

**STATE, CIVIL SOCIETY AND DISASTER MANAGEMENT
IN MIZORAM**

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STATE, CIVIL SOCIETY AND DISASTER MANAGEMENT
IN MIZORAM

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Submitted in partial fulfillment of the degree of Doctor of Philosophy in Public
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CERTIFICATE

This is to certify that **Ms. Mal Sawmi Pachuau** has prepared a Thesis under my Supervision on the Topic *State, Civil Society and Disaster Management in Mizoram* in partial fulfilment for the award of the Degree of Doctor of Philosophy (Ph.D) in the Department of Public Administration, School of Social Sciences, Mizoram University, Aizawl.

This Thesis has been the outcome of her original research work and it does not form a part of any other Theses submitted for the award of any other degree(s) to any other University.

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DECLARATION

I, Ms. **Mal Sawmi Pachuau**, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

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Dated Aizawl

MAL SAWMI PACHUAU

10th February 2020

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ACRONYMS

AMC	: Aizawl Municipal Corporation
BAFFACOS	: Bamboo Flowering and Combat Scheme
BoC	: Board of Councillors
BRTF	: Border Roads Task Force
BSUP	: Basic Service to the Urban Poor
CBO	: Community Based Organisation
CDM	: Certificate on Disaster Management
CTI	: Central Training Institute
DDMA	: District Disaster Management Authority
DEOC	: District Emergency Operation Center
DHME	: Directorate of Hospital and Medical Education
DHS	: Directorate of Health Services
DM&R	: Disaster Management and Rehabilitation
EOC	: Emergency Operation Center
HPC	: High Powered Committee
HRVA	: Hazard Risk Vulnerability Assessment
IC	: Incident Commander
IRS	: Incident Response System
IRT	: Incident Response Team
ISC	: Indian Standard Code
LC	: Local Council
MBO	: Member Based Organisation`

MIRSAC	: Mizoram Remote Sensing Application Centre
MHIP	: Mizo Hmeichhe Insuihkhawm Pawl
MIZOFED	: Mizoram State Cooperative Marketing & Consumers Federation
MNF	: Mizoram National Front
MPA	: Mizoram Psychology Association
MPF	: Mizoram People's Forum
MTP	: Mara Thyutlia Py
MUP	: Mizoram Upa Pawl
MZP	: Mizo Zirlai Pawl
NDMA	: National Disaster Management Authority
NDRF	: National Disaster Response Force
NFSA	: National Food Security Act
NGO	: Non- Governmental Organisation
NoC	: No Objection Certificate
PHE	: Public Health Engineering
PTC	: Police Training Centre
PTSD	: Post Traumatic Stress Disorder
PWD	: Public Works Department
QRT	: Quick Response Team
RCC	: Reinforced Cement Concrete
RTT	: Rapid Response Team
RVS	: Rapid Visual Survey
SDMA	: State Disaster Management Authority
SDRF	: State Disaster Response Force

SDRF	: State Disaster Response Fund
SEC	: State Executive Committee
SEOC	: State Emergency Operation Center
ToT	: Training of Trainers
UNDP	: United Nations
UD&PA	: Urban Development and Poverty Alleviation
VC	: Village Council
WHO	: World Health Organisation
YMA	: Young Mizo Association
ZNP	: Zoram Nationalist Party

CHAPTER I
INTRODUCTION

CHAPTER I

INTRODUCTION

1.1 Background

A disaster can be defined as a sudden, accidental event of great magnitude that causes distress situations, both individual and communal. Some disasters occur drastically without any alarm or warning while some can be foretold and occur under normal process. Some disasters may be short lived such as landslides and earthquakes and some may be of long duration, such as drought, floods and famines. Disasters take many different forms, and the duration can range from an hourly disruption to days or weeks or months of ongoing disruption. The damage brought about by disasters not just damages the socio-economic conditions of a particular area; disasters also affect the mental health of the affected population. The psychological impact is not as noticeable or obvious as the destruction of homes, and social infrastructure; yet, recovering from the emotional and psychological consequences may take far longer than dealing with the material losses. In recent years, these hazards took toll of thousands of lives and cause massive destruction of property.

There are various types of disasters- both natural and man-made or technological in nature. When disasters occur due to natural forces over which hardly man has any control, they are called natural disasters. When the disasters are consequences of human interactions with the environment or human errors or due to carelessness during technological and industrial use or mishandling of dangerous equipments they are called man-made disasters. Disasters whether they are natural or

man-made take a huge toll on life and property. The intensity it affects the community is the same in all cases.

1.2 Global Scenario

At the global level, there has been considerable concern over natural disasters. Even as substantial scientific and material progress is made, the loss of lives and property due to disaster has not decreased yet. The United Nations' General Assembly, in 1989, declared the decade 1990-2000 as the International Decade for Natural Disaster Reduction with the objective to reduce loss of lives and property and restrict socio-economic damage through concerted international action, especially in developing countries. Many countries prepared national action plan for disaster risk management and presented them to the World Conference on Natural Disaster Reduction held in Yokohama, Japan, in 1994,¹ the Conference being the main outcome of the International Decade for Natural Disaster Reduction. It was attended by government officials, NGOs, local governments and private sector representatives from all over the world.

1.3 National Scenario

Disaster management in India has evolved from an activity based setup to an institutionalized structure; from single faculty domain to a multi- stakeholder setup; and from a relief- based to a 'multi- dimensional approach for reducing task'.² The

¹ "Yokohama Strategy and Plan of Action for Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation," *World Conference on Natural Disaster Reduction*, Yokohama, Japan, 23- 27 May 1994 <https://www.unisdr.org/we/inform/publications/10996> accessed on 4th December, 2018.

² Chandrasekharan, Indrani., Gupta, Anil., Role of Legislations and Policies in Reducing Disasters and their Impact, in *Environmental Risk for Disaster Risk Management*, National Institute of Disaster Management, (Vigyan Bhavan, New Delhi, 2011), p. 82.

Government of India in recognition of the importance of disaster management as a national priority set up a High Powered Committee (HPC) in August 1999 and a National Committee after the Gujarat earthquake, for making recommendations on the preparation of disaster management plans and suggesting effective mitigation mechanisms.³ In 2001, the nodal responsibility for managing disasters was shifted from the Department of Agriculture and Cooperation to the Ministry of Home Affairs. The Disaster Management Division has been functional in the Ministry of Home Affairs since July 2002. During the Tenth Five Year Plan (2002-2007), the Government of India enacted the National Disaster Management Act⁴ on 23rd December, 2005 which envisioned the creation of several authorities and legislations for a holistic and integrated approach to disaster management in India.

1.4 State Scenario

Mautam Famine is a Mizo word which relates to famine brought about by bamboo flowering. It is a botanical phenomenon which occurs every fifty years and lasts for one year.⁵ The famine which hit Mizoram in 1959 was the first known disaster faced by Mizoram although records from the British Raj indicate that Mizoram suffered famine in 1862 and again in 1911.⁶ The Mizo National Famine Front was formed for the relief of the Mizo people who were in great distress because of the severe famine.⁷ It was followed by the Relief and Rehabilitation (R &

³ <https://ndma.gov.in/en/about-ndma/evolution-of-ndma.html> accessed on 3rd February, 2019.

⁴ Government of India's *Notification No. DL- (N) 04/0007/2003-05, The Disaster Management Act, 2005*, Ministry of Law and Justice (Legislative Department), 23.12. 2005.

⁵ Lalthakima., 'M.N.F Movement in Mizoram,' Malsawmdangliana & Rohmingmawii., (Eds.,) *Mizo Narratives: Accounts from Mizoram*, (Bhabani Offset Pvt Ltd, Guwahati, 2014), p. 289.

⁶ <https://en.wikipedia.org/wiki/Mautam> accessed on 5th July 2019.

⁷ Lalthakima., 'M.N.F Movement in Mizoram,' Malsawmdangliana., Rohmingmawii., (Eds) *Op.cit.*, p. 289.

R) Department whose function was confined to giving immediate relief and rehabilitation to the victims of natural calamities. When Mizoram became a full-fledged State in 1987, a new allocation of business was notified by the Government of Mizoram.⁸ Since then, the purview of the Department has been widened to the Pre-Disaster Management besides giving immediate relief and rehabilitation. As such, the Relief & Rehabilitation Department has been renamed as 'Disaster Management and Rehabilitation Department' to shoulder wider responsibility of disaster comprising more subjects.⁹ On 23rd May 2006, the Government of Mizoram constituted the State Disaster Management Authority as per Section 14 of Chapter III of the Disaster Management Act, 2005. It holds the responsibility for laying down policies and plans for disaster management in the State. The State Executive Committee was also constituted on the same day as per Section 20, Chapter III of the Disaster Management Act, 2005. The Act also gave provisions for the creation of District Disaster Management Authority in all the districts of Mizoram.

Disaster management is everyone's responsibility. The state of Mizoram in anticipating future disasters has initiated efforts and measures in different directions to handle disasters. A holistic preparation to a disaster resilient state can be achieved by encouraging greater awareness and networking to the community through strengthening and capacity-building, and improving government policies and programmes.

⁸ Government of Mizoram's *Notification No. J. 12011/11/87-POL* dated 23.3.1987.

⁹ Government of Mizoram's *Notification No. A. 46013/2/2006-GAD* dated 24.8.2006.

1.5 Review of Literature

With a view to doing justice to the objectives of the study, the review of literature has been organised under the following heads:

1.5.1 Review of Literature Relating to Disaster Management

Bird (2019) in his book *Natural Hazards and Disasters* discussed the vital theories in the field of natural hazards. The book explored the different approaches, methodologies, aspects and different studies of disasters in the present day scenario. He divided hazards into geophysical hazard and biological hazards and gave a detailed analysis and data on each of them. He also emphasized the negative impact of hazards on people and their environment.

The article *Some Aspects of Disaster Mitigation and Management in India* by **Das** (2002) covered the importance of proactive mitigation, rescue and relief, health and medical services, role of administrative coordinators and reconstruction and rehabilitation in disaster management. The present scenario of India calls for a need to review the current practices of town planning and land use policies. It may be difficult but not impossible to have a strong political will to carry out necessary regulations and control mechanisms. There should be a compulsion to implement the building regulations, bye- laws, city planning more critically.

Gandhi (2007) in his edited volume *Disaster Mitigation & Management: Post Tsunami Perspectives* remarked that the occurrence of Tsunami disasters and intense floods have become a regular occurrence in India since 26th December, 2004 affecting both the people in coastal areas, and the inhabitants of the surrounding

areas. It is realized that in emergency situations, the communities need to be oriented and informed of how to tackle emergencies. Recently, there has been a paradigm shift to an eco-centric approach from an anthropocentric approach. This is required for a holistic understanding of natural calamities. Not only are the prevailing social and economic conditions of human activities affecting the vulnerability, but also the physical components. The book also reflected on the post Tsunami rescue, relief and rehabilitation experiences contributed by various donor agencies and Non-Governmental Organisations.

Gaur (2018) in his book *Environmental Engineering and Disaster Management* revealed the correlation of the practical problems and the fundamental solutions faced by the Earth due to disasters. The book provided basic information about environmental engineering and how it can improve the quality of the human life and the eco- system. The book prepared for practical applications of dealing with environmental problems which is the real need of the hour. It also contains sketches, authentic information, projects, schemes, examples and different manuals on solutions to environmental degradation.

Gautam (2007) in *Environmental Geography* discussed about the two main branches of geography: human geography and physical geography. Human geography according to him deals with the spatial facet of human existence and physical geography studies the aspect of natural land forms, vegetation, soils, water and climate. He continued with the global community's effort to achieve the goal of sustainable development. However, colossal destruction of nature and environment has been caused by various economic activities. Human interaction with the

environment has led to disasters as a consequence of human- created vulnerability. He also stated that the entire human existence stands on the edge of ecological, demographic and economic disaster. The several environmental threats faced by the world today are the creation of man himself.

Ghosh (2015) in *Disaster Management* (Volume I-VI) discussed how difficult it is to measure disaster, and that it may have various limitations for a particular family, region or country depending on its impact and type. In addition to a detailed study of natural and manmade disasters in the entire volume, he discussed about the importance of analysing citizens and government's behaviour while causing disaster as well as reacting to it. He also gave an account on how bureaucratic and political corruption can be a cause of disasters citing various examples. He stressed on the importance of better planning and education to avert major accidents and disasters and that problems can be prevented if there is people's democratic movement and honest as well as truthful press that should remain vigilant.

Volume 1 covered accidents, risk assessments, flood hazards and the governmental and non- governmental efforts in disaster management. It also covered the classification, nature, development, fundamentals and characteristics of disasters under the ambit of disaster management. *Volume 2* analysed cyclone and typhoon hazards, tornado hazards, wildfire hazards, hazards of drought and famines and, hazards due to lightening. *Volume 3* deliberated on the hazards of earthquakes, tsunami and landslides. *Volume 4* summarised the effects and consequences of the hazards of epidemics, Mafias, communalism and war while *Volume 5* revealed the

hazards of insurgency, New World Order and environmental decay. *Volume 6* covered refugee problems, politics and the future world, hazards of corruption, Gandhism and the future world.

Goel & Kumar (2002) in their edited Volume on *Disaster Management* maintained that natural disasters are a part of the environment in which we live. The book is in response to the challenges thrown before the administration in the wake of the Gujarat tragedy in 2001. The book strongly voiced on issues such as the lack of efficient organizational set up, lack of effective administration to deal with disaster issues from all angles, apathy on the part of key political elite and top bureaucrats, lack of communication and effective leadership to deal with calamities, lack of coordination and cooperation between agencies engaged in earthquake relief, lack of concerned interest among Universities and Research Institutions in disaster management knowledge, lack of attempt by government and urban authorities to make safer infrastructures to withstand the effects of earthquakes, no attempt on the utilization of multilateral technical assistance of the UN system, inaction of concerned authorities in the Gujarat earthquake, no sincere efforts and dedication to post recovery of earthquake victims and, the need to keep up the morale of the community to empower themselves.

Husain (2006) in his book on *Natural Disaster* outlined that it is necessary to manage floods for reduction of damaging properties and, loss of lives of human and livestock. The repeated flooding in the country has led to inflation and unemployment rate as it has affected supply chains, damaged crops and hampered industrial production. The severity of the problem is caused by the minimal

investment of the governments in coping problems of climate change and natural disasters. Although district and provincial disaster management authorities exist, they still lack trained staff and financial resources. The introduction of flood resilient crops and building structures that would withstand flood- prone areas is highly recommended by experts to minimise economic loss due to floods.

Kapur, et al. (2005) in their book *Disasters in India* presented the hard cold realities in the context of natural disasters in India. The reality exposed is that the people of India have converted India into a land manifested with disasters. The book challenged the popular belief that disasters are acts of nature and that the majority of the disasters are caused by human interaction with nature. The weaker sections of society are the ones to suffer the most from disasters. The book covered and examined the dimensions of disasters that have occurred in the cities of Delhi, Mumbai and Kolkata. It made an in-depth study of the Bhuj Earthquake in Gujarat and it also unveiled the vulnerabilities brought about by the problem of urbanization and population growth, economic growth and developmental course of actions, the hazardous conditions of industrial and factory workers, the growing disparity between rural and urban dwellers and vehicular and railway catastrophes.

Kaushik & Rituraj (2008) in their article *Managing Natural Resources for Disaster Reduction* stressed that neglect of natural resources leads to disaster. The article revealed that according to the High Powered Committee Report of 1999, India is vulnerable to more than 30 kinds of disasters due to the tough topographic conditions and the unique geo climate of India. It is estimated that about 59% of the Indian land mass is vulnerable to earthquakes, while 25% is susceptible to landslides,

and 28% vulnerable to droughts. 8% of India is vulnerable to cyclones and 12 % of total area are flood prone areas. On an average, 50 million people in India suffer due to disasters.

Murthy (2007) in *Disaster Management: Text and Case Study* has attempted to bridge the gap in the availability of information on disasters. It spelt out the need for better disaster management that would bring relief immediately to the victims of the tragedy. Tracing from the Kyoto Protocol to the various occurrences of disasters in India like the Burj Earthquake to Hurricane Katrina, the author studied the programmes and measures undertaken by various disaster management authorities. Each state has constituted its own Disaster Management and Mitigation authorities. In due course of time, these authorities will look into long term solutions with a view to a more permanent solution that could improve the safety as well as the quality of the people who are being subjected to man- made or natural calamities from time to time. The author also highlighted that secondary to the authorities, training and motivation of the people are vital components of any effort to make people, involved in disaster management, to give out their best.

Narayan (2000) in his book *Anthropology of Disaster Management* rightly said that disaster management is going to be a vital discipline of study in the 21st century. Disaster continues to strike in all parts of the world, with regularity. The more the mankind has progressed and developed, the weaker it becomes to the blows of disaster. The book studied natural and man- made disasters in the Indian context. It made an anthropology of the different dimensions of disasters that has occurred in India. Tracing from the disasters that took place during the British Raj to the Famines

in Bihar in the late 18th Century to the coal mines disaster management, it studied the programmes and planning in disaster mitigation and preparedness that has developed over the course of time.

Narayan (2008) in his book *Environmental Studies* critically examined the approaches to teaching about environmental issues to ensure that it helps scholars concentrate on causes instead of symptoms. He wrote about the importance of the participation of all segments of society to achieve a healthy and sustainable environment for all sections of people. He also mentioned that in talking with environmental education professionals, it became evident that there were inadequate tools for developing awareness and skills needed to work effectively with culturally diverse audiences and colleagues. The book gave a conceptualization of understanding the natural environment and its relationship with human activities. It analysed how the human activities impact the environment and the book also made a lengthy research on facts, concepts, and methods and how to apply them to solve environmental problems.

Pachau Rintluanga (2009) in *Mizoram: A Study in Comprehensive Geography* recorded and illustrated the regional characteristics of Mizoram from a geographical viewpoint. Besides analysing the demographic aspects of the State, the book also reflected the cultural background, early settlements in the region, economy of the State and the political accounts of the region. The text is supplemented with maps, cartograms and tables. The author pointed out that the geology of Mizoram has not been studied in detail due to rugged inaccessible terrain and thick vegetation coverage. It is the geological structure which exerts an indirect influence on the

process, and on evolution of landforms which ultimately controls and restricts the human activities. The geological structure has a bearing not only relief and landforms of a region, but also on the distribution of minerals, water table, rocks and drainage etc.

