices. It covers multiple levels from the national level interventions, down to common man’s preparedness, it is also useful for teachers and students.45

3.2.5. Rajdeep DasGupta – Disaster Management and Rehabilitation –
Mittal Publication 2/E New Delhi -2009
This book brings a comprehensive coverage of the issue of disaster management. The book starts with an enunciation of the types of disasters, immediate aid and the risk factors it also gives compendious amount of information on emergency aid and long term plans to benefits the victims. Chapters have also been included to help the disaster management professional to gauge potential risks and assess damage.11
3.2.6. Gaur, S., & Chandrashekhar, T. (2006). The environmental threats that get discussed within the book include the scarcity of fresh water resources, the food security crisis and increasing fuel needs. Regional institutions are becoming an important component of the global architecture for environmental governance. In this context a section within the book seeks to answer the questions about the role that regional institutions can and do play in managing environmental concerns, the parameters that could be used for gauging their effectiveness and the manner in which they relate to other actors such as the State, NGOs in managing the environment.

3.2.7. R. K. Singh –IAS, Jt Secretary Disaster Management, Ministry of Home affairs Govt of India – Together Towards Safer India – Published by NDM Division – New Delhi

This books explains about set of activities that helps to reduce the impact of disaster on society, importance of community as a first responder. In this book following aspects are covered

- Difference between hazards and disasters
- Various kinds of disasters
- The importance of being prepared for disasters
- How to protect ourselves from earthquake, floods and accidents.\textsuperscript{150}

Disaster Management and Preparedness book details a new and innovative method for preparing companies and organizations to address the substantial risk of disasters in the workplace. It encompasses not only the tried and true tactics used by safety experts for decades but also focuses on areas often overlooked during the reactive and post disaster phases. Technological progress and terrorist activities has forced safety professionals to rethink their modus operandi for disaster preparedness and expand their proactive measures to safeguard assets on all levels and at all times. From natural disasters to acts of terrorism, we never know when something catastrophic will happen to our organization. But once it does, it is too late to go hunting for a plan of action. Be prepared. Be proactive. Make your disaster management plan before disaster strikes. Disaster Management and Preparedness gives you the how-to for avoiding the common mistakes which turn natural and man-made catastrophes into economic disasters.⁶⁴


Disaster mitigation is about reducing the hazards that make populations vulnerable to cyclones, floods, earthquakes, landslides, and so forth.
Community-based disaster mitigation seeks to involve local communities in mobilizing local resources to reduce hazards and address the fundamental sources of vulnerability, while avoiding the ignorance of local needs and inequitable assistance often seen in government programs. "As disaster risks increase due to urbanization, deforestation and population growth pressures, concerned officials in government or voluntary agencies will be wise to reflect on lessons from the Peruvian experiences described so vividly in this book. The community based approach may be the only way forward given the frequent pattern of governmental apathy towards their poor citizens and the limitations of overstretched public sectors."  


This manual provides planners and administrators of disaster relief health services with specific advice for establishing procedures and setting priorities for sanitation and water supply. The measures suggested involve the use of health professionals and non-professionals alike, and make use of widely available disinfectant chemicals.

This guide for relief organizations and governmental agencies sets down principles and offers advice on procedures for providing shelter for emergency victims. Most notable is the emphasis on self-help and the observation that housing is a process inseparable from local custom and not a product to be dispensed without regard to local conditions, cost effectiveness, and its effect on the long-term development efforts of the recipient country or national group. Each chapter/topic concludes with explicit policy guidelines that, with the numerous examples cited, should prove very useful for fieldworkers and administrators of disaster relief. With appendices and reference lists.67


Long experience in managing the influx of refugees resulting from emergencies is apparent in this manager’s guide for relief work. Several chapters relevant to inter- and intra-agency protocol are followed by very thorough, practical discussions of refugee management, especially the establishment of camps, which is considered an option of last resort. Involvement of the refugees in decision-making and implementation is
stressed throughout, as is the need to preserve past social arrangements, use local skill and materials, respect local cultural patterns, and plan for a worst case scenario, e.g. long-term detention in a "temporary" refugee camp. Topics include: supplies and logistics, site selection and shelter, health, food and nutrition, water, social services and education, etc. The need to call in expert assistance is often cited in place of detailed information on certain topics, which, like the pointers on common mistakes in camp management and the advice to encourage self-reliance and discourage dependency, appears to have been learned through hard experience. Further reference listings follow each chapter.68

3.2.13. Flirting with Disaster Public Management in Crisis Situations by SAUNDRA K. SCHNEIDER M. E. Sharpe Armonk, New York London, EnglandThis book breaks new theoretical and empirical ground. A truism of public administration is that bureaucracies handle large-scale tasks of a routine nature especially well. For effective performance, political elites need merely to set clear goals, provide sufficient resources, and let bureaucracy develop its own routines and expertise. What the field of public administration does not know much about is how to manage catastrophic events. This book elaborated comprehensive look at the process of managing natural disasters. The management task is made even more complex by a federal system that requires that local governments, which generally lack the experience, be in the front line of
managing disasters while the federal bureaucrats, who have a great deal of expertise, are restricted in their range of authority. Professor Schneider fills a major void in public administration and public management. Her insights, both empirical and normative, could be applied to organizational disasters as well as natural ones. Professor Schneider finds that structure interacts with task demands in disaster management. Whether the situation is a success or a failure depends on how well the public's response fits with bureaucratic expectations. Where emerging public norms in a disaster do not fit bureaucratic norms, major management problems occur. The size of the gap between public norms and bureaucratic norms is the key variable in determining how well a disaster is managed. *Flirting with Disaster* is an important book for public administration; it explores a rarely examined dimension of bureaucracy crisis management -- and thus merits reading in any introductory, intermediate, or advanced course.69


Written from a global perspective on risk, hazards, and disasters, Introduction to International Disaster Management provides practitioners, educators and students with a comprehensive overview of the players, processes and special issues involved in the management of large-scale natural and technological disasters. The book discusses special issues
encountered in the management of international disasters, and explains the various private, non-governmental, national, and international agencies that assist in the preparedness, mitigation, response and recovery to national and regional events. Concentrating on the four major phases of emergency management — mitigation, preparedness, response, and recovery — Introduction to International Disaster Management deals with such timely topics as Hurricane Katrina, the 2004 Asian tsunami, and SARS. It also serves as a reference to governmental and other agencies involved in international disaster management activities. This book is the first of its kind to take a global approach to the topic of international disaster management.* Serves as the first comprehensive resource dealing with the issues of international disaster management* Contains numerous case studies, examples of Best Practices in international disaster management, and a contact list of the governmental and nongovernmental agencies involved in international disaster management* Provides a global perspective on risk, hazards, and disasters that is written both for students within disaster management programs and for professionals 70

3.2.15. King’s Human Resource Development – 2009

In this book it explains importance of HR to each individual because it can assist in improving and using his capacities and potentialities to the utmost. With ever developing skills and aptitudes, the individual has become increasingly proficient in overcoming many hurdles which has
primeval ancestors could not. It explains HR is one of the most vital resources of the country because this is the force which exploits the natural environments for the entire population of the country. ⁵⁷


This book focuses on developing theory that leads to the specification of hypothesis that can be taken up for subsequent empirical examination. It is concise and holistic guide to theory building for such hypothesis specification. This volume breaks down the process of theory building into its components steps and explains each of them starting with formative concept of theory, units of theory etc. the uniqueness of the book lies in its focus on theory building for specific purpose of hypothesis creation rather than for propounding any grand idea or concept. It is enhanced with insightful texts and citation of thinkers and researchers of international repute. This book is referred by the researcher to formulate the hypothesis and theory building. ⁷⁵
3.3. Worldwide survey reports

3.3.1. United Nations Disaster Relief Coordination. Disaster Prevention and Mitigation. UN, New York 2009

The United Nations estimates that in the past two decades nearly three million live have been lost to natural disasters and some 800 million affected by them worldwide. Disasters have their greatest economic and social impact in the poorest countries. It is also estimated that the disaster events globally cost about 50,000 million US dollars each year and result in approximately 2,50,000 deaths in a year. The spectrum of occurrence of disasters indicates that nearly twenty major disasters strike the world every year resulting in many deaths and several casualties, besides the major disasters, innumerable moderate and minor disasters strike the world community every year. 71

3.3.2. The United Nations Development Programme (UNDP) has estimated that between 1980 and 1999, globally, a total of 1,429,412 people were killed by disasters about 96.4% (1,377,318) of those deaths occurred in developing countries, of which 38% (520,165) occurred in the countries that comprise the African Region. about 96% (499,510) of the disaster-related deaths in the Region resulted from natural disasters and the remaining 4% (20,655) from technological disasters Out of the 499,510 deaths that were caused by natural disasters, 80.9% resulted from droughts, 14.5% from epidemics (e.g. cholera, acute watery diarrhoeal
syndrome, Ebola haemorrhagic fever, meningococcal disease), 2.3% from famines, 0.6% from earthquakes, 0.4% from volcanoes and 0.4% from windstorms (tornado, storm, cyclone). On the other hand, of the 20,655 technological disaster-related deaths, 83% were caused by transport accidents, 13% by industrial accidents and 4% by miscellaneous accidents (UNDP 2008)