Sahu & Mahapatra (2004) in their book on *Post- Disaster Management of Super Cyclone* brought out to the fore the suffering and agony of the people of Orissa living in coastal belts after the super cyclone. For this book, a survey was conducted in 12 villages which were most affected, by administering questionnaires to 80 persons who were affected by the cyclone and those who were present during emergency relief operations. The authors also conducted a case study on Jagatsingpur district which was hit the hardest. The survey revealed that despite timely warning, some women of the threatened population did not evacuate for reasons, resigning to fate, waiting for their husbands to return home, and not paying heed to warnings seriously. 83.75 % of the surveyed respondents have lost at least one family member due to the super cyclone, the storm surge being the main cause. The respondents who did not lose family members own Reinforced Cement Concrete (RCC) houses, some evacuated on the cyclone warning; and some took shelter at the Cyclone shelter. The authors also gave a brief account of the rescue and rehabilitation measures taken up by the Red Cross Organisation during the time of Hurricane Katrina in the United States.

Satendra (2003) in *Disaster Management in the Hills* critically examined the strategies and approaches for disaster management by adopting ground-breaking ways of connecting disasters with development plans and policies. The book contains

10 chapters with details about the natural disasters in the country, particularly in the hill areas and problems being faced in their management. He carried out an extensive survey in some disaster affected parts of the hill areas. This is so because the hill areas are physically, socially and economically vulnerable to natural disasters which for this purpose he made a case study on Uttarakhand. The author made a critical analysis of the views of the various stakeholders in the context of prevailing Disaster Management policies and planning. After critically analysing the situation, he suggested a 'model' by adopting innovative ways of linking disaster management with sustainable rural development. The use of the 'model' is suggested to formulate appropriate disaster management plans and their implementation to get better results in the field of disaster management in hill areas of the country.

Sati (2017) in his book *Cultural geography of Uttarakhand*, Himalaya passionately talked about the interaction of culture with three major attributes i.e the land, the people and the culture. He is also of the opinion that geography shapes culture and culture in turn shapes humans. The more interaction humans have with the geographical attributes, the more they are impacted by them. The geographical attributes such as landscape, climate and location influence culture- rituals, customs, life style, clothing, food habits, and habitats. Every human activity is dominated by nature. The book is a presentation of a holistic view of all the cultural, socio-economic and natural aspects of beautiful Uttarakhand.

Sharma (2019) in his book *Disaster Management* explained the term Disaster Management in terms of programs and resources, the programs and resources which will serve as instruments to respond to emergency situations caused

by natural or unnatural events. The programs are then classified into preventive programs, protective programs, preparation programs, reduction programs and relief operation programs. The book also attempted to analyse the effects of disasters in social and environmental issues.

Singh RB (2006) in his edited volume on *Natural Hazards & Disaster Management* has maintained that with the rapid urban growth and development of human settlement in disaster prone areas, the people and their assets become more and more vulnerable to the natural hazards. There has been a shocking rise in the number of disasters in the past ten years and the occurrence of disaster is three times higher worldwide than it was in the 1960s. The arena of disaster mitigation is starting to engulf the aspect of development planning, policy formulation and implementation. There is an increasing recognition of the fact that relief, rehabilitation and other disaster mitigation actions should be coupled with interventions aimed at development. The book contains 22 chapters covering conceptual and empirical case studies from India and other developed countries.

Singh (2007) in his edited volume, *Disaster Management: Future Challenges & Opportunities* exposed the weakness of disaster management system of India and at the same time showcased the potentialities to improve and develop the system. The paradigm shift of Disaster Management- from post disaster relief and rehabilitation to a holistic approach of mitigation, preparedness and prevention to the post disaster measures are covered in this book. Emphasis is placed on structural and non- structural mitigation measures. It is a possibility that we have to live with a

certain degree of hazards and vulnerabilities and be geared up to face disasters, but in a manner that losses of life and property can be decreased to a minimum.

Singh & Singh (2004) in their paper on *Natural Disasters: Vulnerability, Preparedness and Mitigation* presented an analysis of natural disasters in Indian context and suggested strategies for mitigation of natural disasters. There has been an increasing losses on account of rapid urbanization and population growth as a result of which the impact of natural disasters is now felt to a large extent. This book had made an attempt to provide an essence of current and relevant information on technology hazards and environmental hazards leading to natural disasters in the end. The book has provided a comprehensive account of natural and man- made disasters with in depth account of the natural disasters in India along with rehabilitation, response and recovery and social and gender issues. The book also provided a thorough reference section showcasing the sources of authentic information on which conclusion may be derived.

Sinha (1998) in *Introduction to Disaster Management* highlighted the importance of education, mass media, economic and social sustainability for disaster management. He analysed and suggested solutions to problems like resettlement, rehabilitation, relief-management, disaster control, institutional framework and, international co-operation. Disaster control and mitigation measures have been gradually attaining a level where it could be awarded as a subject to be exclusively taught or practiced. Contemporary natural and man- made disasters; Dimensions and typology of disasters; Risk assessment and disaster management; policy initiatives and future prospects; case studies; and disaster mitigation are the themes elaborately

discussed in this book. To improve disaster management strategy and to enhance the resources of mitigation, intensive training for developing human resources should be established to improve awareness and capabilities.

The main objective of the book *Disaster Management* by **Subramanian** (2018) is to create awareness and understanding of how disaster mitigation is the first cycle of managing disasters. It enumerates the basic disaster management concepts in India and other countries and thrusting importance on structural and geotechnical engineering. Building Design Codes, Ethical Codes, Codes of Practice and National Building Codes have been thoroughly discussed in this book. He also mentioned about the current status of India in disaster management and the need for increased international cooperation.

Sujata (2010) in the article *Disaster Management Education in Human Schools: Gaps, Challenges and a Human Resource Plan Model for School Education Sector* revealed that the importance of safety education has been realized very late towards the end of the last decade only after the school sector in India was affected by devastating disasters. Courses on disaster management have been included in school textbooks lately. The author is of the opinion that targeting young minds would ultimately strengthen the disaster prevention and mitigation measures. It would result in a more effective disaster risk reduction in terms of cost, loss, damage, environmental degradation and vulnerability. The article reviewed the status of Disaster Management by certain education boards and brought to light the gap between theory and practice. The article also made a comparison of global experiences and the Indian experience in disaster management.

Swain, et al. (2006) in their book on *Disaster & Gender: Impact of Super Cyclone on Life and Livelihood of Women* analysed disaster management from a gender perspective. The gender dimension in disaster management is a field that is not explored enough by theorists, planners, researchers, activists and scholars. They concluded that there is absence of gender focus in disaster management, especially in relief interventions, reinforces gender and class biases. At the same time disasters sometimes not only produce disruptive and disorganizing effects but also generate reconstructive and regenerative human responses, which help in creating a more peaceful society. Hence, there is a need to create gender awareness among policy makers, civil society organizations, donor agencies and those working to protect the community from the effects of disasters. A goal should be set to attain a gender equal society when facing disasters.

UNDP (2005) in *A Recovery Framework in Support of Government of India for a Post-Tsunami Rehabilitation and Reconstruction programme* stated that the overall objective of the Recovery Framework of the UN System in Support of Government of India for a Post- Tsunami Rehabilitation and Reconstruction Programme is to define the approach of the United Nations in facilitating the rapid recovery of the affected populations. This approach is designed to lead to both recovery and the expansion of opportunities for sustainable development, and the reduction of future disaster risks.

The Framework is designed to contribute to sustainable livelihood recovery, to help plan for the rehabilitation and rebuilding in a way that promote livelihood recovery, the expansion of income and employment opportunities, and, at the same

time, also reduces risks. It is also designed to provide for the strengthening of institutional capacities for identifying and managing disaster risks, in a multi-hazard framework.

Yadav (2011) in his book *Disaster Management in India- Acts: Policies: Guidelines* covered the institutional frameworks of Disaster Management along with the acts, policies and guidelines formulated by the Government of India. He opined that disasters in the urban areas are distinct in several ways and the intensity and strength of destruction is higher than that of the rural areas. There should be a quick action plan to check unplanned urbanization to guarantee safer human settlement against. It should prioritize the urban areas from all forms of disasters as they are more prone to accidents and hazards. Developmental efforts and environmental undertakings should be synced up for ensuring sustainability.

1.5.2 Review of Literature Relating to State and Local Government

Arya (2004) in his article *Engineering Role in Earthquake Disaster Reduction in India* examined the role of engineering in earthquake disaster reduction in India. He also analysed the statistics pertaining to earthquake vulnerability and disasters in Indian sub-continent. In the developing countries more than 90 percent of the population are still living and working in non-engineered buildings standing on moderate and severe seismic zones. Losses of lives during earthquakes have occurred due to collapse of buildings.

While addressing this situation, he reflected that the present disaster management policies of the governments in the developing countries do not address the issue of preventive actions for the safety of such buildings towards seismic risk

reduction. The development plans do not consider safety hazards as a priority on their projects and the building by- laws of municipalities and corporations do not prioritize the importance of earthquake resistance buildings. The Building Codes and Guidelines remain mere recommendations of good engineering practices. Their implementation depends upon the final power of the Heads of Agencies, Departments, Organisations, Institutions owning the buildings and structure in the public and private sectors. Private individuals have by and large remained uninformed.

Barthwal & Sah (2008) in their article *Role of Governmental Agencies in Policy Implementation* criticized the permanent executives in India stating that there are defects in policy implementation which results in much delay and inefficiency in the execution of policies. The problems faced by the bureaucrats and civil servants in implementing policies are that the policy sometimes lack farsightedness and the formulators do not have clear vision and range planning while framing policies. There is confusion in the legal terminology used in the policy statements which is difficult to interpret, and finally the policy statements are not clearly worded enough.

Chandrashekharan & Gupta (2011) in their article *Role of Legislations and Policies in Reducing Disasters and their Impact* summarized reducing disasters and their impact through legislations. Legislation is necessary so that there is proper institutional systems, policy implementation, local participation, planning and, coordination. The article gave an account of the Disaster Management Act, 2005 which established several institutional mechanisms and various wings for undertaking a holistic, prompt and coordinated response to any disaster situation. It

also mentioned the Policy for Natural Disaster Management drafted by the National Disaster Management Authority (NDMA) in 2009 whose features include drawing out vulnerable zones on the map of India to various types of disasters.

In his book *Disaster Management: An Appraisal of Institutional Mechanisms in India*, **Dagur** (2011) pointed out that Disaster Risk Management must be the responsibility of governments. Certain disaster committee and teams are constituted at the block and village levels. At the village level, the Disaster Management committee will consist of members of youth organisations like National Service Scheme (NSS) and Nehru Yuvak Kendra Sangathan (NYKS) along with other non-governmental organisations as well as volunteers from the villages. The author continued to highlight the provisions of the 73rd and 74th Constitutional Amendments recognising them as ‘institutions of self-government’. The local bodies can be effective agencies in tackling disasters through medical assistance, relief distribution, providing shelter to the victims or through early warning system.

In an article entitled *Disaster Management: Role of Urban Local Bodies*, **Dhaliwal S.S** (2016) highlighted the role of town planners, engineers, developers, builders and architects of the local bodies in disaster management and the importance of building regulations and guidelines. The urban local bodies are required to constitute a committee where a plan can be formulated for preparation in both pre disaster and post disaster aspects. He suggested that in view of the 73rd and 74th Constitutional Amendment Act the government should hand over the regional planning aspect as formulated under the 12th Schedule to the Panchayati Raj Institutions (PRIs). The recommendations suggested by the National Building Code

and Bureau of Indian Standards in municipal by-laws and zoning regulations should be incorporated.

Goel (2010) in his *Management of Natural Disasters* gave a case study of cyclones in Andhra Pradesh, drought in Rajasthan, floods in Assam, Bihar, Arunachal Pradesh, Maharashtra and Karnataka and avalanche and landslides in Jammu and Kashmir and how the state governments were actively involved throughout the crises. He revealed how certain state crisis group of the states under the chairmanship of the Chief Secretary would meet every day to review the situation. The state governments took necessary rescue and relief operations which include ex- gratia relief to the next of kin of the deceased, to the persons severely injured and also persons with minor injuries and, also for partially damaged houses and fully damaged houses. Deputy Commissioners of affected districts provided monetary assistance for undertaking immediate rescue and relief operations. Civil administration with the help of armed forces and police forces made full efforts to reach out to remote locations in different districts for search and rescue operations. Relief materials were being air- dropped in far flung areas.

Kalsi (2013) through *Monitoring and Forecasting of Tropical Cyclones and their Associated Effects* revealed the importance of warning systems through proper communications in times of disasters. He mentioned how in one of the recent surveys, it came to his notice that some fisherman go fishing at the time of cyclones with the hope of getting a bigger catch of fish, which is their livelihood. In order to prevent such activities, the proposal of supplying free, dry rations to the fishermen likely to bear the brunt of the cyclone must be considered by the government. The

government must also create a reliable communication system based on state-of-the-art technology as an essential requirement for an effective warning system. He also mentioned that the use of conventional local warning systems such as sirens, loudspeakers, door-to-door visits, which are community based approaches, should also be applied. For the dissemination of warnings to the fishermen at sea, direct satellite broadcast can be employed by the government.

Lallianthanga (2013) made a detailed study of the role of the Police force in crowd management in his article entitled *Crowd Control and Law & Order*. He gave an elaborate meaning of crowd control and classified the assemblage of people into lawful assembly and unlawful assembly. He mentioned that the Police forces are the second responders in all events of disasters and it is the first priority of the Police to carry out the duties of crowd control, public safety and directing traffic. In every disaster scenario in a small state like Mizoram, there are people hoping for a glimpse of the unfolding calamity, unruly volunteers who toll around the area to lend their effort, looters who take advantage of a chaotic situation, family members and friends of the victims showing up at the scene hoping to get information about their loved ones and, the surfacing of numerous vehicles around the vicinity which cause road blocks and traffic congestion. So it is the foremost duty of the Police forces to maintain law and order and the control of crowds so that the cases of disasters do not get worsened as it has been in the past years. To prevent all this, the Police forces in Mizoram have to be regularly trained to respond to crises and calamities.

Nagar (2010) in *Disaster Management* accentuates the role of the government in disaster situations. She mentions that a variety of theories, the most

important being Keynesianism, Welfare Economics and early “development economics” catapulted the role of state to newer heights. With the help of these theories, a number of ‘market failures’ were identified and that state involvement was necessary for its solution. There is a failure in providing social security and social protection because the state administration is run by politicians and bureaucrats who are self- seeking who are also under pressure from certain interest groups. When there is an occurrence of disaster in the community, the gigantic task of rehabilitation is put together through the efforts of the civil society made up of non- governmental organisations (NGOs), member based organisations (MBOs), individuals and social networks.

Pandey (2014) in her book *Disaster Management* analysed that although there are national and international agencies out there to tackle disasters, in reality it is the prime duty of the state and local bodies to ensure that the aid reaches the victim. It is in the hands of the state and local bodies to coordinate the implementation of the national disaster management policy in the state. The state level committee headed by the Chief Secretary of the State will undertake the relief operations in the state in times of disasters. The relief commissioners who work under the direction and control of the state level committee will be in charge of the relief and rehabilitation measures. The instruction manuals on relief and rehabilitation are in the hands of the state government and the contingency plan is with the local level agencies which are updated from time to time.

Patel (2009) in his article *Reinventing Local Governments: People’s Participation Empowerment* analysed that the participation of people at the grass root

level is a tool which helps the people to realize that they can control their lives and livelihoods. He mentioned that participation can be promoted through community organisations based on certain principles. Local institutions should function in a human and purposeful way and not as machinery. The relationship between the citizen and the administration determines the success of any governmental institution, whether national, state or local.

Singh (1993) in his article *Significance of Training and Education in Managing Natural Disaster* elaborated three distinct categories of groups that need to be trained in disaster management, viz., community groups, voluntary agency personnel, and the governmental officials. Training and education programmes are organised frequently at the local level motivate these three groups. At the village and block level, joint programmes are organised, besides the development of individual capabilities and skills. In managing natural disasters promptly and effectively, training and education are areas of utmost importance.

In *Disaster Management*, **Sulphey** (2016) analysed the concept of Disaster Risk Governance (DRG) which is a new and evolving area. It is the governance of disaster risks as the name denotes. The objectives of the DRG include generating political cooperation in all levels of government authorities, so that disaster risk governance is promoted as a multi- sectoral objective. It also includes increasing of gender sensitivity and encouragement of a wider participation by various stakeholders, including private players and civil society.

At the international level, DRG has become a priority that several governments have developed a number of policies and framework since 1990s. The essence and content of this framework is expected to lead to a sound DRG.

In *Building Codes and Land Use Planning: Challenges and Development and Enforcement*, **Surjan & Shaw** (2009) pointed out that the major stakeholders for Building codes and land use planning are the governments, professional bodies and, financial institutions. Therefore, the mechanism of multiple players is important in this development. The main aim of Building codes and Land use planning is to strengthen mechanisms for securing the safety of housing, infrastructure and other buildings, and for protecting critical facilities and departments; thus reducing loss of life and property, as well as the cost of recovery.

The governments and ministries will be responsible for housing, infrastructure, healthcare and critical facilities. The professional bodies will include architects, engineers, town planners association and other specialised bodies such as association of structural of building engineers. The financial institutions will consist of banks, insurance companies, money lending agencies, housing financing companies and infrastructure development lending institutions.

Disaster Management through Panchayati Raj by **Taori** (2005) is a valuable contribution to the study of the role of Panchayati Raj in disaster management. Based on a study under the guidance of Indian Institute of Public Administration, New Delhi, he discussed at length the challenges of disaster management and Gandhian principles for sustainable human development. The book explored the role of community based organisations, NGOs, World Associations of Small and Medium

Enterprises, Information Technology, the convergence of delivery system and the Inter- State Council Secretariat in the mitigation of disasters. The means and ways for empowering the Panchayati Raj Institutions have also been highlighted. This is necessary as Panchayats can be an effective institutional arrangement to deal appropriately with the emergency responses within their jurisdiction. They can strive to manage disasters efficiently because of their proximity to the local communities and better information of local issues.

1.5.3 Review of Literature Relating to Civil Society

Andharia (2002) in her article *Institutionalising Community Participation: The Challenge in Disaster Management Practice* made an account of the importance of community participation in disaster management. In India there is a misconception that the local people are mere spectators thwarting rescue missions. But in reality, it is the community that provides the initial rescue and first aid in any event of disasters. Ideally, the community participation should aim at empowerment to increase people's capacity to take up actions and influence decisions to increase competence in disaster mitigation and relief and rehabilitation works

In his book *Disaster Management in 21st Century*, **Bose** (2014) reflected that economic growth is one way of elimination of the vulnerability of poor people. As their income rise, they have better resources to manage risks. The book focused on risks that affect the weaker sections of the society such as illness and injury, old age, crime and domestic violence, unemployment and other labour market risks, harvest failure and food price fluctuations and studied each heading in detail. It continued with the solving of the problems through different components such as responses to

risk by households and communities, mitigating risks through diversification, migrating risk through insurance, policy responses for improving risk management, identifying sources of risk and vulnerable groups and, identifying the optimal mix of risk management interventions

State and Society in India: Essays in Dissent by **Desai** (1975) is a collection of 12 essays and is grouped into three parts. Part I opened with the concept of social system and defined the major components of Indian society. Part II deals with two kinds of social change, periodic and systematic components of society while part III deals with politics and development in India. The essays have emanated from the author's continuous and critical observation of social change that has taken place in India after Independence. He also made a note on the socio- historical forces that gave birth to national consciousness. It is an analysis pointing out the fallacies of theoretical approaches adopted by Social Sciences. He made an account of the central features of the approaches to the study of modernization followed by a brief summary of the processes implied in the western concept of modernization.