3.3.3. Munich Re by Staff Writers Frankfurt (AFP) July 9, 2008

Disaster deaths worse so far in 2008 than tsunami year: Natural disasters killed at least 150,000 people in the first half of this year, more than in the whole of 2004 when south-east Asia was struck by a tsunami, The figures came from German re-insurance group Munich Re which warned that the pattern this year fitted a trend of worsening weather-driven catastrophes, and the company called for increased efforts to fight climate change. Specialists at the German group recorded about 400 natural catastrophes in the first half of 2008, with overall losses so far estimated at 50 billion dollars (32 billion euros). In 2007, a total of 960 disasters caused about 82 billion dollars in damage, of which 30 billion was covered by insurance. In Burma, the cyclone Nargis killed 138,000 people in early May, and in mid May an earthquake left 69,200 dead or missing in China, the company said in a statement. 72
3.3.4. IFRC World Disaster Report of 2009

The above report indicates that in the year 2008, 89,546 people were killed in 542 disaster events with average estimated damages of 71.9 million dollars. Nearly 80 percent of deaths were due to natural disasters. The study of global statistics of disasters over three decades reveals that there is a significant increase in impact of disasters.\textsuperscript{73}

Amongst the major disasters the floods, cyclones and earthquakes account for the largest number of deaths, persons affected and damage inflicted.

3.3.5. According to Havidán Rodríguez, Director. Disaster Research Center (DRC) Department of Sociology and Criminal Justice University of Delaware.

The December 26, 2004 earthquake and the tsunamis it generated have already been described as one of the “worst disasters” in recent history. Very few natural disasters in historical times have had such far-flung, catastrophic consequences as the Sumatra Earthquake and the tsunamis it generated across the Indian Ocean. We have been deeply touched by this disaster, the devastation resulting from these events, the still increasing loss of life, and the valiant response and recovery efforts undertaken by the survivors and outside volunteers.\textsuperscript{74}
3.3.6. According to J M Scheuren et al in Annual Disaster Statistical worldwide review that in 2007 alone, 414 natural disasters were reported. They killed 16847 persons, affected more than 211 million others and caused over 74.9 US$ billion in economic damages. 

Table : 3.1

Distribution of Natural Disasters worldwide and damage

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Year of Occurrence</th>
<th>Number of Disaster Events</th>
<th>Victims in Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2007</td>
<td>414</td>
<td>225</td>
</tr>
<tr>
<td>2</td>
<td>2006</td>
<td>445</td>
<td>150</td>
</tr>
<tr>
<td>3</td>
<td>2005</td>
<td>354</td>
<td>175</td>
</tr>
<tr>
<td>4</td>
<td>2004</td>
<td>421</td>
<td>300</td>
</tr>
<tr>
<td>5</td>
<td>2003</td>
<td>411</td>
<td>275</td>
</tr>
</tbody>
</table>

Source: Annual Disaster statistics – CRED 2007

3.3.7. Global Losses Through Natural Disasters

According to Reinsurance Company ‘Munich Re’ costs associated with natural disasters has gone up 14 fold since the 1950s. Each year from 1991 to 2000, an average of 211 million people were killed or affected by natural disasters – seven times greater than the figure for those killed or affected by conflict. Towards the end of the 1990s, the world counted some 25 million ‘environmental refugees’- for the first time more people


Proceeding of the above conference concluded that Women and men are affected differently by disaster due to the economic, social and cultural roles they play in society. 90 per cent of the people killed in the 1991 cyclone in Bangladesh were women. It was the same in USA, when hurricane Katrina hit New Orleans African American women were among the worst affected. Women are often the main victims of disasters as they account for more than 70 per cent of the worlds poor. 77

Table -3.2

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hydrometeorological</td>
<td>1498</td>
<td>2034</td>
<td>2135</td>
<td>5667</td>
</tr>
<tr>
<td>2</td>
<td>Geological</td>
<td>232</td>
<td>325</td>
<td>233</td>
<td>790</td>
</tr>
<tr>
<td>3</td>
<td>Biological</td>
<td>170</td>
<td>361</td>
<td>420</td>
<td>951</td>
</tr>
<tr>
<td>4</td>
<td>TOTAL</td>
<td>1900</td>
<td>2720</td>
<td>2788</td>
<td>7408</td>
</tr>
</tbody>
</table>

Source : Annual Disaster Statistics 2007
According to above table it is indicated that as decade progressed number of disasters increased. There is increasing trend of disasters during decade 1990-99 there were 2720 disasters occurred the same number or in fact more than this number of disasters occurred in next five years i.e. 2000 to 2005.\(^{78}\)

3.3.9. **World Health report 2008**

The above WHO report indicates that more than 11000 medical institutions were damaged in China’s Wenchuan earthquake in May 2008, forcing tens of thousands of people to seek treatment elsewhere. In line with the World disaster Reduction Campaign: WHO dedicates its World Health Day 2009 to "Make hospitals safe in emergencies". During that day, 7 April, many events will be organized around the world, with the global launch taking place in Beijing, China, with the WHO Director-General Dr Margaret Chan in attendance. WHO advocates for safe facility design and construction and for the continuation of health care during emergencies. WHO – 2009\(^{79} &^{80}\)

3.3.10. **According to UNICEF**, Every day major earthquake killing over 30,000 children. They die quietly in some of the poorest villages on earth, far removed from the scrutiny and conscience of the world. due to poverty, malnutrition and communicable diseases.\(^{81}\)
3.3.11. The Asia pacific region is home to 53% of the world’s population and 20% of the land area experiences a disproportionate share loss of life and impact to socio-economic processes. According to a united Nation’a report, nearly 70% of all lives lost due to natural disasters occur within Asia Pacific Region. There is an 18% increase in number of natural disasters worldwide from 2004 – 2005. although loss of life was significantly lower in 2005, the number of people affected continues to rise. Climate change, environmental degradation the impact of epidemics developed in high risk zones. 82 & 83

3.3.12. Recent series of ten coordinated terrorist attacks across Mumbai, India’s financial capital which began on 26 November 2008 and lasted until 29 November, killed atleast 173 people and wounded at least 308 (Press Information Bureau – Govt of India)84

3.3.13. David Hall compiled the data 2009 and it reveals that every year Malaria takes 2 -5 Million lives worldwide. In South Asia Earthquake in 2005 Pakistan, India and Afghanistan were affected the human loss was around 5000. During 2004 -05 earthquake of 9.0 Richter Scale resulting Tsunami damaged to Indonesia, India, Srilanka, Thailand and Malaysia death toll between 2,35,000 to 2,85,000. 85
3.4. Nationwide Disasters

3.4.1. According to National Crime Records Bureau 2007, Indians are almost four times more likely to be killed by lightning strikes than be felled by bullet from terrorists. More than 2700 people were killed by lightning while 733 lives were lost in insurgency and terror related incidents including as many as 498 being killed in the Northeast itself. Accident alone killed 934 peoples including road accidents 314, two wheeler accidents 60, trucks 68 and railway 71 in 2007. Death by age shows that youngsters below 29 yrs died 322 in accidents while over 45 yrs people died 303 in the same year.

3.4.2. Studies by World Health Organization and Government of India show that our road safety record is declining alarmingly at 5% a year. India’s road has become highways of death. We have dubious distinction of having the largest number of road accident fatalities for the number of vehicles in the world. Almost 100,000 Indians die on our roads every year in over 300,000 accidents. A 2002 Planning Commission study estimated India’s loss from such accidents at a colossal Rs 55,000 crore a year, which works out to 3 percent of GDP at 2000 prices. Another statistics: there are 12.7 road fatalities per 10,000 vehicles in India in USA road fatality rate is 1.79, fatality rate in UK and Germany are 1.0 and 1.1 respectively.

3.4.3. Recent study conducted by city based environmentalist revealed that infections are rising due to climate change, a study was based on data of the
patients suffering from Diarrhoea, Tuberculosis at Hospital in Solapur. It says that despite improvement in sanitation and quality of potable water over the years occurrence of diarrhea has gone up by 43 percent in Solapur district. Many studies reveal that climate change and rise in temperature are among the most common causes for outbreak of infectious diseases. Similarly occurrence of tuberculosis has also gone up by 37% during the same period. Dhanraj patil, Assistant Professor in sociology at YASHDA said that the London school of hygiene and tropical medicine has also stated that outbreak of diarrhea will continue till global temperature continues to rise. The data was collected from government sub district rural hospital at Akluj in Solpur from 2000 – 2006. the data was analysed with statistical technique such as frequency mean, median and standard deviation

3.4.4. Press Trust of India – December 15, 2007 Eighteen people including seven children were Killed in Satluj Express tore into private mini bus carrying mostly student and teachers in thick fog at manned railway crossing in the Moga district of Punjab. The victims were mostly student and teachers on their way to different educational institutions in the area. Railway minister announced a compensation of Rs 5 lakh to the families of each of dead.
3.5. **Studies Regarding First Aid And Safety in Schools**

3.5.1. Pala I. and Vankar GK 1997 Assessment of knowledge and attitude of primary teachers about disasters suggests that only one fifth teachers out of 113 were confident about dealing with an accidents. It was revealed that there was a knowledge deficit, especially regarding the prevalence of accidents. Misconceptions regarding first aid were also common. Communication about accidents among the teachers, parents and doctor was virtually non existent. even primary care givers showed poor knowledge score on home safety and first aid (Thein M M and others, 2005 ) though the score of knowledge of road safety was satisfactory. This study was conducted in Singapore as childhood injuries are the leading cause of death for children between 5 to 14 years of age.90

3.5.2. S.,Kuthubutheen J., Fowler B. and others 2005 conducted study to assess the knowledge of primary care givers regarding first aid after burns at Royal Perth Hospital