Much of the work on the article *Impact of Riots on Children* by **Dhavale**, et al. (2002) focused on the Post Traumatic Stress Disorder (PTSD) and related symptoms of children who have been affected by riots, catastrophic disasters and violence. As always, it is always the children who suffer the most in a variety of ways. Their studies revealed that children exposed to violence may develop symptoms such as anxiety, depression, irritation, distraction, dissociation, loss of impulse control and impairment of learning abilities. They express shame, rage and betrayal which are manifested by rebellion, dropping out of schools, drug use and

running away from their homes. They also gave an account of professional help through counselling, psychotherapy and behavioural modification to reduce the impact.

Kedare & Dhavale (2002) in their article *Effects of the Marathwada Earthquake on Widows and Married Women* discussed about the effects of the Marathwada Earthquake on the mental wellbeing of widows and married women of the region. The Marathwada Earthquake that struck in 1993 resulted in the death of over 8,000, people injuring 16,000 and over 1, 00,000 lakh becoming homeless. The findings of the article were that the incidence of Post-Traumatic Stress Disorder (PTSD) in widows is 40 per cent as against 10 per cent in married women. The three conditions i.e, depression, neurotic feeling, and cognitive performance difficulty were significantly more severe in widows than in married women

Kumar (2000) in his article *Disaster Management and Social Development* studied disasters and social response. Any study of environmental hazard will have an interconnection with the complex interaction between physical and human systems, since no hazard can exist unless it provokes a human response. He classified disasters into endogenous disasters and exogenous disasters. He defines endogenous disasters as the distress maybe biological, economic and psychological and it maybe inflicted on one section of the community. Exogenous disasters are on the other hand defined as a community or society shares destruction, injury, danger or disruption of the social structure at a concentrated time and space.

Lalthangliana (2013) in his book entitled *Mizo Culture* pointed out the many aspects of the Mizo culture. He analysed the uniqueness of the Mizo festivals, dance,

habits and traditions. He gave an insight to the element of 'Tlawmngaihna' and how it still prevails today despite many scholars stating its decline among the Mizos. He outlined the relevance of *Hnatlang* in the Mizo community and how it is a means of response and relief in times of calamity. The quantum of influence and impact the (YMA) Young Mizo Association has on the Mizo community at large is also highlighted.

Analysing the article *Partners in Development: A Reflection on the Role of NGOs*, **Mohanty** (2004) highlighted that the NGOs are the instrument of bringing large scale sustainable changes at various levels of society. The article highlighted the trends and future prospects of development, dialectics and dilemmas within the society, people's participation in development, social mobilization and cultural issues, management education and NGOs as change agents. It looked at NGOs as innovators and entrepreneurs who take risks and venture on to newer dimensions.

Patnaik (2014) in the edited book *State and Civil Society in Mizoram* asserted that the civil society groups have been responsible for the peace that has been prevailing in Mizoram. He explained that the pace of transformation of the society from a traditional to a modern society is very slow. In the process, community initiative overrules individual initiative in the society. He mentioned that the peace and development in the state has a simultaneous connection with the socio-cultural and economic factors. Discontentment is inevitable in all societies yet it should not be allowed to fester to the extent that peace is lost.

In his article *Participative Approach to Rural Development*, **Sharma** (2009) revealed that it is now an accepted fact that 'rural development' simply does not

connote just to 'agricultural development' anymore. It has encompassed all development of rural areas integrating in it all other activities like that of landless labourers, marginal farmers, small artisans, traditional handicraftsmen, locally based small scale industries and allied activities. He clarified that the reasons of past failure of efforts towards agricultural projects in rural areas were due to the non- integration of masses. Little was done to build independent organisations to solve local problems in the past. Now it would be possible to frame programmes out of village experience through client's participation. Consequently the development process would be viewed as a 'learning experience' for all participants

Singh (2016) in his book *Political Scenario of Mizoram- Past and Present* elaborated the tremendous impact the church and the NGOs have in electoral politics. Since Mizoram is a predominantly Christian state, people have been under the strong influence and tight grip of Christian religion. The church plays an important and effective role during the election time by directing the course of election to be clean, healthy and peaceful and free from violence in any form. The church bodies, the Presbyterian Synod Church in particular, started releasing its 'Election Message' since the first assembly elections held in 1972. It appealed for conducting free, fair and peaceful elections. In 2005, the representatives from different churches and NGOs came together and formed the Mizoram People's Forum (MPF). It is a crusade aiming at free, fair, clean and inexpensive elections.

The author reflected how NGOs in Mizoram particularly the Young Mizo Association (YMA) play their due roles during elections by way of issuing election messages and election guidelines to the political parties and contesting candidates.

The Central YMA's collective leadership and their subordinate branches continue to extend their efforts aimed at securing free, fair and peaceful election in the state.

In *Development and Local Administration*, **Singh & Singh** (1992) commended that the Non-Governmental Organisations are one of the instruments of development administration that has moved away from bureaucratic organisation to search for a debureaucratized and decentralized social efforts. The NGO members whether they are paid or unpaid, their voluntary action are local by nature. The book also highlighted how during times of crises the NGOs have taken action on their own initiative and not waiting for the government to undertake action. This is because a very significant attribute of the NGO is provision of human touch and flexibility.

In India, traditionally, the major role of the NGOs is to stimulate active participation of the community members. As poverty and overpopulation is extensive in the country, people's participation is important in the society as it plays a key role in anti- poverty and social welfare programmes.

In her article *Development of Non- Government and Community- Based Organisations in Solid Waste Management Collection Scheme*, **Snel** (2001) explored the important role of community based organisations and non- government for efficient and effective solid waste management services in the city of Hyderabad. Recently, stakeholders such as local government, Non- government organisations (NGOs) or Community based organisations (CBOs) and citizens have a hand in the collection and processing of waste, specifically in India. She highlighted that the only solution to the urban environmental problem is the integration of waste management services with informal recycling activities through a systematic waste

collection scheme. This can be turned into reality only with the participation of the local government and the community.

The above review on books and articles simply demonstrate that there is a paucity of literature and data on the role of government and civil society in disaster management in Mizoram. The role of local governments in disaster management has to be examined and strengthened in order to aware, sensitize and prepare communities for disaster management and response. Thus, the proposed study is expected to fill up the academic gap and will provide an academic interest to the policy makers and administrators for understanding the dynamics of natural and man-made disasters and enhancing the role of state government and civil society in managing and responding natural and man-made disasters.

1.6 Statement of the Problem

Mizoram receives the onslaught of monsoon in the form of cyclonic storms, hailstorms and excessive rainfall for 6 months every year. During this rainy season, the state experiences numerous cases such as land sinking, landslide and earth cracking, endangering the very habitation in the city and other settlements. The inhabitants are also likely to suffer from landslide, cloudburst, lightning, flood and cyclone. The disasters faced have caused innumerable loss of lives, properties and other resources. Moreover with the increasing number of roads constructed in the hill areas and the surge of human settlement in physically unsafe areas, the number of disasters is expected to increase. The identification of hazards that can threaten the life and property of the community by the Government is still very weak. The local government bodies are also not free from irregularities and shortcomings in their role

as agents of disaster management. Is it possible for the people of Mizoram to place their trust on the government and its agencies for mitigation, prevention, preparedness of disasters and its rehabilitation, relief and response force?

The topography of Mizoram is composed of steep hills and deep gorges. The capital city of Aizawl is built on a cluster of steep hillocks with loose soils. Without proper implementation of land-use bye laws and building regulations the city has grown to an enormous hazard zone with lots of vulnerable multi storied buildings sprouting in all places. The lack of compliance of the building guidelines and codes by the people at large has majorly hindered the efforts to alleviate and control the disasters that lie ahead of us.

It is also a matter of question why the various civil society organizations are not actively involved in disaster management as they do in other States. The effective functioning of the non-governmental organisations is being thwarted by factors which need to be unearthed. The power of the civil society organisations remain one of the most effective influences on the community life in disaster management. Another crucial point remains to be the preparedness for compensation fund for disaster victims, be it landslide, flash flood, road accidents or collapse of buildings. The State also needs to see that the relief scheme and gratuitous fund is operational throughout the State for extending timely payment to victims of disasters.

1.7 Objectives of the Study

- to study different types of disasters in Mizoram.
- to expose different cases of disasters in Mizoram
- to study the working of the Disaster Management and Rehabilitation Department of Mizoram
- to examine the contribution of NGOs and community based organizations in enhancing the capacity of the state government in disaster management.
- to enhance the involvement of the local government and its various committees in calamity relief and preparedness
- to assess the overall performance of the State government in disaster management
- to examine the underlying obstacles in the way of rehabilitation and relief to disaster victims

1.8 Research Questions

- (1) Can the Disaster Management Department broaden their role and task to the remotest villages in Mizoram who are deprived of awareness of disaster management and control?
- (2) How important is the involvement of a large workforce of the local government in disaster mitigation?
- (3) Can people's participation and involvement in emergency situations make disaster management and mitigation effective and efficient?

(4) Is it possible to ensure timely availability of compensation funds to disaster victims and that there is flexibility in budgeting and financing from the donor agencies?

1.9 Research Methodology

Primary Sources

The study was based on secondary and primary quantitative as well as qualitative data. Quantitative data were collected by a Sample Survey of respondents through Questionnaire and Interview Schedule including phone interviews. A Structured Questionnaire covering the issues connected with the objectives of the study was constructed. A total Sample size of 400, out of which 115 were randomly selected from Elected Representatives, 95 purposively selected from Government Officials and 200 randomly selected from members of Non- Governmental Organisations representing the 8 districts of Mizoram was administered for this study. The primary data have also been collected through face-to-face interviews with 24 specialised personnel from each field of study. Telephonic interviews were also conducted on 4 (four) individuals having involvement in disaster management trainings who were out of station during the period of the study.

Secondary Sources

The study used secondary data collected from books, journals, research articles, newspapers, websites, government documents and records and, other relevant published or unpublished works which have been extensively utilised for the present study.

1.10 Scope of the Study

The vulnerability of any region or area towards disasters, both natural and man-made can never be clearly determined. Life is unpredictable and, under any circumstances, can lives and properties be lost in a matter of seconds. Disasters are not confined to a particular locality or community. Every walk of life, every phase of activity and every human being is affected by the peril of disasters. The study aims at preparing the community for preparedness, prevention, mitigation and, rehabilitation in a disaster prone world.

The study is delimited to Aizawl District only in *Chapter IV* as the chapter deals with the assessment of the Aizawl Municipal Corporation (AMC). The study has examined the implementation of the Disaster Management Act of 2005 in the different districts. The work has also disclosed cases where the efforts of disaster management have failed and exposed irregularities in the government, society and among the social institutions. It has also highlighted the assets and resources possessed by different concerned Government and Non-Government agencies in the State to raise disaster awareness, build community potentials to raise a culture of safety and resilience at all levels.

1.11 Operational Definitions of the Terms Used

By way of removing any possible confusion, some of the relevant terms used in this study have been clearly defined as follows:

Seismic Zones: The Earthquake Zoning Map of India divides India into 4 seismic zones (Zone 2, 3, 4 and 5) based on the basis of scientific inputs relating to

seismicity, earthquakes occurred in the past and tectonic setup of the region. Zone 5 expects the highest level of seismicity and Zone 2 is associated with the lowest level of seismicity.

Civil Society: A composite entity making up of individuals and organisations excluding the Government and the Army.

Institutional Mechanisms: All institutional authorities responsible for successful working of management of disasters including the appropriate Government, Public Authorities, Training Institute and Monitoring Institution.

Engineering Geologist: A geologist who is given license or recognized by the Aizawl Municipal Corporation to practice in the field of engineering geology.

Geotechnical Engineer: An engineer, given license or recognized by the Aizawl Municipal Corporation who is experienced and knowledgeable in the practice of soils engineering.

Civil Engineer: An engineer who has been given license or recognized by the Aizawl Municipal Corporation to practice in the field of civil works.

Building Official: A person authorized by the Aizawl Municipal Corporation to carry out all necessary activities for regulating building construction and site development works.

Permit Holder: Any person with valid permission or authorization in writing by the Aizawl Municipal Corporation or any person authorized by them on their behalf to carry out development of work regulated by these Regulations.

National Building Code of India: It is a comprehensive building Code first published in 1970 at the instance of the Planning Commission. It is a Code for providing guidelines for regulating building construction activities across the country.

Triage System: The assignment of degrees of urgency to wounds or illnesses to decide the order of treatment of a large number of patients or casualties. Red tags are used for those who have a chance of survival with immediate treatment. Yellow tags are used for those who require observation. Green tags are used for the wounded who will need medical care at some point. White tags are used for those with minor injuries and whom a doctor's care is not required. Black tags are used for the deceased and for those who will not be able to survive even if care is given.

1.12 Organisation of the Study

The present study has been organised into *seven* Chapters.

The *first* Chapter is the introduction which deals with the generic meaning of disasters including its classifications. The chapter also highlights the global and national scenario of disaster management leading to the current scenario at the state level. The chapter also presents the background of the present study, statement of the problem, literature review, objectives of the study, the research questions, scope and methodology adopted for carrying out the present study.

The *second* Chapter is an assessment of the concepts and dimensions of disasters, both natural and man-made. It gives a descriptive study of the affects and chaos caused by each disaster.

The *third* Chapter deals with the profile of Mizoram and the Mizo society including their history, culture and traditions. It also summarizes the topography, geology and the climate of Mizoram which play a factor in the occurrence of various disasters. The Chapter also gives an account of the valuable principles of the Mizo life which are indispensable for the management of disasters.

The *fourth* Chapter is an assessment of the role played by the local government in disaster prevention and mitigation. It makes a study of the acts and regulations which are implemented to create a community safe from disasters.

The *fifth* Chapter is the descriptive study of the various Non-Governmental Organisations in Mizoram and their respective involvement in disaster management. The Chapter has highlighted cases of post disaster relief and rehabilitation and response, giving emphasis on the Young Mizo Association (YMA). It has also studied the role of the other leading non- governmental organisations in Mizoram such as Mizoram Upa Pawl (MUP), Mizo Hmeichhe Insuihkhawm Pawl (MHIP), Mizo Zirlai Pawl (MZP) and the Church.

The *sixth* Chapter is an analytical study of the various stakeholders involved in the area of disaster management in Mizoram. Their role and contribution in the direction of disaster mitigation and post- disaster measures are highlighted. It has made an in-depth study of the nodal department that is the Disaster Management and Rehabilitation. It also studied the role of the Fire and Emergency Services Department, Directorate of Geology and Mineral Resources, Public Works Department, Department of Urban Development and Poverty Alleviation,

Department of Health and Family Welfare and, Department of Food, Civil Supplies and Consumer Affairs.

The *seventh* Chapter is the concluding Chapter which summarizes the findings of the study and the observations made during the course of research. It also presents the suggestions for improvement and elimination of barriers in disaster management.

1.13 Importance of the Study

The earthquake zoning map of India divides India into four seismic zones (Zone 2, 3, 4 and 5). Zone 5 covers the area with the highest risk zones of earthquakes intensity and Mizoram is one of the regions that falls in this zone. The study has revealed that the awareness of the public towards this information is very low. The setting up of disaster management authorities such as the State Disaster Management Authority and District Disaster Management Authority and the implementation of disaster mitigation measures are also very little heard of. This clearly calls for augmenting the domain of disaster management in Mizoram. Disaster is a team- based effort and calls for a unified coordination between the government, the civil society and the participation of the masses. It is also important to educate people about the implementation of certain disaster related plans and principles that are made by the government solely for the public.

CHAPTER II
DISASTER: CONCEPT AND DIMENSIONS

CHAPTER II

DISASTER: CONCEPT AND DIMENSIONS

2.1 Introduction

A disaster is defined as an event triggered by natural phenomenon or hazards affecting people and their built up environment.¹ A disaster could be a single or a series of events, which could cause equivalent damage to a population, an area or a system. The word 'disaster' has its roots in the Italian word *Disastro*. Disaster has a Greek negative prefix 'dis' which means 'bad', and the word 'aster' has its origin in the word 'astro' which means 'star'.² The combined expression is 'Bad or Evil Star'. In earlier days, a disaster was considered to be a calamity brought upon by some unfavourable star. In a matter of seconds, an entire region can see its resources destroyed, its economy crushed, and its people deprived of their livelihood. India leads the world in natural disasters.³ In the last two decades, it has got the most foreign aid for natural disaster relief and rehabilitation.⁴ The effect of disasters may become frequent and intense in countries both developed and developing. Thus management of disasters is a prerequisite. Disaster management is a broad and evolving subject and includes the concept and framework of disaster mitigation, prevention, preparedness, and response and recovery strategies, administered by

¹ Shaw, Rajib., Krishnamurthy, R, R., *Disaster Management: Global Challenges and Local Solutions*, (Universities Press Private Limited, New Delhi, 2009), p. 2.

² Pandey, Mrinalini., *Disaster Management*, (Wiley India Private Limited, New Delhi, 2014), p. 6.

³ Dagur, O. S., *Disaster Management: An Appraisal of Institutional Mechanisms in India*, (KW Publishers Private Limited, New Delhi, 2011), p. 18.

⁴ *Ibid.*,

community participation, the civil society and all the stakeholders under the aegis of the government.

The United Nations (UN) defines disasters as “the occurrence of a sudden or major misfortune disrupting the basic fabric and normal functioning of a society or community.”⁵

The definition adopted by the World Health Organisation (WHO) terms a Disaster as “The result of a vast ecological breakdown in the relations between man and his environment, a serious and sudden disruption on such a scale that the stricken community needs extraordinary force to cope with it, often with outside help or international aid”⁶.

Frederick C. Cuny⁷ defined Disaster as “A situation resulting from an environmental phenomenon or armed conflict that produced stress, personal injury, physical damage, and economic disruption of great magnitude.”

It is essential to understand the concept of Hazard, Risk and Vulnerability which have always been closely associated with disaster. Very often the terms are used interchangeably, but they are distinct and have different connotations. ‘Hazard’ is defined as a source of potential loss or natural event that has the potential to cause harm. They are classified into two main classes; those that are natural causes and those that occur in reaction to human activities. A disaster is the consequence of a hazard. Therefore, a hazard can be defined as a pre- disaster situation that could turn

⁵ Dagur, O. S. *Op.cit.*, p.1.