He revealed over all poor knowledge scores, though knowledge about first aid of burns was satisfactory. Case by case analysis of patients (n=227) admitted to Royal Perth Hospital was done, to whom first aid was given by the primary health care givers, showed that only 39% patients received appropriate first aid and 50% patients received inappropriate first aid. Similar results were found to O’Neill and others from Reconstructive surgery Dept. of University College Hospital, (O’Neill and others 2005)
when they assessed the first aid measures taken by the patients and primary care gives following burns injury. Only 23.2% patients (n=63) had received appropriate first aid. In case of accidents at work place, only for 20% cases first aid facilities were available at work place. This study illustrates that the knowledge regarding the initial management of burn injury is very poor. In today’s competitive life only formal school education is not enough for overall development of child. With peer pressure or with pressure from parents, and with their own interest children are also attending hobby classes, sports coaching and tuition classes along with formal schooling. Therefore having first aid knowledge to formal school teachers is not sufficient. It will be beneficial if teachers from areas like sports, hobby classes and tuition classes have first aid knowledge.91

3.5.3. N Students of physical education faculty are also lacking in knowledge of first aid. Findings of study done in Egypt (Aly and S A and Ahmed N I, 1993) support this. It was found that more than half of the students had correct knowledge of three injuries only out of eight namely fracture, cramp and bleeding. Lack of knowledge noted regarding cut wounds, penetrating wounds, falling, sprains and epistaxis. 92

3.5.4. Ransone J. and Dunn-Bennett LR 1999 conducted study for assessment of the first aid knowledge and decision making of inter scholastic athletic coaches exposed to athletic injuries was done.
Which reveals that the athletic coaches did not adequately meet the first aid standards as established for the study in accordance with the American Red Cross. In addition, coaches who passed the first aid assessment, tended to return an injured starter to the game, where as those who failed, decided to keep the player out of the game.  

People who play injury prone games and their coaches are also ignorant about first aid. Evaluation of first aid knowledge of mountaineers was done. (Kuepper T and others) Which showed inadequate first aid knowledge and the investigator recommended educating mountaineers.

3.5.5. Newman L J and Crawford P J 2009 conducted study on dental injuries  
Assessment of knowledge of first aid among 66 physical education teachers revealed that 64% of respondents gave correct answer about the first aid for tooth fracture where as only 43% gave appropriate answer relating to avulsion of permanent tooth.

3.5.6. Cunningham A, 2002 Findings of audit of first aid qualifications and knowledge among team officials in two football leagues revealed that the officials responsible for providing first aid are not adequately qualified and there is knowledge deficit among those who are providing first aid.
3.5.7. Anderson L, Al-Asfour and Al-Jame Q 2006

In school health programme every child is considered as a health worker. That means it is expected that every school going child should have first aid knowledge. Assessment of knowledge of school children for first aid measures for avulsion and replacement of teeth was done in Kuwait City. An interview of 221 Kuwaiti School children revealed that there was low knowledge level regarding tooth avulsion, replacement and first aid measures.\(^96\)

3.5.8. Knowledge of cardiac resuscitation has gained considerable importance in recent years. It is expected that every member of the society should know it. However findings of a study done by (Teich N and others 2005) to assess the knowledge of lay German people regarding cardiac resuscitation suggests that (a) ABC – like first aid rules are largely unknown among the population; (b) the value of a stable lateral position is overestimated and (c) first aid skills of elderly persons are worst.\(^97\)

3.5.9. Similar findings revealed from the study done (Schafhalter- Zoppoth I and others 1994) to assess the awareness about cardiopulmonary procedures such as artificial respiration or cardiac massage. Investigators found that the general first aid and resuscitation has been known sufficiently, where as special cardiopulmonary procedures such as artificial respiration and cardiac massage were unknown to most.\(^89\)
3.5.10. Pediatric is special, sensitive and most important branch of medicine. Giving first aid in pediatric emergencies require more skills. Usually mother is the first person who can give first aid. Assessment of mother’s knowledge using a questionnaire comprising 13 multiple choice questions was done. (Langly J and Silva P 1986) The results showed that approximately three quarters of mothers correctly answered 70% of the questions. Whilst higher intelligence and previous training in first aid were shown to be associated with better score, the effects were small. Some aspects of first aid which deserve more emphasis in training course were identified.  

3.5.11. These findings are also supported by another study (Conrad and Beattie TF 1996) carried out in Edinburgh, to assess the knowledge of pediatric first aid. Sample was randomly selected from general population. The study highlights that the knowledge of first aid is generally deficient, with only 13% of people are able to correctly treat all pediatric emergencies.  