⁶ <http://www.businessdictionary.com/definition/disaster.html> accessed on 17.10. 2018.

⁷ Frederick C. Cuny (1944- 1995) was an American disaster relief specialist who was active in many humanitarian projects around the world from 1969 until his forced disappearance in Chechnya in 1995.

into a catastrophic disaster. Vulnerability refers to the probability or susceptibility of a population or system to the effects of the hazard. In the context of Disaster Management, risk is the analysis of the potential of the hazard and the dimensions of vulnerability that could result into a full blown disaster. In other words, it is the chance of something that will have a negative impact or no impact at all.

2.2 Classification of Disasters

Natural Disasters are primarily natural events. They are naturally occurring physical phenomena caused by either rapid or slow- onset events which can cause great harm to lives and property. They result from natural processes of the Earth and other geologic processes.⁸ Man- made disasters are events that are caused or triggered by humans and occur close to human settlements. Although man- made disasters are unintentional, they may be caused by some intentional or unintentional activity. Most of the man- made disasters could be prevented if sufficient precautionary measures were put in place.⁹ The common natural and man-made disasters are discussed as below:

2.3 Natural Disasters

Wildfire

Of the four elements known to men – air, earth, fire and water, it is fire itself that instil him with the most fear.¹⁰ It is either an element of fuel for cooking, giving warmth or one of disaster and destruction. Fire has stamped its mark in history when

⁸ Pandey, Mrinalini. *Op.cit.*, p.10.

⁹ *Ibid.*, p.14.

¹⁰ Gilmour, Schreijaeg, Joan., 'Fire Disaster: Challenges, Opportunities and its Management, A Case Study of Australia', Singh, Jagbir., (Ed) *Disaster Management: Future Challenges and Opportunities*, (I.K Publishing House Private. Limited, New Delhi, 2007), p.2.

we remember that Rome was burned and destroyed to the ground in 64 BC in the time of Nero and the Great Fire of London on the 2nd September 1666.¹¹ Fire disaster can take place in three forms-

- **Bushfires or forest fires:** Many bushfires have been caused by natural phenomenon such as lightning or when the weather is very hot and dry. The higher the temperature the more likely a fire will start or continue to burn. They can also start from human activity accidentally or deliberately. High winds spread the blaze and can smoulder the place for days. Jhumming cultivation which requires the burning of the fertile land before utilizing it has a high risk of widespread fire. Frequently the fire goes out of control and spread beyond targeted areas, particularly where dry grasses are available.¹² It thus spreads into the village causing loss of life and property.
- **Chemical Fire:** Chemical fires are usually fires which ignite in manufacturing plants, factories and places where chemicals are used or by road accidents where the heavy transport vehicles themselves are involved in collision.¹³
- **Electric Fire:** Electric fires are caused by electrical faults from overheated appliances or faulty wires in homes. It may also include break out of fire in homes due to negligence or unsafe procedures.

¹¹ Gilmour, Schreijaeg, Joan., 'Fire Disaster: Challenges, Opportunities and its Management, A Case Study of Australia', Singh, Jagbir., (Ed) *Op.cit.*, p. 3.

¹² Ghosh, G, K., 'Wildfire Hazards', in *Disaster Management*, Vol II, (APH Publishing Corporation, New Delhi, 2015), p. 665.

¹³ Gilmour, Schreijaeg, Joan., 'Fire Disaster: Challenges, Opportunities and its Management, A Case Study of Australia', Singh, Jagbir., (Ed) *Op.cit.*, p. 2.

Fire is the second most common form of disaster in Mizoram. 34.29 % of the disasters in Mizoram are caused by fire disasters. These are fire disasters arising from domicile fire accidents resulting from faulty electric wires and human negligence and from bush fires particularly during the first quarter of the year where the cultivators have to slash and burn their fields. The slash and burn method of farming provokes a high risk of widespread fire. Whether it is a fire occurring from forest fire, chemical fire or electric fire, the damage it causes is of the same magnitude.

Table 2.1: Specification of Disasters.

Sl. No.	District	Landslide	Fire	Cyclone	Earthquake	Flood	Any Others	Total
<i>Number</i>								
1	Aizawl	22	3	0	0	0	0	25
2	Champhai	0	10	0	0	0	0	10
3	Kolasib	1	7	2	0	0	0	10
4	Lawngtlai	14	1	0	0	0	0	15
5	Lunglei	2	8	0	0	0	0	10
6	Mamit	9	1	0	0	0	0	10
7	Saiha	11	4	0	0	0	0	15
8	Serchhip	8	2	0	0	0	0	10
	Total	67	36	2	0	0	0	105
<i>Percent</i>								
1	Aizawl	88	12	0	0	0	0	100
2	Champhai	0	100	0	0	0	0	100
3	Kolasib	10	70	20	0	0	0	100
4	Lawngtlai	93.33	6.67	0	0	0	0	100
5	Lunglei	20	80	0	0	0	0	100
6	Mamit	90	10	0	0	0	0	100
7	Saiha	73.33	26.67	0	0	0	0	100
8	Serchhip	80	20	0	0	0	0	100
	Total	63.81	34.29	1.90	0	0	0	100

Source: Field Survey October 2018

Landslide

Landslide is a geological disaster and accounts for 63.81 % of the disasters that takes place in Mizoram. It is the most common form of disaster in Mizoram. The topography of Mizoram is composed of steep hills so the occurrence of landslide is widespread. Landslides are more widespread than any other geological event.¹⁴ It is well known that landslides are very harmful to mankind in terms of life loss and economic loss. Landslides are down slope movements of rock and soil along slip surfaces. They are associated with a disturbance of the equilibrium, which normally exists between the stress and strength in material resting on slopes.¹⁵ Landslides result from a variety of events that combine either to increase the driving force or to reduce the shear resistance on a slope.¹⁶ Landslides are common in areas with unstable hillsides where there is heavy rain, snow or water seeping through the soils and rocks. Increased deforestation and human encroachment on unstable slopes further trigger the landslides. Land subsidence, falling of rock masses and debris flow induced by tremors, heavy rains and are closely associated with landslides. Normally landslides occur on slopes where the bedrocks are weak and where there are enlarged fractures which are caused by seeping groundwater. Factors that increase the driving forces on a slope may be either physical or human induced such as:¹⁷

¹⁴ Ghosh, G, K., 'Hazards of Landslides' *Op.cit.*, p. 1191.

¹⁵ Parmer, Alpana., Kumar, Sheel., 'Landslide Disasters and its Management', Singh, Jagbir., (Ed) *Op.cit.*, p. 44.

¹⁶ *Ibid.*,

¹⁷ Smith, Keith., *Environmental Hazards: Assessing Risk and Reducing Disaster*, (Routledge, 11 New Fetter Lane, London, 1991) p. 129.

- An increase in slope angle, which may occur due to erosion or if the slope gets further steepened due to construction works.
- Removal of support at the foot of the slope caused either by natural mass wasting processes or by building activity.
- Additional weight placed on the slope by dumping of mass waste or construction works which not only adds weight to the slope but also seepage and excess water from sewage effluent systems and landscape irrigation.
- Removal of forests either by wildfires or through human activities such as logging, overgrazing or construction and hyper urbanization.
- Vibration and mild shocks, which can occur naturally from seismic activity or from the operation of heavy construction machinery.

Apart from the deaths and damages caused to humans, animals and buildings, landslides also affect crops and plantations massively. Moreover, landslides cause frequent road blocks which cause long term socio economic problems in the hilly areas. Though landslides are sometimes considered to be natural phenomenon and may occur without human interference, at large it may be cases of human activity induced landslides caused by factors such as settlement, deforestation, mining etc.

Flood

Mizoram has experienced flooding in some of the low lying areas during monsoon. According to the official record maintained by the Department of Disaster Management and Rehabilitation, Government of Mizoram, there was no record of loss of lives and massive disasters arising from the consequences of flood until July 2019. More than 700 houses from 32 villages were submerged due to flood in

Tlabung in Lunglei district and more than 100 houses were inundated by flood at Chawngte in Lawngtlai district in July 2019. More than 500 families have been affected out of which 3 people have lost their lives.¹⁸ Apart from Lunglei and Lawngtlai district, flood has hit Serchhip and Mamit district where the heavy downpour of the monsoon rains has not only caused floods but also triggered landslides in different parts of the area.

Floods are one of the most common natural disasters occurring in many parts of the world every year. Flood is a natural phenomenon, whose roots are in monsoonal rainfall.¹⁹ It means that it is the result of over rainfall. It is concentrated over a short monsoon season of four to five months. Over a period of time, the large amount of discharge from the rivers causes the flood. India is the most flooded nation next to Bangladesh. It accounts for one-fifth (1/5) of global deaths due to floods and on an average thirty million people are evacuated every year.²⁰ Floods cause unfathomable miseries to the affected regions in the form of huge losses of life and property. Not only does it cause great damage to agriculture and livestock but also brings acute shortage of food and drinking water. Water borne diseases like, gastroenteritis, diarrhoea, malaria, jaundice, etc are also rampant in flood affected areas. If the floods last for a longer duration of time the problem is further aggravated.

¹⁸ *The Mizoram Post*, VOL – XVII, Issue 54, RNI No. MIZENG/2002/10461 published on 16.7.2019.

¹⁹ Abhay, Kumar, Rajesh., 'Flood Disaster: Its Impact, Challenges and Management in India'. Singh, Jagbir., (Ed) *Op.cit.*, p. 57.

²⁰ *Ibid.*,

Types of Floods

- **Flash Floods:** Such floods occur within six hours during heavy rainfall and usually are associated with towering cumulus clouds, severe thunderstorms, and tropical cyclones or during the passage of cold weather fronts. Other causes of flash floods include Dam failure or other river obstructions.²¹ The water may drain away quickly in flash floods but only after causing massive damage.
- **River Floods:** Unlike flash floods, they build up very slowly or seasonally and may continue for days or weeks. They are caused by precipitation over large catchment areas or by the melting of snow or sometimes both. They take place in river systems with tributaries that may cover or drain large geographical areas and encompass many independent river basins.²²
- **Coastal Floods:** Some catastrophic floods are aggravated with the cyclonic activities like Hurricanes, Tropical Cyclones etc and other wind-induced storm surges along the coast. Intense rain falling over a large geographical area will produce extreme flooding in coastal river basins.²³
- **Area prone to Floods:** Flooding can also take place in plain areas caused by factors such as riverbank erosion, rising water levels caused by global warming and low topographical areas making them flood prone areas. The plain areas of a region which are drained by a number of rivers are the flood prone areas.

²¹ Abhay, Kumar, Rajesh., 'Flood Disaster: Its Impact, Challenges and Management in India'. Singh, Jagbir., (Ed) *Op.cit.*, p. 58.

²² *Ibid.*,

²³ *Ibid.*,

Earthquake

Although Mizoram has experienced light tremors and earthquakes of small magnitudes in the past, there have been no incidents of disasters or disruptions caused by earthquakes. Mizoram is lying within the seismic zone V along with parts of Jammu and Kashmir, Himachal Pradesh, Uttaranchal, Rann of Kutch in Gujarat, part of North Bihar and Andaman and Nicobar Islands.²⁴ Earthquake (also known as quake, tremor or temblor) refers to a sudden violent shaking and vibration of the earth surface resulting from the sudden release of energy in the Earth's crusts that cause seismic waves.²⁵ It is an underground movement along a faulty plain or from a volcanic activity, or when the tectonic plates suddenly move or break. The plates are usually marked by fractures or fault lines formed when the plates tear apart or slide or collide past each other.²⁶ This results in a change of the earth's interior masses which send powerful shock waves with enough force to alter the surface of the earth. The shock waves can thrust up cliffs and open huge cracks on the ground leading to an earthquake event.²⁷ The Richter scale is used to measure the intensity of earthquakes. The intensity is measured on a scale of 0 to 8 and above. Probability of occurrence can be determined but not the exact timing. Forecasting is based on monitoring of seismic activity, historical incidence, and observation.²⁸

The disaster, an earthquake causes, depends on the duration and magnitude or the amount of shaking that occurs. An earthquake is one of the most catastrophic disasters. Collapse of buildings and structures causes massive loss of lives and

²⁴ Press Information Bureau, Ministry of Earth Science, Government of India, 19th July, 2017.

²⁵ <https://www.earthlipse.com/natural-disaster/causes-of-earthquakes.html> accessed on 30.11.2017.

²⁶ *Ibid.*,

²⁷ *Ibid.*,

²⁸ Ghosh, G, K., 'Hazards of Earthquakes' *Op.cit.*, p.869 .

property. Earthquakes can be double threats as they often trigger many landslides in hilly regions. Sometimes the shaking of the ground and building debris often lead to explosion of gas pipes and electric lines that often cause fire. The Third World countries suffer the most severe impacts of earthquakes in terms of economic loss and death tolls. In some cases the impacts are sufficiently severe to jeopardize economic and developmental efforts.

Drought and water shortage

Drought is a condition of abnormally dry weather within a geographic region. Drought refers to the lack or insufficiency of rain for an extended period of time in a specific region. During droughts, rainfall is less than normal causing a water imbalance and results in water shortage.²⁹ Drought should not be confused with dry climate. It is marked by an unusual scarcity of water and food for the humans as well as animals. Some parts of India are affected by drought even during the rainy season. Drought is a so called 'creeping hazard'.³⁰ This is because droughts develop slowly – often over a period of months and also have a prolonged existence often over a period of years for major events.³¹ As India is primarily an agricultural country, droughts cause untold miseries to the common people. Many subsistent Indian farmers depend on rainfall for irrigation and as a result of long dry spells there is extensive crop damage. The severity of the drought is caused by the degree of moisture deficiency, its duration and the size it affected.³² If the drought is brief it is

²⁹ <http://www.biologydiscussion.com/essay/natural-and-man-made-disaster-and-their-impact-on-environment/7134> accessed on 13.12.2017.

³⁰ Ghosh, G, K., 'Hazards of Droughts and Famines' *Op.cit.*, p.674.

³¹ *Ibid.*,

³² <http://www.biologydiscussion.com/essay/natural-and-man-made-disaster-and-their-impact-on-environment/7134> accessed on 30.11.2017

known as a dry spell or partial drought. Drought causes serious environmental imbalances, which are summarized below-

- There is acute shortage of water as the water reservoirs become empty and wells dry up.
- Since there is no recharge the ground water level becomes depleted.
- Soil degradation and erosion occurs. Soil starts to crack because of shrinkage during desiccation.
- There is widespread crop damage.
- People become impoverished as resources get depleted and is followed by widespread of diseases due to malnutrition.
- Extensive damage to flora and fauna including domestic animals.

Famine

The most serious consequences of drought is famine. In short, famine is a protected shortage of food, in a restricted geographical area, causing widespread disease and death from starvation.³³ It is also associated with impoverishment and endemic seasonal hunger. War and civil unrest and continuance of poverty have been underlined among the most serious triggers of famine. Therefore 'famine' can be regarded as a severe anomaly in 'malnutrition' in much the same way that 'drought' is a severe anomaly in 'climate'.³⁴

The causes of famine vary from place to place and from time to time. Aside from conflict, climate change and lack of international response, lack of response

³³ Ghosh, G, K., 'Hazards of Droughts and Famines' *Op.cit.*, p. 837.

³⁴ *Ibid.*, p. 676.

from the domestic government and rising prices of food also potentially contribute to famine.³⁵ Clearly the causes range from local, to international, to natural or environmental.³⁶ Famine can also be caused or aggravated by the following reasons:

- Environmental factors and disasters, natural and man-made.
- Institutional-agriculture, economic and developmental policies.
- Social issues-population and inaccessibility of food.

The first known disaster faced by Mizoram was the famine caused by bamboo flowering disaster (Mautam) of 1959. Mizoram was full of bamboo groves and it is said that bamboos flowers once in fifty years. When the rodent population feasted on the bamboo flower, their fertility increased and their population started to increase. After the supply of bamboo seeds and fruits are exhausted, the rats turn to human food sources- invade farms and villages devouring all the crops, and food stored in granaries, resulting in famine.³⁷ The famine of 1959 lasted for about three years and cost the lives and livelihood of many people. In the year 2008, Mizoram yet once again faced this problem and it was countered with the joint efforts of various agencies of the state government and an action plan called Bamboo Flowering and Famine Combat Scheme (BAFFACOS).

Cyclone

Mizoram has experienced cyclonic winds in the past. But the intensity has never caused loss of lives and damage to crops and cattle. In common terms, cyclone can be described as a giant circular storm system. In a cyclone the wind speed is

³⁵ <https://borgenproject.org/3-causes-of-famine-in-africa/> accessed on 20.12.2017.

³⁶ *Ibid.*,

³⁷ <https://eksparsh.wordpress.com/tag/baffacos/> accessed on 4.01.2019.

more than 63 km/hr. Cyclones generate in the seas and oceans and move with a very high speed towards the land. Cyclones form when moisture evaporates from the warm oceans during the hot seasons.³⁸ It strikes the land with a devastating force and gradually withers off on land when they are cut from their source of ocean moisture. The occurrence of cyclones is a natural phenomenon, over which humans have no control, hence it cannot be prevented. However, some scientists have speculated that rise in global warming may cause an increased occurrence in cyclones.³⁹ Cyclones are named variously depending on their source of origin. They are called Hurricanes in the Caribbean, Atlantic, and North American regions; Cyclones in the Indian Ocean; Typhoons in the Pacific, Baguio around the Philippines and Willy-willies around Australia.⁴⁰ A cyclone or any kind of damaging winds not only generates large-scale deaths and injuries, but also a substantial social disruption, and outbreaks of epidemics, leaving survivors entirely at the mercy of external relief.⁴¹

Cyclones are categorized according to wind speed and the damage they cause.⁴²

- Category 1 cyclone: Wind speed between 90 to 125 kms per hour, some noticeable damages to house and trees.
- Category 2 cyclone: Wind speed between 125 and 164 kms per hour, damage to houses and significant damage to crops and trees.

³⁸ Ghosh, G. K., 'Cyclones and Typhoon Hazards' *Op. cit.*, p. 445.

³⁹ *Ibid.*,

⁴⁰ *Ibid.*,

⁴¹ Pareeda, Kumar, Pradeep., 'Towards Rebuilding a Post- Disaster Society: A Case Study of Supercyclone- Affected Coastal Orissa', in *The Indian Journal of Social Work*, Volume 63, Issue 2, April 2002. p. 251.

⁴² <https://www.mapsofindia.com/my-india/india/what-are-cyclones-types-causes-and-effects> accessed on 20.12.2017.