3.5.12. Large group of population is working in industrial sector. In India, health services are inadequate in industries under the control of employee’s state insurance scheme. In an article on Educational and training issues in occupational first aid (Sacco A, and others 2005) authors says that the need to achieve high training standards for workers responsible for first aid at work place is to a large extent justified by the difficulty of the role of employees. This need follows the current tendency in regulations to
guarantee adequate and up-dated training also for the other agents operating within the system of workplace prevention. In this context the occupational physician plays a significant role in the training programmes for designated workers.\textsuperscript{101}

3.5.13. ‘Are pre hospital deaths from accidental injury preventable?’ a study done to evaluate the possibility of preventing accidental deaths in prehospital period (Hussain LM and Redmond AD 1994) The investigators were of opinion that, Death was potentially preventable in at least 39\% of those who died from accidental injury before they reached hospital.\textsuperscript{93} They also have suggested in their study that training in first aid should be available more widely, and particularly to motorists as many pre hospital deaths that could be prevented are due to road traffic accidents.

3.5.14. With westernization, competitive life and over all change in life style, life has become stressful and mental health has gained its due importance. There is continuous migration from rural areas to urban slums creating major health and economic problems. One can not neglect the mental health first aid awareness among primary teachers as well as general population. There was eight fold increase in budget allocation for the national mental health programme. (10th five year plan)\textsuperscript{114}

3.5.15. Some problems women are facing, an article written by Tokle M (1994) highlights need of mental first aid. In his article, he says after earth quake
women are afraid. Destitute women and widows have no emotional and economical support. They are afraid that they and their children will become beggars. He adds in his article that women are facing physical problem too and there are no sufficient gynecologists and nurses to deal with physical health problems. This situation adds to their emotional problems.

3.5.16. Psychological assessment of people in Andaman and Nicobar islands after Tsunami (Math SB and others 2005) was done. The study revealed that 5 to 8% populations suffering from significant mental health problems. In developing countries like India, limited availability of mental health professionals and poor knowledge about disaster mental health among the medical and paramedical staff may lead to poor psychological rehabilitation of the survivors. Hence presence of a disaster mental health team is required during the early phase of the disaster in developing countries. 129

3.5.17. Similar findings were found in study conducted at New Delhi. (Khandelwal SK and others 2004) It is pointed out that there is significant increase in general health manpower, but mental health manpower is not adequate. A lot has still to be done towards all aspects of mental health care in India in respect of training, research and provision of clinical services in all sections of society.96
3.5.18. Not only in India, but a national survey conducted in Australia (Jorm A F and others) reveals that there is room for improving the range of mental health first aid services.97

3.6. Literate related to assess the effects of training programme on the disaster management.

3.6.1. Ali, N., & Jaswal, S. (2000). This paper reports the impact of the ongoing political unrest in Srinagar on the mental health of low-income urban people in Srinagar. The Kashmiri translation of the Self-Reporting Questionnaire 20 (SRQ-20) was used to assess current psychiatric morbidity in the respondents in Baramulla. The SRQ-20 was validated against the ICD-10, which was used as a gold standard. A cut-off of 11/12 was arrived at by testing for sensitivity and specificity. The findings of the study indicate high mental health morbidity in the respondents, especially in homemakers and in unskilled workers as a result of the on-going long term unrest and the consequent trauma in the region.

3.6.2. Gauthamadas, U. (2007). Trauma counselling is recognised as a focus for disaster relief efforts. However, the scope of trauma counselling is limited by geographic, social access, cultural, language, and human resource limitations. In an attempt to transcend these limitations, a crash course in psychological first aid was designed for personnel from the affected communities by Academy for Disaster Management Education
Planning and Training (ADEPT). The paper is an account of the training and its application in the aftermath of the tsunami. The attempt to assess the effectiveness of the training after 8 and 16 months.

3.6.3. Chakrabarti, P. G. D., & Bhat, M. R. (Eds.). (2006). The book is based on the proceedings of the International Workshop on ‘Disaster Risk Mitigation: Potential of Micro-finance for Tsunami Recovery’, held at New Delhi in 2005. The backdrop to the workshop and thereafter the book was the comparatively higher level of suffering that the economically poorer sections of society have to go through in the aftermath of a disaster and the potential of micro credit in enabling them to recover from the disaster. The book begins by the proposition that while the rich have their assets insured such is not the case with the poor. Further in the virtual absence of proprietary or tenancy rights over their little property, they stand little chance of getting compensation from the authorities. In such a situation, the jewellery of the women becomes the first collateral for obtaining credit from money lenders at a very high rate of interest. This begins an unending cycle of indebtedness. It is in this backdrop that micro credit is explored to examine its potential in acting as a safety net and shock absorber for people to cope up with a disaster situation. To this end the workshop wanted to draw a comparison between the coping capacity of communities with micro credit groups and without micro credit groups. It also wanted to understand the problems that such groups faced in maintaining liquidity when everybody wanted to withdraw their savings and
in further advancing credit at an affordable rate. The linkage of these groups to relief and rehabilitation agencies of the local government was also explored through the means of this workshop.