- Category 3 cyclone: Wind speed between 165 to 224 kms per hour, structural damage to houses, extensive damage to crops and uprooted trees, upturned vehicles and destruction of buildings.
- Category 4 cyclone: Wind speed between 225 to 279 kms per hour, power failure and much damage to cities and villages.
- Category 5 cyclone: Wind speed over 280 kms per hour, widespread damage.

Normally, low lying areas are the ones to be severely affected by cyclones. The affected areas are inundated as a result of heavy rainfall and the surge of sea water. High velocity winds add to the devastation. Extensive damage in the form of uprooted trees and crops, blown-off roof tops, injuries and deaths to humans and animals are in large scale. Many shipwrecks occur during cyclonic storms. The affected area gradually becomes impoverished and is soon followed by spread of epidemic and diseases.

Tsunami

Tsunami is a Japanese term meaning ‘harbour waves’. Tsunami is a series of seismic sea waves caused by abrupt deformation of the sea floor, leading to vertical displacement of a large volume of overlying water.⁴³ They occur due to submarine earthquakes, landslide, volcanoes, or meteor impact. Tsunamis are most catastrophic among disasters as they can rise up to the height of 30 metres affecting a very wide geographical area. As water travelled from deep to shallow waters, the waves slowed down, their wavelength shortens, but their height increased dramatically causing

⁴³ Sulphey, M, M., *Disaster Management*, (PHI Learning Private Limited, New Delhi, 2016), p.60.

stress to the coastal environment.⁴⁴ Predictability of Tsunami is rather difficult for which no man can prepare for it.⁴⁵

Tsunamis have the potential to cause large scale erosions, stripping beaches of sand, coastal vegetation, destruction of buildings and houses, and coastal structures.⁴⁶ The tsunami of 26th December 2004 killed around 3 lakh people and affected parts of Indonesia, Andaman and Nicobar Islands in India, Sri Lanka and even parts of Somalia.⁴⁷ The damages incurred in the natural system off the coast were caused by the deep water from the Tsunami.⁴⁸

2.4 Man-made Disasters

Technological Hazards

Science has made human life much easier and more comfortable, but then science itself is not without hazards and this fact has led to the recent emergence of threats which arise from the misapplication and failure of technology.⁴⁹ The Earth is threatened the most by the activities of its own inhabitants, the humans. The development of science and technology coupled with the ever increasing world population has created tremendous pressure upon the natural environment and its resources.⁵⁰ All technological innovations create risks as well as benefits. The

⁴⁴ Ramanathan, A, L., Chidambaram., Kumar, G, Sethil., 'The Impact of Tsunami on the Groundwater Quality in Tamilnadu, South East Coast of India', Singh, Jagbir., (Ed) *Op.cit.*, p. 305.

⁴⁵ Ghosh, G, K., 'Hazards of Tsunami' *Op.cit.*, p. 1174.

⁴⁶ *Ibid.*,

⁴⁷ Ramanathan, A, L., Chidambaram., Kumar, G, Sethil., 'The Impact of Tsunami on the Groundwater Quality in Tamilnadu, South East Coast of India', Singh, Jagbir., (Ed) *Op.cit.*, p. 305.

⁴⁸ *Ibid.*,

⁴⁹ Singh, Surender., 'Technological Hazards : Man-Made Disasters', Singh, Jagbir., (Ed) *Op.cit.*, p. 183.

⁵⁰ *Ibid.*,

development of nuclear energy continues even though it is a prime source of debate and concern, both at a public and governmental level due to the knowledge about the radioactive elements and their harmful effects on humans.⁵¹ The most common technological disasters are those which arise from the exposure of a large population or environment to hazardous material or chemicals such as radioactive elements or gases, etc through air, water, soil and other such mediums. A technological disaster is likely to arise due to⁵²-

- Defective design or construction
- Inadequate management
- Sabotage or terrorism

Of these, only defective design or construction and management fall within the framework of accidental cause. Technological hazards affect large scale public structures, transport systems or industrial activities, thus posing life threatening risks to the local community or to the adjacent population.⁵³ Short-term effects of technological hazards on the human health relate to diseases like cancer, heart problem, blindness, gastric problems, paralysis, and respiratory abnormalities. Long-term effects of technological hazards include genetic imbalances in humans and its impact on the future generations. Soil and water sources also remain polluted for a long duration of time.

⁵¹ Singh, Surender., 'Technological Hazards : Man-Made Disasters', Singh, Jagbir., (Ed) *Op.cit.*, p. 184.

⁵² *Ibid.*,

⁵³ *Ibid.*,

Temporal Transport Hazard

Wide interconnection of roads and vehicular transportation play a significant role in the overall development of a nation's economy. Yet it contributes to a substantial and growing proportion of air pollution in cities and towns alike. An issue which was once considered to be a distant future possibility has become a contemporary reality. Traffic congestion problems increases with the continuing growth of vehicle usage, and this has resulted in a chaotic situation in Aizawl city. Due to the very slow moving vehicular traffic, the city residents concentrated in the high density areas experience higher exposure to air pollutants. According to the World Health Organisation's recent study report in Delhi, one out of every 10 school children suffers from Asthma due to vehicular pollution.⁵⁴

Pollution from vehicles gets reflected in increased mortality and morbidity and is revealed through symptoms like cough, headache, nausea, irritation of the eyes, various bronchial problems and visibility.⁵⁵ The effects of car pollution are widespread, affecting air, water and soil quality.⁵⁶ Pollution causes more than 9,000 pre-mature deaths a year in London.⁵⁷ The pollution from vehicles is due to discharges like CO₂, unburned HC, Pb compounds, NO_x, soot, suspended particulate matter (SPM) and aldehydes, among others, mainly from the exhaust pipes.⁵⁸ At the same time human activities also generate three broad sources of air pollution,⁵⁹

⁵⁴ Singh, R, B., Singh, Swarnima., 'Temporal Transport Hazard Dynamics : A Case Study of Delhi', Singh, Jagbir., (Ed) *Op.cit.*, p. 96.

⁵⁵ *Ibid.*, p. 95.

⁵⁶ <https://sciencing.com/effects-car-pollutants-environment-23581.html> accessed on 8.01.2018.

⁵⁷ <https://www.theguardian.com/environment/2015/jul/15/nearly-9500-people-die-each-year-in-london-because-of-air-pollution-study> accessed on 2.02.2018

⁵⁸ Singh, R, B., Singh, Swarnima., 'Temporal Transport Hazard Dynamics : A Case Study of Delhi', Singh, Jagbir., (Ed) *Op.cit.*, p. 95.

⁵⁹ *Ibid.*,

stationary or point, mobile, and indoor. Indoor air pollution from using open fires for cooking and heating may be a serious problem. Industries, power plants etc are the causes of urban stationary air pollution, both in developing and developed countries. It is prominently the mobile or vehicular pollution that contributes to overall air quality problem. The worst thing about vehicular pollution is that it cannot be avoided as the emissions are emitted at the near-ground level where we breathe.⁶⁰ As per the official record of the Department of Transport, Government of Mizoram, new vehicle registrations were given out to 50, 084 vehicles during April 2017- June 2019.⁶¹ This amounts to 61 new vehicle registrations per day. 60% of the registered vehicles are from Aizawl district. And 74.39% of the registered vehicles are two wheeler vehicles.

Solid Waste Hazard

The absence of proper solid waste management has posed a great problem in all cities. The Aizawl Municipal Corporation has executed an integrated effort on solid waste management. Accordingly, as stipulated by the Aizawl Municipal Corporation Plastic Waste Management Bye- Law 2019, a new law banning single use plastics and plastic bags of below 50 micron came into effect within the municipal area from 1st August 2019.⁶² Hazardous wastes and industrial wastes may pose serious health risks and pollution through uncontrolled containment and handling. The term 'waste', includes solid waste, which mainly comprises municipal and household

⁶⁰ Singh, R, B., Singh, Swarnima., 'Temporal Transport Hazard Dynamics : A Case Study of Delhi', Singh, Jagbir., (Ed) *Op.cit.*, p. 95.

⁶¹ *Vanglaini* (Mizo Daily), VOL – XXXIV, No 223, REGN: 342279, published on 23.09.2019

⁶² *The Mizoram Post* (Mizo Daily), VOL – XVII, Issue 69, RNI No. MIZENG/2002/10461 published on 31.7.2019.

waste as well as demolition waste from the demolition of damaged buildings.⁶³ The effects of hazardous wastes can be immediate or long term. Immediate effects could be onsite exposure of human beings and consequent injuries. Long- term effects include contamination of toxins into groundwater, soil, atmosphere, and consequently into the food chain.⁶⁴ Since these wastes could contain toxic properties, it could pose serious threats or dangerous chemical exposure to humans, animals and the environment. Many waste dumping sites are very close to residential areas. The unpleasantness and odour from the uncontrolled open dump sites assists in the spread of diseases through human contact with the decomposing waste. Under normal conditions, solid waste is generated from the following main sources:⁶⁵

- **Households:** Household wastes such as food and materials create an increase in waste. Plastic bottles and packaging supplies have continued to create demonstrable problems for the waste collection.
- **Industries:** Industrial disasters in the form of uncontrolled spillages of wastes from industrial facilities and plants can be hazardous and can cause harm to the surrounding environment, as well as water courses.
- **Demolition:** The demolition and site clearance of damaged buildings and infrastructure leads to large quantities of debris. Although they can be recycled into gravel and be reused for construction work, however, they are mixed with the municipal waste and dumped at the landfill, taking up valuable void space from other non-recyclable waste.

⁶³ Jhamnani, Bharat., Singh,S, K., 'Solid Waste Management: Post Disaster', Singh, Jagbir., (Ed) *Op.cit.*, p. 114.

⁶⁴ Sulphey, M, M. *Op.cit.*, p.91.

⁶⁵ Jhamnani, Bharat., Singh,S, K., 'Solid Waste Management: Post Disaster', Singh, Jagbir., (Ed) *Op.cit.*, p. 115.

- **Hospitals:** Clinical waste of hospitals including body parts, medicines and needles requires temporary alternative solutions, such as small, mobile incinerators designed especially for this purpose.

Burning collected waste on street corners is often the only short term solution when there is insufficiency of fund, labour or equipment to collect waste. Also, the use of temporary open dumpsites located out of the city may be the only option if there is no approved landfill to be used. Once there is a proper solid waste management, open dumps may be converted into controlled dump sites using a variety of low-tech approaches.

Cyber Attacks

With the evolution of technology, along came another revolution of crime where the perpetrators commit acts of crime and wrongdoings on the World Wide Web.⁶⁶ Every phase of life is directly or indirectly related to the technology today. A cyber-attack is the deliberative exploitation of computer systems, technology-dependent enterprises and networks by using malicious code to alter computer code, logic or data resulting in disruptive consequences that can compromise data and lead to cybercrimes, such as information and identity theft.⁶⁷ Technology has connected individuals and everyone is interwoven on the web. As technology becomes more and more integrated in our lives, we have become more and more dependent on it. No one is immune to online security threats. Cyber-attacks affect us personally, professionally, financially and emotionally both at home and abroad. Malicious cyber-attacks can take many forms. It includes attack on cyber infrastructure by

⁶⁶ <http://www.cyberlawsindia.net/internet-crime.html> accessed on 29.01.2018.

⁶⁷ <https://www.techopedia.com/definition/24748/cyberattack> accessed on 30.01.2018.

hostile governments, criminal or terrorists groups, disgruntled individuals etc.⁶⁸ In its most disruptive form, cyber-attacks target the enterprise, government, military, or other infrastructural assets of a nation or its citizens. A single cyber-attack could cost the global economy as much as the most devastating natural disasters and could cause millions of dollars' worth of damage. Cyber-attacks may include the following consequences⁶⁹

- Identity theft, fraud, extortion
- Malware, pharming, phishing, spamming, spoofing, spyware, Trojans and viruses
- Stolen hardware, such as laptops or mobile devices
- Denial-of-service and distributed denial-of-service attacks
- Breach of access
- Password sniffing
- System infiltration
- Website defacement
- Private and public Web browser exploits
- Instant messaging abuse
- Intellectual Property (IP) theft or unauthorized access.

As we depend more and more on technology, technology is becoming more and more unsafe for netizens. As attackers employ innovative and exploit new vulnerabilities, the demand for increased cyber security grows. Cyber security defence has now become a necessity to thwart the evolving problem. With

⁶⁸ Sulphrey, M, M. *Op.cit.*, p.104.

⁶⁹ <https://www.techopedia.com/definition/24748/cyberattack> accessed on 30.01.2018.

radicalization mostly online and cybercrimes emerging as major security a challenge, the Indian government has create two new divisions in the home ministry to shape up policy and response to these new-age threats.⁷⁰

Local Disasters

They are small scale disasters such as train accidents, plane crash and road accidents. Thousands of people are hurt or killed each year due to road accidents. While driver errors such as speeding, distracted driving or drunk driving are among the leading causes of automobile accidents, bad road conditions is also a significant contributor.⁷¹ Dangerous road conditions may be the result of natural events such as excessive rains, flooding and landslide which in turn causes potholes, uneven road surfaces, broken concrete, sinkholes and road cracks. Road accidents cause fatality and even in minor cases; the survivors suffer from extreme post-traumatic stress disorders, or sustain life threatening injuries, or burdened with expensive lifetime medical care. Local disasters may also include disasters and accidents that are likely to take place due to mechanical or equipment failure, human negligence or error, sabotage or bad weather conditions.

Civil Unrest

There have been a number of armed conflicts and internal disturbances and tensions in the North-east of India for many years. It has caused a lot of casualties even leading to the death of civilians in some cases. Civil unrest is an act of animosity arising out of tension between different groups of people living in the

⁷⁰ <https://timesofindia.indiatimes.com/india/mha-will-have-two-new-units-to-fight-cyber-criminals-jihadis/articleshow/61538442.cms> accessed on 30.01.2018

⁷¹ <https://www.pajcic.com/potholes-other-hazardous-road-conditions-cause-many-auto-accidents/> accessed 02.02.2018.

same country or same region or same society. It is essentially the breakdown of orderly society which includes illegal parades, riots, sit-ins, sabotage, obstruction, and other forms of crime. It is a humanitarian crisis in a country, state or society where there is a total breakdown of authority resulting from internal or external conflict and which requires a response that goes beyond the capacity of a single agency. Economically more backward countries are more likely to experience both violent and non-violent civil unrest.⁷² Though it is typically intended to be a demonstration to the public or the government, it can escalate into general chaos.⁷³ They may start off peacefully at the beginning it always spirals into violence causing havoc and disruption to the society. There are many factors responsible for the outbreak of civil unrest:

- Demographic character of the region
- Economic and socio-economic situations
- Political reasons
- Communalism
- Clash between castes or ethnics and religion.
- Administrative reasons
- International conspiracy

Civil unrest or civil strife is characterised by extensive violence leading to loss of life and displacement of populations. Looting of stores and disruption of infrastructure such as homes and buildings become a normal event. The severity of

⁷² <https://www.nyrealestatelawblog.com/manhattan-litigation-blog/2016/april/causes-civil-unrest/> accessed on 10.02.2018.

⁷³ Pandey, Mrinalini. *Op. cit.*, p.14.

civil disorder can lead to a riot or an insurgency, which can last for months and sometimes for years causing widespread damage to societies and economies to the affected regions. It calls for a large-scale, multi-faceted humanitarian assistance and significant security risks for the parties involved.

Epidemics

Epidemic is one of the major disasters of the world, more so in poverty stricken Third World Countries.⁷⁴ The Oxford dictionary has defined epidemic as ‘a widespread occurrence of an infectious disease in a community’ or ‘a sudden widespread of an undesirable phenomenon’. A disease outbreak happens when a disease occurs in greater numbers than expected in a community or region or during a season.⁷⁵ An outbreak may occur in one community or even extend to several countries and it could last for years or even just for a week. A single case of a contagious disease is considered an outbreak, if it is an unknown disease, and is new to a community, or has been absent from a population for a long time. Epidemics may be the consequence of disasters such as tropical storms, earthquakes, droughts, floods, etc. But it has always been categorized under man-made disasters because it is mostly results of factors caused by men⁷⁶ such as:

- Unsanitary conditions, crowding, poverty.
- Ecological changes that favour the breeding of vectors
- Migration of non-immune persons to endemic disease area
- Decline in nutritional status

⁷⁴ Ghosh, G, K., ‘Hazards of Epidemics’ *Op.cit.*, p. 1269.

⁷⁵ <https://www.webmd.com/cold-and-flu/what-are-epidemics-pandemics-outbreaks#1> accessed on 27.02.2018.

⁷⁶ *Ibid.*,

- Contamination of water or food supply

According to the World Health Organisation report on 28th May 2018, the most common epidemic diseases are Chikungunya, Cholera, Crimean- Congo haemorrhagic fever, Ebola virus, Hendra virus infection, Influenza, Lassa fever, Marburg virus disease, Meningitis, MERS- CoV, Monkeypox, Nipah virus infection, Plague, Rift Valley fever, SARS, Smallpox, Tularaemia, Yellow fever, Zika virus disease.⁷⁷

Global Warming (Extreme Heat and Cold)

The rapidly increasing human population and their activities are impacting the earth's environment especially since the twentieth century. One of the most significant changes brought about by human activities is an increase in the concentration of carbon dioxide and other greenhouse gases in the atmosphere which has resulted in the unprecedented warming up of the planet.⁷⁸ The warming up of the planet which is extensively referred to as 'Global warming' is the phenomena indicating sudden rise in the earth's temperature caused by the absorption of infrared radiation emitted by the earth surface by certain gases in the atmosphere.⁷⁹ This phenomena is the result of various human activities such as industrialization, burning of fossil fuels, chemical fertilizers used in agriculture, exploitation of natural resources, deforestation, urbanization and development of cities.⁸⁰ Scientists agree that the earth has warmed dramatically over the last 140 years and is now warmer

⁷⁷ <http://www.who.int/emergencies/diseases/en/> accessed on 28.05.2018.

⁷⁸ Gautam, Alka., 'Global Warming and Climate Change' in '*Environmental Geography*', (Sharda Pustak Bhawan Publishers & Distributors, Allahabad, 2013) p. 179.

⁷⁹ Singh, Lallan., 'Global Warming and Climate Changes : A Challenging Task', in *Environmental Geography*, (Balaji Offset , New Delhi, 2015) p. 109.

⁸⁰ *Ibid.*,

than it has been in the last 600 years.⁸¹ This heat is a prolonged period of excessively hot weather. Heat slowly kills the human body by pushing it beyond its limits. When a victim has been over-exposed to heat, heat disorders occur.

Cold wave can be both a lengthened period of excessively cold weather and the sudden assault of a very cold air over a large area. Along with frost it can cause damage to agriculture, infrastructure and property. Extreme cold can immobilize an entire region causing storm surge, flooding, closed highways, failed power lines blocked roads, and hypothermia to the body.