3.6.4. Suja Suresh (2009) conducted study to determine the effectiveness of structured teaching programme on knowledge and practices of disaster management among school teachers. She found that there was gross inadequacy of knowledge on disaster management among school teachers. They had unsatisfactory practice towards cardiopulmonary resuscitation. The structured teaching programme was found to be effective. There was highly significant difference in knowledge and practice of school teachers before and after administration of structured teaching programme. There was positive correlation between the knowledge and practices of school teachers.118

3.6.5. Afrasyab Khan, Sumaira et al conducted study on knowledge, attitude and practices of undergraduate students regarding first aid measures and found out that overall knowledge of the first aid amongst the university students is low. The low rate of the first aid training was also observed in a study, even if students wanted to get first aid training very few (12%) knew of places in Pakistan that offered First aid course. Many students realized that (94%) first aid training should be part of curriculum with 84% suggesting it should be part of pre university curriculum. Even though
medical students scored higher yet their knowledge was not sufficient. Suggesting first aid training in curriculum. Students had inadequate knowledge and many recognized the need for introduction of formal first aid training programme at school /college level in order to decrease the early mortality and morbidity of accidents and emergencies.  

3.6.6. Spranger et al (2007) conducted a cross sectional study to assess physicians preparedness and response capacity to bioterrorism in major metropolitan area of Tarrant, Texas and found that there was no correlation between the level of knowledge and management skill and previous bioterrorism training. Approximately 90% of responders rated current knowledge is fair-poor. Only 9% rated their current knowledge level as good – excellent. Those who have had training experience were 18 times more likely to report good knowledge and management skills compared to those who rated their knowledge as fair poor. Additionally the physician with bioterrorism training was proportionally more willing to serve as consultant.

3.6.7. Etsuko Tsunozaki, Asian Disaster Risk Reduction Centre (ADRC) conducted a survey on tsunami awareness (2005) in Srilanka, Maldives and Indonesia targeting a residents, school children, teachers and Govt officials. The result of survey showed that in Srilanka 93.5% of residents did not know about tsunami 77% residents answered that most effective way to prevent future tragedy was integration of disaster study into school
curriculum. (capacity building and awareness raising for disaster reduction through formal education)\textsuperscript{118}

3.6.8. Over 1,100 children from 20 schools throughout the UK answered a series of questions about first aid and road safety. Over half (53\%) of these children had never learnt first aid and most said they did not adopt safe behavior on the road – the majority (84\%) of children admitted that they do not wear a cycle helmet when on their bicycle and most (74\%) do not normally use a pedestrian crossing to cross the road.\textsuperscript{51}

3.6.9. Education brings about change in thinking process and behaviour. Training helps in understanding the concepts and in acquiring skills. Disaster Management is not different. Training in Disaster Management is not exception. It will definitely help the individual in acquiring the knowledge and in developing skills related to the Disaster Management. It will also help in building confidence in individual. And if the person has confidence, he can do the work more effectively and more efficiently in Disaster situation. This belief is supported by the study done in Ireland (Steele JA 1994) to find out the effect of first aid training on public awareness of the management of seriously injured casualties. The results showed that confidence as independent variable was associated with better knowledge, those who had some form of training were significantly more confident about their own abilities and also performed better in the assessment.
3.6.10. Disaster Management and basic life support skills were taught to medical students in their early period of studies (Das M and Elzubeir M, 2001) and the results were evaluated. The results showed that teaching Disaster Management in early period is useful and the programme provides students with sound basic knowledge and adequate practical skills in Disaster Management and basic life support and that adequacy of time, physical and human resources are important prerequisites to facilitate practice and engender confidence in skills.

3.6.11. The author (Eisenburger P and others 1999) in his paper on 'Life supporting first aid training of the public – review and recommendations' says that Since introduction around 1960 of external cardiopulmonary resuscitation (CPR) basic life support (BLS) without equipment, training courses by instructors have been provided, first to medical personnel and later to some but not all lay persons. At present fewer than 30% of out of hospital resuscitation attempts are initiated by lay bystanders. The number of lives saved has remained suboptimal, in part because of a weak or absent first link in the life support chain. This review concerns education research aimed at helping more lay persons acquiring high life supporting first aid skill level and to use these skills.

3.6.12. Uray T and others from University of Vienna, Australia, are of opinion that (2003) not only for the medical students or adults, teaching life saving training is feasible for 6 to 7 years old school children who might well be
in a position to save the lives of cardiac arrest victims. The findings should be used to convince politicians and administrators of the need of LSFA training as mandatory subject in schools.

3.6.13. Ghosh A and Bharat R (Burns 2000) reports that ‘Community Awareness Programme for the target group of ladies and teenage girls and ‘School Education Programmes for the target group of school children of standard 8 in the steel producing city, Jamshedpur, increased the awareness about burns prevention among school children and community members, and steady increase in the number of parents who use water as first aid.

3.6.14. Not only the formal Disaster Management training helps to improve the knowledge of the people, but the efforts like giving information booklet for individuals attending OPD or mass mailing of calendar which focuses on child and infant safety and first aid treatment are also effective.

3.6.15. Such effort done by Sunde K and others shows that mailing calendar with information on removal of foreign body from the airways and infant CPR was helpful. The knowledge and skills were tested in two groups using a previously validated checklist before and after introduction of calendar. The knowledge was improved; there was not much improvement in skills. These findings are also supported by study done in Australia (Jorm A F and others 2004). They say that Disaster Mental Health training produces positive changes in knowledge, attitude and behavior of individual
3.6.16. Above review of literature has shown that although there is information and recognition of the issues related Disaster Management, there are very few studies done on need assessment on primary or secondary school teachers in India regarding basic first aid course or refresher course. In India around 30% of population is below 15 years of age, and they are spending their maximum time in schools.

3.6.17. One of the important components of the school health programme is to provide first aid to the students and it is the responsibility of the teacher. Secondly, through teacher, we can train students and then to the community. The investigator felt that not only the student but the teacher also can also become the health worker if we assess their existing knowledge, plan the Disaster Management teaching programme based on the findings. In order to help the scholar, teachers and the society and for the full-fledged implementation of the school health programme the investigator undertook this study.

3.6.18. According to local education bureau in Taiwan (2006) elementary school teachers attitude towards disaster prevention are positive, the teachers attitude of disaster prevention are different according to different gender. The female teachers attitude of disaster prevention are more positive than male teachers. Based on their findings following suggestions were given.
• Teacher should participate more in education and training about disaster prevention.

• The institute of teacher training should hold more education and training about disaster prevention.

• The concept of disaster insurance should be given more emphasis in order to increase the disaster insurance by institute.¹⁴⁷

3.7. Role of teachers in disaster management

Desai, A. (2008). The article discusses the contribution made by the profession of social work in natural and human induced disasters and its unique role in a multi-disciplinary effort. Using the framework of the integrated social work practice model, steps for intervention are detailed with examples of work with those affected by the disaster as well as other actors such as the government, donors, NGOs, and academic institutions. The assessment of impacts is discussed on rehabilitation policies, institutions for social work education and the students.

3.7.1. Lakshminarayana, R. (Eds.). (2004). The editors begin the book by acknowledging that psychosocial interventions in respect of disasters have seen a shift from identifying psychiatric ailments to providing psychosocial care, psycho education, enhancing coping mechanisms of survivors and encouraging formation of community based self help groups. It is in this
light that the Indian Red Cross Society desired to have a Disaster Mental Health/Psychosocial Care component integrated into their Disaster Preparedness and Disaster Response plan. The book was seen as a means to it since it provided a forum/opportunity to understand disaster mental health responses in India. The chapters in the book have been written by representatives from several governmental and non-governmental organisations, who have had direct experience of engaging in the field on this area. The themes on which the authors have delved include the nature of psychosocial interventions undertaken by various organisations in the case of recent disasters, the theoretical underpinnings for these interventions, the status of disaster mental health in India at the policy level and the roles of different professionals such as psychiatrists, psychologists, social workers and nurses following a disaster. The religiocultural, socioeconomic and political dimension of disaster response is also examined through the book. Finally the book concludes by tracing the trajectory that disaster mental health interventions have traversed from the Bangalore circus fire tragedy in 1981 to the Gujarat riots in 2002 and the challenges that were faced therein. The book brings into the discourse both natural disasters and human made disasters such as communal riots.

3.7.2. Andharia, J. (2002). Stated that in developing countries like India, academic institutions of higher learning can contribute to disaster and rehabilitation in a variety of ways. The article attempts to capture the
experiences of one such institute and its involvement in disaster situations over five decades. The changing contours of the role played by an academic institution and the gradual upscaling of its work illustrated how higher education and innovations in paedagogies can promote value orientation in the learning process, promote critical thinking and contribute to social development. The modalities of this involvement, the nature of tasks performed and the lessons learnt are discussed from the standpoint of a social science institute Imparting post graduate education in practice based profession of social work.


Result of this study showed that current school disaster education which is based on lectures can raise risk perception but it cannot enable student to know the importance of pre disaster measures and to take actual action for disaster reduction. Future disaster education in school should be active learning for students.

3.7.4. Interview Mr Ashish Sharma – PCM Commissioner

According to PCM Commissioner Mr Ashish Sharma PCMC has started 24 hrs central flood control cell on June 7, 2010. The objectives behind starting the cell is to reduce damages to life and property from possible
floods during rainy season in rivers like Pavana, Mula and Indrayani which flows through Pune city. Pre monsoon nullah cleaning and keeping the megaphone ready to give direction about flood to citizen demarcating the flood prone areas and providing necessary facilities to flood affected families in the city. This information was found useful for researcher for preparing the manual. 149

3.7.5. This chapter dealt with the review of published and unpublished literature related to the problem stated. This enabled the investigator to have deep insight into the problem under study and helped to develop tool and in completing the study.