War

War remains as one of the worst man-made disasters that human civilization has ever witnessed in history and there is no doubt that if wars can be avoided and peace restored permanently, a happier world can be ensured. War is not a necessity. It takes place due to human greed when one king or government wants to occupy another country or at least a portion of it to extend their territory. In other words, war is a creation of imperials to increase their territory or powers, with the objective of exploiting others.⁸² The 20th century witnessed two mighty wars; the First World War and the Second World War leading to the loss of millions of lives. Several smaller and medium wars hazardous to take many lives, not only of soldiers but also of civilians take place till today in many nations of the world. The hazard of war is immeasurable in terms of human lives and property. And also the effects of war are

⁸¹ Singh, Lallan., 'Global Warming and Climate Changes : A Challenging Task', in *Environmental Geography*, (Balaji Offset , New Delhi, 2015) p. 109.

⁸² Ghosh, G, K., 'Hazards of War' *Op.cit.*, p. 1581.

both physical and psychological.⁸³ Rape and other forms of sexual violence are common in war and are often used as a weapon to tear down the fabric of society. Sexual violence leads to intense psychological trauma, the spread of sexually transmitted diseases, unwanted pregnancies and lasting physical damage. Untold miseries of loss of lives, damage to infrastructure, widespread poverty, economic miseries, degradation of health, and psychological impacts especially on the women and children are widespread and devastating. It may cause large scale mass movements of refugees and displaced persons. The impact of war is beyond comprehensible. The hazards of war shall continue to tear us apart. War cannot be avoided unless the root cause is eliminated.⁸⁴ War can be classified on the basis of the types of weapons used-

- Chemical weapons
- Biological weapons
- Nuclear weapon
- Armed conflict

2.5 Conclusion

Most hazards that lead to disasters cannot be prevented. However, their effects can be mitigated. One of the aims of disaster management is to reduce or avoid the potential losses from hazards. Natural disasters include wind related, water related and earth related hazards while man- made disasters include disasters that are triggered by man's interaction with the environment or interaction within his own

⁸³ <https://www.quora.com/What-are-the-ill-effects-of-war> accessed on 11.03.2018.

⁸⁴ Ghosh, G, K., 'Hazards of War', *Op.cit.*, p.1662.

populace. Hostile enemy action, arson, vehicular accidents, explosions, deforestation, pollution and, lifestyle diseases are man- made disasters. The chapter aimed to highlight the forms, causes, unpredictability, physical capacity of natural disasters and man- made disasters. The effect of disasters is intense in countries both developed and developing. Therefore the need to study the concepts and dimensions of disasters can never be emphasised enough.

CHAPTER III
PROFILE OF MIZORAM

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3.1 Introduction

The state of Mizoram was born on February 1987 and became the twenty third full-fledged State of the Indian Union.¹ Mizoram was previously a part of Assam until 1972, when it was carved as a Union Territory and became a State in 1987. Mizoram is also amongst the youngest and smallest States of the Indian Union. Mizoram assumes its present name due to the fact that it was originally occupied by the Mizo tribes of the Mongoloid stock, constituted collectively by the original hill tribes such as, Lusei, Hmar, Ralte, Paihte, Pawi, Lakher and Pang² who are of the Assam-Burman sub-group that branches from Tibeto-Burman group of the main Tibeto-Chinese race. The Mizos after reaching the present Mizoram found the land to be very healthy and were contented with the climate and admitted that it was the land which nature has provided for them. They were predominantly agriculturists in the form of shifting cultivation; they were the first settlers in a new and virtually untouched environment and to have existed in a self-sufficient manner.³

The Mizos have their own ways of life and values derived from their ancestors. They are plain-hearted, simple and sociable. This chapter has attempted to bring out the geographical features, the economy, the people, the culture, and the civil society of Mizoram. It also highlights the three most important elements of the Mizo culture that is embedded in the lives of the Mizo and practiced in their everyday life.

¹ Singh, A, P, K., *Political Scenario of Mizoram: Past and Present*, (Mittal Publication, New Delhi, 2009) p. 1.

² Liangkhaia. Rev., *Mizo Chanchin*, (Nazareth Press, Aizawl, 1976) p. 9-21.

³ Pachuau, Rintluanga., *Mizoram: A Study in Comprehensive Geography*, (Northern Book Centre, New Delhi, 2009), p.3.

3.2 Physical Geography of Mizoram

Topography

Mizoram, with an area of 21,081 sq.km⁴, is a mountainous and hilly region situated in the extreme southern corner of Northeast India. It is situated between Latitude degree 21.58N to 24.35N and Longitude degree 92.15 E to 93.29 E.⁵ The Tropic of Cancer runs through the heart of Mizoram at the place called Thenzawl.⁶ It is bounded on the east and south by Burma and on the west by Bangladesh. It is also bounded by Manipur and Cachar in the North, and by Tripura in the north-West making its location strategically significant geographically and politically.

The topography⁷ of Mizoram is composed of steep hills and deep gorges. Mizoram consists of six parallel hill ranges enclosing between the deep river valleys.⁸ These hills run mostly from north with a tendency to be higher in the east of the territory and tapering in the north and south in parallel series. The elevation ranges from 21 metres at Tlabung to 2,157 metres at Phawngpui.⁹ The terrain of Mizoram is young and immature. Since the terrain is young, the geomorphic features of the state do not show much diversity. But one distinct feature observed in Mizoram is that the western slopes of the mountain ranges all have a higher degree of slopes.¹⁰ The most dominant process in evolution of these forms is the action of running water, and is operating from upper tertiary period onwards, till today. Amidst the hilly terrain, the largest plain is located at Champhai, about 195 kms east of Aizawl city. Champhai plain bordering Myanmar in the east has a length of only 11.27 kms

⁴ Government of Mizoram, *Statistical Handbook Mizoram*, 2018, Directorate of Economics and Statistics, Aizawl.p. xii.

⁵ *Ibid.*,

⁶ Thanga, L, B., *The Mizos: A Study in Racial Personality*, (United Publishers, Guwahati, 1978). p.12.

⁷ Government of Mizoram, *Mizoram: Some Facts*, Directorate of Economics and Statistics, Aizawl. p.1.

⁸ Thanga, L, B. *Op.cit.*, p.12.

⁹ Pachuau, Rintluanga. *Op.cit.*, p.30.

¹⁰ *Ibid.*,

and the widest part 4.83 kms across. The whole area of this plain has been converted into permanent rice cultivation.¹¹

Geology

Geologically, the soil-cover in Mizoram is generally thin and young in its present nature.¹² The hills are mostly composed of ‘soft sand, stones and slates.’¹³ The soil type found in Mizoram is clayey and reddish loamy soil mixed with broken angular shapes of varying sizes. Though there is a fair percentage of clay in the soil, the water holding capacity of the soil is very low. It is, therefore, no wonder that at places heavy landslide occur quite often during the rainy season.

So far no mineral deposits of economic importance have been found in Mizoram except salt-springs dotted in some places. The State Geological Programming Board was inaugurated on July 19, 1984.¹⁴ The Board has started geological investigation, exploration and exploitation of earth’s resources. The exploratory geologists have found lime stones and a small quantity of coal in some areas in Mizoram.¹⁵

Forest

In the past, almost the entire area of Mizoram used to be covered with a great tangle of tropical evergreen forests. Although Mizoram was very rich in vegetation in the past, the Forest Department of the guardian state - Assam was much discouraged in attempts to

¹¹ Pachuau, Rintluanga. *Op.cit.*, p.35.

¹² Lalkhama., ‘This Land, this Mizoram’ in *Mizoram News Magazine*, Autumn Issue, 1985, p.22.

¹³ Bandopadhyaya, P, K., *Leadership Among the Mizos, (An Emerging Dimension)*, (B.R.Publishing Corporation, New Delhi, 1985) p.28.

¹⁴ “State Geological Programming” in *Mizoram News Magazine*, August, 1984.

¹⁵ “State Geological Programming Board Optimistic”, in *Mizoram News Magazine*, Autumn Issue, 1985, p.31.

extend much influence over the forests due to 'the wasteful practice of Jhumming' throughout the district.¹⁶ To quote S.K.Chaube in regard to the harmful effects of Jhumming:

“... the slash and burn method of agriculture along with demographic pressure has steadily been destroying forests and washing out soil in the highlands.”¹⁷

In spite of the absence of proper supervision by the Assam Government, the forest products have considerably made contributions to the economic development of the people in Mizoram.¹⁸ Almost all kinds of tropical trees and plants are found which are used as shelter or home by different kinds of birds and animals. 62 per cent of the geographical area is still covered with dense forests.¹⁹ The types of forests found in Mizoram are:²⁰

- The tropical wet Evergreen Forests
- The tropical Semi-evergreen Forests, and
- The montane Sub-Tropical Forest

Some of the forest areas which are left undisturbed or protected have the valuable timber species like Cham, Hallong, Bonsum, Hallock, Gamari, Marisal, Nohar, Bagipoma, Sam etc. After realising the importance of forests for the economic development of the people, the Government of Mizoram has laid more emphases on afforestation. Every year, the state government celebrates a gigantic programme called 'Green Mizoram.' It is an initiative to preserve the state's diverse flora and fauna and to preserve the ecological

¹⁶ McCall, A, G., *The Lushai Hills District Dover*. Aizawl: Tribal Research Institute, 1980, p.194.

¹⁷ Chaube, S, K., 'Regionalization and Integrated Economic Development in North-East India', DattaRays's edition, *Social and Economic Profile of North-East India*, (B.R. Publishing Corporation, New Delhi, 1985),p. 32.

¹⁸ Vanlawma, R., *Ka Ram Leh Kei*, (My Country and I), Zalen Printing House, Aizawl, 1972) p. 214-217.

¹⁹ Geological Survey of India, *Geology and Mineral Resources of the States of India*, Part IV, Mizoram, p.94.

²⁰ Government of Mizoram, *Statistical Handbook Mizoram*, 1986, Directorate of Economics and Statistics, Aizawl. p.94.

balance.²¹ 11th June has been observed as ‘Green Mizoram Day’ in the whole state since 1998.

Rivers

There are many rivers in Mizoram but only²² a few of them are worth mentioning. The state of Mizoram is drained by a number of rivers and streams of various patterns and lengths. Most of the rivers in the northern part of Mizoram flow towards the north and ultimately meet the Barak river of Assam plains. The important rivers which flow in the northern portion of the State eventually falling into the Barak are; *Tlawng* (Dhaleswari) which is about 185.15 kilometres, *Tuirial* (Sonai) about 117.53 kilometres and *Tuivawl* about 72.45 kilometres.

On the other hand, most of the rivers in the southern part of Mizoram flow towards the south. The rivers that drain the southern hills are the *Chhimtuipui* (Kolodyne) about 138.46 kilometres long and its tributaries, the *Mat* (90.16 kilometres) , *Tuichang* (120.75 kilometres), *Tiau* (159.39 kilometres) and *Tuipui* (86.94 kilometres). *Khawthlangtuipui* (Karnaphu;i), about 128.08 kilometres, with its tributaries namely *Tuichawng* (107.87 kilometres), *Kau*, *De*, *Phairuang* and *Tuilian* form the western drainage system. It is interesting to observe that the Kolodyne River enters Mizoram from the Haka area of Myanmar and flows in the north-western direction till it joins *Mat* River. It is very peculiar that Kolodyne River takes a half-circle bend towards the south and flows again to Myanmar (Arakan). Except the Kolodyne River, all the rivers are fed by monsoon rain only. They swell rapidly during the rainy season and recede abruptly shortly after the rains.²³ It has been

²¹ <https://yourstory.com/2015/06/green-mizoram-day> accessed on 9.10.2018.

²² *Report on Socio-Economic Review 1979-80*, (Directorate of Economics & Statistics, Aizawl), Government of Mizoram.

²³ Singh, K.S., General Editor, *People of India- Mizoram, Vol. xxxiii: Anthropology Survey of India*, Seagull Books.

observed that running water is the most decisive agent which has sculpted landforms of the regions.²⁴

Climate

Mizoram enjoys a pleasant climate which is neither too hot nor too cold throughout the year. In the higher ridges it is fairly cool and pleasant even at the hottest season of the year. Spring generally starts from the end of February and lasts till the middle of April. In March and April, violent storms from the north-west sweep over Mizoram marking the beginning of summer. The summer temperature varies from 25 degree Centigrade to 34 degree Centigrade.²⁵ During winter, the lowest temperature is felt at places having high altitudes such as Champhai, Zote, Ngur etc in the east; Bualpui (Ng) and Phawngpui mountainous area in the south. The maximum temperature in summer is observed at relatively lower places such as Kanhmun, Zawlnuam, Bairabi, Vairengte etc in the northern part; Tlabung, Chawngte, Tuipang, Tuipuibari etc in the south and west-end.²⁶ It is truly observed that places at higher altitude experience lower diurnal. However, it is observed that there has been a steady increase in the annual temperature, at par with the global phenomenon. During the last 20 years or so, an increase in the temperature has been noticeable mainly due to the increasing ecological imbalances and mismanagement of the environment.

The Monsoon in Mizoram hold out for nearly six months. It usually rains heavily from May to September, and the average rainfall for the whole Mizoram is 254 centimetres.²⁷ The season starts with violent storms which sweeps the state from south west

²⁴ Pachuau, Rintluanga. *Op.cit.*, p.36.

²⁵ <http://pucgeography.blogspot.com/2017/05/climate-of-mizoram.html> accessed on 30.04.2019

²⁶ *Ibid.*,

²⁷ NEC, *Basic Statistics of North-East Region, 1980*, (Public Relation Officer, North-Eastern Council, Shillong), p.1.

through the Bay of Bengal, marking the beginning of monsoon rains.²⁸ Rainfall is heavy during May to September, and about 40 per cent of the annual rainfall is received during July and August while December and January are the driest months. The heavy outpours which start normally in the morning are sometimes associated with hailstorms and thunder. This is the season when cyclonic rains are often felt. The temperature remains high, but is kept down to a considerable extent by the usual rains. The North-western portion of Mizoram receives heaviest rainfall throughout the year.

3.3 Roads

Mizoram is one of the remotest areas in Northeast India with predominantly mountainous and hilly terrain covered with dense forests. So even to cut one metre wide terrace is difficult and costly.²⁹

Before the Second World War, there was no road communication network worth the name in Mizoram and people used to travel from one place to another on horseback or on foot through the thick jungles without proper roads. In most cases, the Jhum-link bridle paths served as the main routes for the villagers and trade was done through head load or packed animals.³⁰ But, the Second World War had put the colonial authority under pressure to construct good road network for transporting soldiers and war materials as and when required. Accordingly, the bridle path between Sairang-Aizawl was, for the first time, converted into truckable road in September 1942.³¹ This is the first truckable road available on record in Mizoram. In last part of 1942, the Government converted the 180 kilometre bridle path between Silchar-Aizawl into Jeepable road essentially for defence purposes by

²⁸ NEC, *Basic Statistics of North-East Region, 1980*, (Public Relation Officer, North-Eastern Council, Shillong), p.1.

²⁹ Zairema, Rev., *God's Miracle in Mizoram*, (Synod Press and Bookroom, Aizawl, 1978) p.21.

³⁰ Lalbiakzuala., "Roles of Road Communication Network in the Past and Present", in Government of Mizoram, *Mizoram News Magazine*, Autumn Issue, 1985, (Directorate of Information, Public Relations and Tourism, Aizawl, 1985, p.26.

³¹ *Ibid.*,

mobilising tea-garden labourers from Cachar.³² Thus, the Second World War marked the beginning of large-scale road construction in Mizoram.

It is, however, important to note that, while roads were the lifeline for the people in Mizoram, the construction was very expensive due to the difficult hilly terrain. In this connection, Chaube also once said: “The communication position in Mizoram is worse for the weak surface of the hills impede road buildings.”³³ In spite of this natural constraint, the people came to realise that the availability of efficient and cheap means of transport and good road networks would mean fast and proper economic development in Mizoram. In the absence of much scope for development of communication networks other than road, the people’s aspiration to have better road communication networks grew and 15th August 1947 practically saw the beginning of construction of Aizawl-Lunglei Jeep Road by the people on a voluntary and self-help basis.³⁴ Ultimately, the construction of Aizawl-Lunglei Jeep Road got completed and was opened on the 3rd April, 1953.³⁵ Since Indian Independence, the roads in Mizoram were maintained and improved by the Public Works Department of Assam. While road was the only means of transport and communication, the Government of Assam had no interest in its development and improvement due mainly to the difficult terrain.

The development of road communication network was accelerated after the outbreak of political disturbance in Mizoram in the year 1966. The Government of India speeded up road construction for security purposes after the outbreak of political disturbance in Mizoram. The Project Pushpak which is an agency of Border Roads Organization had been associated, from its inception, with 17 BRTF as its nucleus in 1963 in the development of

³² *Report on socio- Economic Review 1979-1980*, (Directorate of Economics and Statistics, Aizawl), Government of Mizoram, p. 67.

³³ Chaube, S, K., *Hill Politics in North-East India*, (Orient Longman Ltd, Calcutta, 1973), p.207.

³⁴ *Ibid.*, p.67.

³⁵ *Ibid.*, p.68.

communication in Mizoram. Within a short span of time, a remarkable progress was achieved by Project Pushpak in connecting the far-flung corners of Mizoram by all-weather roads. The Public Works Department, Government of Mizoram, has made some achievement in road construction alongside the construction works done by the Project Pushpak.

3.4 Districts

The entire geographical area of Mizoram is divided into 8 (eight) districts namely, Aizawl (3,576.31 square kilometres), Lunglei (4,538 square kilometres), Champhai (3,158.83 square kilometres), Kolasib (1,382.51 square kilometres), Mamit (3,025 square kilometres), Serchhip (1,421.60 square kilometres), Saiha (1,399.90 square kilometres), and Lawngtlai (2,557.10 square kilometres). Among all eight districts, Aizawl District occupies highest density of population with 113 persons per square kilometres and the lowest density of population is in Mamit District with 28 persons per square kilometres.³⁶ According to Final Census Report 2011, the state of Mizoram has an estimated population 10, 97,206 lakhs.³⁷ With this rate of population, Mizoram contributes 0.09 per cent of the total population of the country.³⁸

3.5 Mizo Economy

Agriculture is the dominant sector of the Mizoram economy. Mizoram is a hilly area where most of the cultivable land is situated on hill sides. The Mizos have subsisted on agriculture since time immemorial as a result of the limited area of valleys and plain land available, The traditional Mizo economy was wholly an agricultural economy and “the most important occupation of the society to sustain their lives was through Jhumming”.³⁹The

³⁶ Singh A.P.K., *Op.cit.*, p. 2.

³⁷ *Ibid.*,

³⁸ *Ibid.*,

³⁹ Chatterjee, N., *The Mizo Chief and His Administration*. Aizawl: Tribal Research Institute, 1975, p.9.

modus operandi was what is called 'shifting cultivation' or 'slash-and-burn method of cultivation'.⁴⁰ According to this method of cultivation, the fertility of the soil could not produce more than a single crop in a year. After harvesting, the Jhum had to be "left out for a number of years to recuperate".⁴¹ Thus the Mizos were busy in search of suitable land for cultivation every year and hence, they could have easily been described as "a nomadic tribe".⁴² As an effect of the unstable economy the Mizo life was spent shifting from one place to another in search of suitable agricultural land year after year.

The traditional Mizo economy was such an agricultural economy that "the majority of the population was engaged in agricultural activities".⁴³ Agriculture had such a strong grip on the people that there was no occupational differentiation in the Mizo society. However, the scene changed gradually with the commercialization process in operation under the British regime, when the people started shifting to other occupations whenever they could find one. The process of change gave rise to a new social economy which gave greater emphasis on monetary value and had encouraged some of the people to engage themselves in activities to earn money as their subsidiary income. It also gave birth to a new economy where the barter economy was replaced by monetary economy in which the value of any commodity was measured in terms of cash. It was to facilitate the economic exchange in the emerging situation that Major Cole, the Superintendent of Lushai Hills, "introduced market for the first time at Aizawl in July, 1909."⁴⁴ With the establishments of Government offices, opening of different levels of educational institutions, contract works and petty trades, the people began to engage in different kinds of occupation. There was no rigid traditional prescription to occupational choice, and as a result the homogenous element was gone and

⁴⁰ Chatterjee, N., *The Mizo Chief and His Administration*. Aizawl: Tribal Research Institute, 1975, p.9.

⁴¹ Baveja, J. D., *The Land Where the Bamboo Flowers*, (Assam Publication Board, Guwahati, 1973) p.62.

⁴² Mc Call, A. G. *Op.cit.*, p.62.

⁴³ Ray, A. C., *Mizoram Dynamics of Change*, (Pearl Publishers, Calcutta, 1982) p.183.

⁴⁴ Vanlawma, R. *Op.cit.*, p. 43.

the Mizo society was occupationally diversified. As a result of this occupational differentiation, the Mizo Society began to recognize “School teachers, church elders, the village council President (who is duly elected), Government Servants and members of District Council.”⁴⁵ Since then, there has been rapid urbanization in Mizoram. Unfortunately, a consequence of this rapid urbanization is manifested in many ways:⁴⁶ traffic jam, power and energy supply, shortage of water, health care problem, sanitation problem, etc.

3.6 The People

The term ‘Mizo’ has rather been used by the Mizo themselves as a single collective name to mean all those original hill tribes of the Assam-Burman sub-group that branches from Tibeto-Burman group of the main Tibeto-Chinese race⁴⁷ such as Lusei, Hmar, Ralte, Paihte, Pawi, Lakher, Pang and their allied tribes⁴⁸ who are of the Mongoloid stock.⁴⁹ Thus, these various original tribes and clans including their allied tribes who are knit together by common language, common traditions and common customs, and also identifying themselves as ‘Mizos’ are collectively known as the ‘Mizos.’ However, the word Mizo is also used as a generic term to stand for several major tribes and sub-tribes. These tribes which collectively constitute the term ‘Mizo’ may broadly be divided into major and minor tribes depending upon their numbers. Lusei, Ralte, Hmar, Paihte and Pawi consist of the major tribes. On the other hand, the minor tribes include Khawlhing, Khiangte, Chawngthu, Chawhte, Ngente, Renthlei, Tlau, Pautu, Rawihte, Zawngte, Vangchhia and Punte.⁵⁰ These tribes have been classified as minor tribes because they are numerically smaller than the

⁴⁵ Baveja, J.D. *Op.cit.*, p.16.

⁴⁶ Lianzela., *Economic Challenges and Opportunities in Mizoram Since 1986* in, J.K. Patnaik, (Ed), *State and Civil Society in Mizoram*, (EBH Publishers, Guwahati, 2014) p.7.

⁴⁷ Lalthangliana, B., *History of the Mizos in Burma*, (History Department, Arts and Science University, Mandalay, Myanmar, 1975), p.2.

⁴⁸ Liangkhaia, Rev. *Op.cit.*, p. 9-21.

⁴⁹ Thanga, L, B. *Op.cit.*, p.3.

⁵⁰ Liangkhaia. *Op.cit.*, p.12-16.

major tribes. It is interesting to note here that each tribe is composed of a number of clans and sub-clans. This is the view of the majority of the Mizos.

Among the Mizos, the Luseis, are predominant and their spoken language known as 'Duhlian dialect' has developed into the major language spoken by such major tribes as the Hmars, the Paihtes, the Pawis and the Raltes living in Mizoram though these tribes originally had their own dialects.⁵¹

During the 19th Century, the Mizos came under the sway of British missionaries. They introduced formal western education system and the literacy rate of Mizoram has been gradually on the rise since the advent of Christianity in 1894. In the field of literacy rate, as per 2011 Census of India Report, Mizoram is the second highest in the country at a rate of 93.72 next to Kerala.⁵²

With the conversion of the Mizos into Christians by the missionaries, the new religion not only made change in the religious field but in the whole social set-up. 'New figures like Mission School teacher, Pastors and Church Elders have been recognised by the Mizo society.'⁵³ As the role of the church gains more popularity, the entire Mizo social life and thought processes have been transformed and are now guided by the church, directly or indirectly.⁵⁴

3.7 The Mizo Culture

The Mizos are a vibrant, highly cultured and sociable people. Mizoram's radiant culture is a reflection of the traditional heritage of the inhabitants. The Mizos are very proud

⁵¹ Shakespeare, J., *The Lushei-Kuki Clans*, Part I, (Macmillan & Co. Ltd, London, 1972) p.40.

⁵² Government of Mizoram, *Statistical Handbook Mizoram*, 1986, Directorate of Economics and Statistics, Aizawl. p. 206.

⁵³ Baveja, J, D. *Op.cit.*, p.15- 16.

⁵⁴ Singh, A, P, K., *Op.cit.*, p. 31.

of their cultural legacy. The Mizos have a distinguished culture and are well known for their lively traditional dances and costumes, their exquisite cuisines, intricate handlooms and handicrafts, their melodic indigenous music, distinctive customs and traditions, the extravagant community festivals and their own cultural distinct code of etiquettes.⁵⁵ The culture of the Mizos in the past, to a great extent, was the manifestation of their occupation, i.e., shifting cultivation.⁵⁶ Most of the festivals, songs or leisure activities were guided by either the cycle of Jhum or the seasons.⁵⁷ Amongst the culture of the Mizos, three important elements of their culture are highlighted here.

Zawlbuk

A very important segment of the Mizo culture which does not exist anymore yet has a very deep impact on the lives of the people is the institution of *Zawlbuk*. *Zawlbuk* was a social institution that existed for many centuries until it was abolished by the colonial rule in 1938. *Zawlbuk* was the bachelor's house or dormitory and a temporary shelter for travellers during the Chieftainship era in Mizoram. It was mandatory for all the male youths of the village over the age of fifteen (15) to reside in the dormitory after sun down. At a time when formal education did not exist, *Zawlbuk* was the social institution that trained the youth in becoming responsible adults. It was here that all kinds of values and civic teachings were imparted to the young boys by the elders. The youths learned the customs of the tribes and got indoctrinated into the norms of social behaviour. It was a kind of oral library where indigenous knowledge was shared and inculcated to new generations.⁵⁸ Moral education was taught and they were trained to be developed in discipline, defines and village education. Disciplinary actions and proceedings and control of miscreants of the village were conducted

⁵⁵ <https://www.holidify.com/pages/mizoram-culture-84.html> accessed on 10th September, 2019.

⁵⁶ Pachuau, Rintluanga. *Op.cit.*, p.8.

⁵⁷ *Ibid.*,

⁵⁸ Zama, Mch., The Intangible as Cultural Heritage, *A Magazine of the Arts*, The Free Library, 1.06.2012.

in the *Zawlbuk*. It was at the *Zawlbuk* where the glorious ceremony of awarding a ceremonial prize to the villager who had emanated *Tlawmngaihna* the most was convened.⁵⁹ With the advent of Christianity and the colonial rule, various churches and institutions came into existence resulting in the decline of *Zawlbuk*. While the number of participants in the schools and churches increased, the attendance in the *Zawlbuk* met a drastic fall. The attempt of the Governor to bring about the revival in *Zawlbuk* institution had no significant outcome, thus the most valued institution came to a sad end.⁶⁰

Tlawmngaihna

Among the qualities that the Mizos had fostered in their life since remote past was the so-called spirit of 'Tlawmngaihna'.⁶¹ The word *Tlawmngaihna* is an unwritten code of etiquette.⁶² The term loosely translates to 'putting others before oneself' or 'Altruism'. To a Mizo, *Tlawmngaihna* stands for a compelling moral force of a person which finds expression in self-sacrifice for the service of others. A person who possesses *Tlawmngaihna* must be courteous, considerate, unselfish, courageous and industrious. He must always be ready to help others even at considerable inconvenience to himself.⁶³ It is this spirit that joins the people together on occasions of distress, death or even on joyous events. The Mizos survive on the *Tlawmngaihna* of the community in times of calamities such as missing persons, accidental drowning, out-break of fire, landslides and other forms of disasters. On the grounds of *Tlawmngaihna* it is customary for a search party to venture out for seven days until a missing person is found.⁶⁴ Every culture might have their own *Tlawmngaihna* but it is

⁵⁹ Lalthangliana, B. *Op.cit.*, p. 266.

⁶⁰ *Young Mizo Association Profile*, Central Young Mizo Association, Aizawl, 2010, p.2.

⁶¹ Singh, A,P,K. *Op.cit.*, p. 20.

⁶² *Ibid.*,

⁶³ *Ibid.*,

⁶⁴ Lalthangliana, B. *Op.cit.*, p. 265.

deeply rooted in the hearts of the Mizos because the *Zawlbuk* used to award a ceremonial prize to the most altruistic lad making it a competition by practice till today.⁶⁵

Hnatlang

The old age tradition of *Hnatlang* otherwise called as communal labour, occupies a very important position in the Mizo community. *Hnatlang*, which has evolved since the Chieftainship era is an act of a person who willingly offers manual labour or toil to his fellow community or to the general public for the fulfilment of a social obligation or responsibilities. The customary practice of *Hnatlang* is represented as ‘a common service for the common good of the people which all the household should render, either together at one time or one after another, as and when called for’.⁶⁶ *Hnatlang* can also be termed as an unpaid community labour that is done voluntarily. It is a practice that stems out of *Tlawmngaihna* which is deep rooted in the heart of every Mizo. It is this helping and voluntary spirit that the Mizo community depends on in times of distress, disasters and other occasions that require mass contribution. Under this *Hnatlang* system, every family is under obligation and expected to contribute their toil and labour for the good of the community. Voluntary works such as construction, cleanliness drive and distress relief missions and other required community works are under taken in *Hnatlang*. *Hnatlang* and *Tlawmngaihna* are two practices that are bounded together by the creed of self-sacrifice for the service of others without expecting any reward in return.

3.8. Mizoram and Civil Society

The World Bank has defined Civil Society as ‘A wide array of organizations: community groups, non-governmental organizations, labour unions, indigenous groups,

⁶⁵ Lalthangliana, B. *Op.cit.*, p. 265.

⁶⁶ Section 26, Chapter IV (Hnatlang) ,*The Mizoram Municipalities (Ward Committee and Local Council) Rules*, 2010, No. B. 13017/21/2008- UD&PA, the 2nd November, 2010.

charitable organizations, faith-based organisations, professional associations and foundations'.⁶⁷The presence of Civil Society is reflective both at the local level and the state level in Mizoram. The increasing importance of the role of the Civil Society owes much to the close knit nature of the Mizo society. A civil society is simply the coming together of citizens voluntarily in associations.⁶⁸Civil society comes into existence when an individual needs a collective body to represent him and to protect him from the state and at the same time can limit the power of the state. Therefore, a civil society is any voluntarily association of people which can be used as a voice to secure their needs, desires and objectives. Without the participation of citizens and their strong commitment, civil society can never become active and strong. The two biggest civil society organizations in Mizoram is the Church organisation and the YMA (Young Mizo Association) which are deeply interwoven at all stages of life of a Mizo.

3.8.1 The Church

Over the passage of time the growing Christianity in Mizoram has made the Church into one of the most important institutions of the society. The first Chief Secretary of the Union Territory of Mizoram, R.M. Agarwal, who happened to be a Hindu observed: 'Thus the new religion became the single and central factor in the making of a new society and the Church as the most dominant institution. The activities of the Church continue to have a strong hold over the individual's mind and his daily life at all levels and age groups. This is all very good, and everyone has a reason to be proud of the all-round transformation of Mizo society which has taken place during the span of three quarters of this century, the religion

⁶⁷ The World Bank, 'Who and What is Civil Society?' in *The Economic Forum* (23rd April 2018) <https://www.weforum.org/agenda/2018/04/what-is-civil-society/> accessed on 1.06.2018.

⁶⁸ Zomuanthanga, J.C., *The Civil Society in Mizoram: A Study of the Church & the Y.M.A.*, J.K. Paitnaik, (Ed) *Op.cit.*, p. 179.

playing a pivotal role.⁶⁹ This signifies that the Church not only plays a religious role but also prominent roles in the political and social aspects of the community. Under this political aspect, the Mizoram People's Forum (MPF) was conceived by the Mizoram Presbyterian Church on 21st June 2006 as a conglomeration comprising representatives of all major church denominations and the bigger NGOs of the state such as the Young Mizo Association (YMA) and Mizo Hmeichhe Insuihkhawm Pawl (MHIP) to lead a crusade against unhealthy and unclean social activities during elections. It also aimed at free, fair and less expensive election campaigns.⁷⁰ This has marked the drift of the aloofness of the Church from politics in the previous years. Since Mizoram is predominantly a Christian state and every Mizo being tied up with the church, the Church has become one of the highest decision-making bodies of the state; and has taken up activities which are meant for social development and promotes the welfare of the people. The Church according to J.K. Patnaik, is "one of the most important organizations of the civil society, with 95 per cent of the population being Christians, the church plays a crucial role in the socio-cultural uplift of the Mizo society."⁷¹

3.8.2 Young Mizo Association (YMA)

It would not be wrong to say that every Mizo is a member of the YMA at one point in his life. After the institution of Zawlbuk was abolished, a need was felt to have an organisation that would have the same powerful role as the Zawlbuk over the Mizo community. The void was filled when the Young Lushai Association (YLA) was formed in 15th June, 1935 by the Christian missionaries and the pioneer Christians. The YLA was initiated by Rev. David Edward. Indian Independence in 1947 brought about political revival reaching as far as Mizoram resulting in the change of YLA to YMA on 7th October, 1947 as

⁶⁹ Hminga, C., *Contribution of Christian Missionaries in the Making of Modern Mizo Society in the Twentieth Century* in Millenium Souvenir Committee, Mizoram Millenium Souvenir, Millenium Souvenir Committee, Aizawl, 2000, p.129.

⁷⁰ Singh, A,P,K. *Op.cit.*, p. 526.

⁷¹ *Ibid.*, p. 519.

the latter has a more panoramic coverage.⁷²The YMA is registered under the Societies Registration Act (Act XXI of 1860) Registration No. SR4 of 1977.⁷³Any Mizo can become a member of the YMA upon attaining the age of 14 years and continues to be a member for the rest of his/her life. The YMA is the only organisation in Mizoram which has gathered the most number of members among all the organisations. The YMA has a total strength of 427393 members, 172449 female and 254944 male members.⁷⁴ The enormous membership has made the YMA as one of the strongest voluntary organizations. Because of its increasing importance and membership, the organisation has embarked on social, economic and political characters.

Being a voluntary organisation driven by *Tlawmngaihna*, the YMA members are very prompt in rescue operation, stopping and providing rehabilitation in any kind of disaster and natural calamities like landslide, flood, wild fire etc. Without any expectation for any kind of reward or even without government's cooperation, the members are driven to embark on any journey. Recovering of drowned bodies in case of accidents is one of the many problems faced in Mizoram as there are no professional lifeguards. YMA has been performing the job of rescuing or recovering drowned bodies.⁷⁵ The distress relief missions undertaken by the YMA is onerous. The first known disaster faced by Mizoram was the famine (bamboo flowering) disaster of 1959. Mizoram was full of bamboo groves and it is said that bamboos flowers once in fifty years. When the rodent population feasted on the bamboo flower, their fertility increased and their population started to increase. The rodents in turn eat the grains thus causing shortage of food grains leading to famine. In the year 2008, Mizoram yet once again faced this problem. The YMA organized Awareness Campaigns and conduct several seminars to create public awareness of the situation. They

⁷² Young Mizo Association Profile, *Central Young Mizo Association*, Aizawl, 2010, p.2.

⁷³ *Ibid.*,

⁷⁴ *Ibid.*,

⁷⁵ Young Mizo Association Profile, *Central Young Mizo Association*, Aizawl, 2010, p.2.

even undertook steps to provide relief to the famine victims of Bamboo Flowering. An action plan earmarked by a Rupees 566 crore budget was initiated by the Government of Mizoram to face the threat and provide relief to affected communities. The action plan known as BAFFACOS (Bamboo Flowering and Famine Combat Scheme) spread across 14 government departments such as Food and Civil Supplies, Agriculture, Transport, Health and Horticulture.⁷⁶

3.9 Conclusion

The physical terrains of Mizoram are composed predominantly of steep hills. Houses are built on uneven hillsides or slopes which are very harmful to mankind in terms of life loss and economic loss. Mizoram comes under the severe monsoonal winds every year between May and September. The heavy monsoonal rains cause sliding of earth and rock masses and this has resulted in certain areas to be susceptible to disasters during monsoon. Moreover the practice of Jhumming method of cultivation which requires the cutting of burning of the forest during the first quarter of every year is a major source of fire disaster in Mizoram. Therefore reducing the economic and social impacts of disasters through preventive and rehabilitation measures is a necessity all year round. Community participation has always been a crucial factor in the management of disasters in the Mizo society. Construction of houses for the homeless, building temporary shelters for victims of disasters has always been one of the credos of the non- governmental organisations. In addition the civil society organisations collect funds and other materials for disaster victims or their family.

⁷⁶ <https://eksparsh.wordpress.com/tag/baffacos/> accessed on 4.01.2019.

CHAPTER IV
LOCAL GOVERNMENT IN
DISASTER MANAGEMENT IN MIZORAM:
AN ASSESSMENT

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LOCAL GOVERNMENT IN DISASTER MANAGEMENT IN MIZORAM: AN ASSESSMENT

4.1 Introduction

Local government plays an integral part in the mechanism of Disaster Management in Mizoram. The local bodies are the direct representatives of the local community and the local community places their full trust in them. Although the national and provincial governments commit their resources to disaster management, it is the local bodies who are the effective mechanisms in combating and countering disasters through early warning systems, mitigation apparatus, relief and medical assistance, and providing shelter to the victims. Any action that is discharged on a smaller scale is performed efficiently and effectively through the local bodies as they are grassroots institutions. To sum up, local government works in close proximity with the people, has a representative character and a natural familiarity with the local situations and possesses intimate knowledge of the needs, aspirations and means of the local community.¹ Had there been no local government institutions, the central government or the provincial government would handle the local issues in their own conduct which would never be in conformity with the needs and requirements of the local people.

¹ Singh, Sahib., Singh, Swinder., *Development and Local Administration*, (New Academic Publishing Co, Jalandhar, 2013) p. 15.

4.2. Local Government in Disaster Management and Mitigation

Disaster management is a broad and evolving subject and includes the concept and framework of disaster mitigation, prevention, preparedness, and response and recovery strategies, administered by community participation, the civil society and all the stakeholders under the aegis of the government. Traditionally the term ‘Disaster Management’ was used to connote the response, relief, recuperation and management activities after a disaster has occurred, and mitigation measures were not given due importance. Of late, there has been a paradigm shift in the perception of disaster management relating to mitigation efforts. Emphasis has shifted to the mitigation aspect as it is now understood that mitigation plays a vital role in proper management of disasters. The first phase of Disaster Management cycle is Disaster Mitigation.² It entails principles that seek to remove or decrease the catastrophic shock of hazards through proactive and predetermined actions. Although the essence of the term mitigation is prevention, disasters can never be prevented but initiatives to reduce the effectiveness of such disasters can be most effective. The probability of occurrence and the exact timing of disasters can never be determined. The urban local bodies in Aizawl have made maximum effort on mitigation strategies, identification of potential threats in all the localities and to take all obligatory actions to prevent major calamities as well as reduce the consequences of disasters.

Post-disaster measures such as mock drills, training of search and rescue teams, physical and economic relief and rehabilitation are not something new to us,

² Pandey, Mrinalini., *Disaster Management*, Wiley India Pvt Ltd, New Delhi, 2014) p. 63.

yet the aspect of disaster mitigation is something which has not bred familiarity in the state. The need for sensitization of the public on the importance of disaster mitigation is a necessity. The saying ‘Earthquakes do not kill people; buildings do’ is pertinent in urban areas. Urban areas are congested and more prone to disasters. High rise buildings, squatter settlements due to high densities and low availability of land has endangered not just the lives of the public but has also caused a massive disturbance of the ecological system. The local government institutions have taken innumerable measures for the prevention and preparedness of disasters.

At the local level, the councillors are involved in making, unmaking and carrying out these rules and regulations, which deals with structural mitigation and the detection of illegal construction, unsafe buildings, and encroachments on municipal and public properties with direct bearing on the local people. Numerous efforts have been taken by them on the need of reimplementation to generate awareness, knowledge and education on Disaster Management to the people of Mizoram.

The existing institutions of local government in Aizawl are the Aizawl Municipal Corporation (AMC), the Ward Committees and the Local Councils. The rule of the Chieftainship in Mizoram came to an end and on 19th November 1953, the Lushai Hills District Council passed the Lushai Hills District (Village Councils) Act. The Village Council system continued for a number of decades in Aizawl until The Mizoram Municipalities Act was passed by the State Legislature on 29th March 2007. The authority of civic administration of Aizawl city is held by the Aizawl Municipal Corporation ever since.

4.3. Aizawl Municipal Corporation (AMC)

The Aizawl Municipal Council was established on 1st July, 2008 through the Mizoram Municipalities Act of 2007.³ The Act was enacted by the Legislative Assembly of Mizoram in the Fifty- eight year of the Republic of India. The Act is to introduce municipalities in Mizoram so that it brings them in conformity with the purpose, substance and direction of the 74th Constitution Amendment Act, 1992 in general and in particular to endow the municipalities with functions and powers to enable them to function as vibrant institutions of Local Self Government. The Act extends to the whole of the State of Mizoram excluding the areas which have been declared or included in, a Panchayat or a Village Council under the Provisions of any law in force in Mizoram, but shall not include the Mizoram Tribal Areas as referred to in Part III of the paragraph 20 of the Sixth Schedule of the Constitution.⁴ The office of the Aizawl Municipal Council started functioning on 1st July, 2008 without any elected bodies. It had its first election in 3rd November 2010. The first Aizawl Municipal Council was formed in 2010 with 19 members when the Congress- ZNP party coalition was voted to power in the State Legislative Assembly. The Mizoram Municipalities Act of 2007 was amended on 15th October 2015 and on the same day the Aizawl Municipal Council was upgraded to Aizawl Municipal Corporation.

4.4. Organizational Structure of the Aizawl Municipal Corporation

Presently, the AMC is composed of 19 elected councillors representing 19 wards of the city and other members appointed by the Governor of Mizoram The

³ Chapter 1, Section 1(Preliminary), *The Mizoram Municipalities Act, 2007, No. B. 13017/6/2007-UD&PA*, the 25th February, 2008.

⁴ *Ibid.*,

AMC consists of the councillors elected in a municipal general election or by-election in a Municipality⁵ and their term is for a period of five years. One- third of the total membership is reserved for women; these six seats shall be rotated after every five years. At the apex of the AMC organizational structure is a Board of Councillors consisting of the 19 elected members and 12 members appointed by the Governor. The appointed members shall take part in the AMC meetings but shall not have any voting rights. The Board of Councillors, headed by the Mayor, is similar to the State Legislative Assembly. It is the highest decision- making body of the AMC. The 19 Councillors of the AMC elect among themselves the Mayor, Deputy Mayor and Commissioner. There is an Executive Council of the AMC consisting of the Mayor and the Deputy Mayor, both elected by the elected Councillors, besides three members of the Executive Council known as Executive Councillors, to be appointed by the Mayor.⁶ The Mayor is the executive head of the AMC. The Executive Council exercises all the executive powers of the AMC.

The AMC is the authority of civic administration of Aizawl city. The Act provides for a Ward Committee⁷ in every ward that consists of a Chairman, who is an elected councillor from that ward. There shall be two members selected from the Local Council within the ward. Besides this, the Ward Committee Chairman shall appoint three others from amongst prominent citizens of the Ward, one of which shall be a woman, provided that there shall not be more than one member from one

⁵ Sub- section 1, Section 13, Chapter III (Municipal Authorities), *The Mizoram Municipalities Act, 2007, No. B. 13017/6/2007 – UD&PA*, the 6th February, 2015.

⁶ Section 11, Chapter III (Municipal Authorities), *The Mizoram Municipalities Act, 2007, No. B. 13017/6/2007 – UD&PA*, the 6th February, 2015.

⁷ Section 23, Chapter III (Municipal Authorities), *The Mizoram Municipalities Act, 2007, No. B. 13017/6/2007 – UD&PA*, the 6th February, 2015.

locality.⁸ It shall be the duty of the Ward Committee to act as an agency to provide common civic services and common benefits of the community including social harmony. They are also entrusted with making local and internal arrangements and activities within the ward. The AMC does not perform the multifarious functions like the state government does over disaster management. The role played by the AMC in Disaster Management can be interpreted mostly in terms of developmental works.⁹ Yet, they have the authority to inspect, control or even curtail any developments that could lead to an occurrence of disasters. They set rules and regulations that can minimize or eliminate any incidence of disasters and mitigate their consequences. The AMC is the instrument of the State to enforce safety in all areas that involves the elimination of the hazards of landslides, earthquakes sinking areas, debris flows, rock falls, and outbreak of fire, flooding, spread of dangerous disease and epidemics and other conditions. The Councillor in each Ward is allotted a sum of Rupees 1, 00,000 as emergency funds to be used in their respective wards at the time of disasters.¹⁰

4.5. Local Council

The Ward Committee which is a representative of the AMC works in close proximity with the Local Council. The Act has made a provision for the constitution of Local Councils for every locality in the ward by holding elections to be conducted by the State Election Commission.¹¹ There shall be, in each locality, a Local Council. A locality having less than 1500 voters shall have five members, while a locality

⁸ Section 4, Chapter II (Ward Committee), *The Mizoram Municipalities (Ward Committee and Local Council) Rules, 2010, No. B. 13017/21/2008- UD&PA*, the 2nd November, 2010.

⁹ Interview with Lalmuanpuia, Assistant Engineer, Aizawl Municipal Corporation on 11.10.2018.

¹⁰ Interview with PC Lalhmingthanga, Mayor, Aizawl Municipal Corporation on 11.10.2018.

¹¹ Section 15, Chapter III (Local Council), *The Mizoram Municipalities (Ward Committee and Local Council) Rules, 2010, No. B. 13017/21/2008- UD&PA*, the 2nd November, 2010.

with more than 1500 voters shall have seven members. The term of the Local Council is three years. It may be noted that since November 24, 2010 all the Village Councils in Aizawl have functioned as Local Councils. There are currently 83 Local Councils in Aizawl City.

The Local Councils are the arms and legs of the Ward Committee and the AMC and they carry out all the necessary functions and requirements entrusted to them. They work for the benefit of the community and other matters in conformity with the Mizo traditions, customs and practices¹² as provided under the Mizoram Municipalities Act, 2007. “Local Councils are the direct supplier of civic services and facilities to the people without which local living would become different. So they play a dynamic functional role”¹³ The role of the Local Councils in disaster management and mitigation cannot be stressed enough as they are directly involved with the local people whilst representing the Local Government. They are entrusted with numerous functions by the Corporation which is carried out with maximum bearing on the local people. The Local Council is subjected to the supervision of the Ward Committee or the AMC, as the case may be shall, within the ward, supervise and monitor.¹⁴

- Detection of violation of various provisions such as encroachments and illegal construction on municipal and public properties, public nuisance, , unlicensed activities evasion of taxes and the like;

¹² Section 23, Chapter III (Municipal Authorities), *The Mizoram Municipalities Act, 200, No.B. 13017/6/2007* – UD&PA, the 6th February, 2015.

¹³ Interview with David Lalrinawma, Secretary to the Aizawl Municipal Corporation on 11.10.2018.

¹⁴ Section 21, Chapter III (Local Council), *The Mizoram Municipalities (Ward Committee and Local Council) Rules, 2010, No. B. 13017/21/2008-* UD&PA, the 2nd November, 2010.

- To check on wasteful uses of various municipal services like street light-street hydrant, public water, parks and playgrounds, community centres, and the like;
- Detection of accumulated garbage on municipal areas with the power to request the owner to clean and dispose of such garbage.

Whenever a calamity or disaster occurs or there is a threat of disasters in a locality, the first unit to be contacted is the Local Council members and not the AMC Councillors nor the Minister. This is because the Local Council has direct contact with the community which makes them a very valuable agent of administration in the local context. Whenever there is a threat of disasters in a locality, the Local Councils after making a visual evaluation will decide if the situation can be dealt with *Hnatlang* (community labour) or if it should be taken over by the trained personnel.¹⁵ Every monsoon, the Local Council carries out vigilant patrol of any probable situations in the locality that could lead to any event of disasters and report back to the concerned departments to take up preventive measures. It is mandatory for them to attend Mock Drills and Disaster Management training courses organized by the State Government which are later imparted by the Local Councils to the community. They also act as agents for disseminating disaster-related information to the public and building the knowledge, attitude and skills of the community to cope with the effects of disasters. As the Local Councils and communities are the first responders in any crisis situation, community participation becomes a special component for disaster management.

¹⁵ Interview with Lalawmpuia Pachuau, Ward Committee member, Aizawl North III Constituency, on 17.05.2019.

Role played by *Hnatlang* in the administration of the Local Governments

The Local Councils have the widest involvement in the local administration which is further enhanced by their power to call a *Hnatlang*. Though *Hnatlang* is a customary practice the Local Councils are entrusted with the power to enforce *Hnatlang* in their own locality in the interest of the public whenever an occasion demands. A *Hnatlang* is defined as the customary practice of the Mizo people which is meant for the common service for the common good of the people which all the household should render, either together at one time or one after another, as and when called for.¹⁶ *Hnatlang* plays a very significant factor for the local administration that the Local Councils have the power to impose a fine on any household that does not comply with the *Hnatlang* order at a fixed rate.¹⁷ The rate of fine to be imposed on a household which does not comply with the Local Council *Hnatlang* order is fixed from the AMC. They may also fix the rate of exemption fees to be deposited in cash, from time to time. There shall be no discrimination on grounds of religion, class or caste.

It is through the practice of *Hnatlang* coupled with the spirit of *Tlawmngaihna* that the Local Councils have increasingly taken initiatives in disaster management and prevention in local settings. *Tlawmngaihna* may be defined as a virtue of selflessness and self- sacrifice for the service of others. Since the olden days, the Mizos have survived on the practice and spirit of *Hnatlang* and *Tlawmngaihna* in times of distress and events of disasters. The collective labour and

¹⁶ Section 26, Chapter IV (Hnatlang), *The Mizoram Municipalities (Ward Committee and Local Council) Rules, 2010, No. B. 13017/21/2008- UD&PA*, the 2nd November, 2010.

¹⁷ Section 28, Ibid., Chapter IV (Hnatlang), *The Mizoram Municipalities (Ward Committee and Local Council) Rules, 2010, No. B. 13017/21/2008- UD&PA*, the 2nd November, 2010.

contribution of each citizen is indispensable for the successful disaster management and preparedness plan in each locality. Voluntary works such as construction, cleanliness drive and distress relief missions and other required community works are under taken in *Hnatlang*. It is through the practice of *Hnatlang* that the Local Councils have increasingly taken initiatives in disaster management and prevention in local settings.

4.6 The Aizawl Municipal Council Building Regulations, 2012 (amended on 15th March, 2019)

Aizawl is the capital and the largest city of Mizoram. It covers an area of 3,576.31 in Square Kilometres with the Tropic of Cancer cutting across the region in Aizawl district at the southern periphery of Aizawl.¹⁸ As of 2011, Aizawl has a population of 3, 14,754 with 1, 55,490 males and 1, 59,264 females making it the most populous city in the state.¹⁹ A field study has revealed that amongst all the district capitals in Mizoram the threat of disasters due to urban growth and urbanization is the highest in Aizawl (82 %) which may be a result of the rise of population and urban settlement. The reason for this is either residents stay in high rise buildings or in squatter settlements due to high densities and low availability of land.

¹⁸ Pachau, Rintluanga., *Mizoram: A Study in Comprehensive Geography*, (Northern Book Centre, New Delhi, 2009), p.24.

¹⁹ District Wise Rural and Urban Population by Sex (2011 Census), *Mizoram Statistical Handbook 2018*, Directorate of Economics and Statistics, Government of Mizoram, p.3.

Table 4.1. Threat of disasters due to urban growth and urbanisation.

Sl. No.	District	Number					Percent				
		Yes	No	No idea	Others	Total	Yes	No	No idea	Others	Total
1	Aizawl	41	9	0	0	50	82	18	0	0	100
2	Champhai	9	8	3	0	20	45	40	15	0	100
3	Kolasib	6	13	1	0	20	30	65	5	0	100
4	Lawngtlai	14	2	9	0	25	56	8	36	0	100
5	Lunglei	14	5	0	1	20	70	25	0	5	100
6	Mamit	12	6	2	0	20	60	30	10	0	100
7	Saiha	15	10	0	0	25	60	40	0	0	100
8	Serchhip	6	0	14	0	20	30	0	70	0	100
	Total	17	53	29	1	200	58.5	26.5	14.5	0.5	100

Source: Field Survey October 2018

Inappropriate construction, planning and design and defective buildings are great risks that cannot afford to be looked over by the local government. The Aizawl Municipal Council Building Regulations was enacted on 12th December, 2012 for mitigating disasters emphasising on structural and non- structural strategies. This is because the most common disaster to happen in Aizawl is landslides and it is imperative to create regulations which would prepare for damage or loss of lives or infrastructure. The purposes of these rules are to make any buildings withstand a disaster and to avoid any unsafe situations that can be caused to the public. Mitigation strategies in disaster management can be classified into two types, namely structural mitigation and non- structural mitigation.²⁰ Structural mitigation deals with construction projects, which are designed to reduce the economic and social impacts of disasters. Non- structural mitigation deals with land use regulations, hazard zoning, and building codes and constructions.

²⁰ Pandey, Mrinali. *Op.cit.*, p. 64.

The Aizawl Municipal Council Building Regulations, 2012 which was amended on 15th March, 2019 states that any person who intends to make any material structure or erect or re- erect any structure shall attain a building permit by submitting an application to the AMC.²¹ This excludes any person or any structure that is related to the Defence Ministry, Government of India. The application for permission of any type of building should be accompanied by information on Ownership title, NOC (No Objection Letter) from the concerned Local Council. Receipt of latest property tax paid and a certificate of structural soundness of the existing building in case of proposed addition is also required.²²

In the case of concrete buildings, additional information on building plans, structural drawing, specifications and a NOC from the Local Fire Station is required for buildings above 15 metres. No permission is required for vertical extension of a building if the maximum height of the construction is 3 metres. This includes water tanks, green house and other building services. In case of horizontal extensions, the extension should be between two adjacent columns, and a maximum of 1.82 metres.²³ Regulations pertaining to disaster mitigation and management enacted in The Aizawl Municipal Council Building Regulations are as below-

²¹ Section 4, Chapter I (Definitions and Administration), *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018- UD&PA*, the 15th March, 2019.

²² Section 5, Chapter I (Definitions and Administration), *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018- UD&PA*, the 15th March, 2019.

²³ Section 4, Chapter I (Definitions and Administration), *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018- UD&PA*, the 15th March, 2019.

Regulations for Dangerous buildings

80% of deaths in earthquakes are from collapsing buildings.²⁴ Natural disasters like landslides, earthquakes and cyclones can disrupt safe living conditions, causing deaths and casualties within the area and posing danger for the natural environment. If the AMC by law identifies any building that is of a ruinous condition which is likely to collapse, it may request the occupier or owner of the building, to make a fence or a proper hoarding to be put up within a given time for the safety of the public.²⁵ The AMC will set up a technical committee to examine the condition of the building. After the committee has made its written report on the findings and recommendation, the AMC shall give direction to the owner or occupier to complete the repairing work within a stipulated time. If necessary, the police may assist the AMC to get any unsafe building evacuated at any time. And if the circumstance demands, the AMC may order the owner to demolish the buildings within a specified time as per their written notice. If the owner fails to adhere with the notice within the prescribed time, the AMC may initiate action by demolishing the building or make the fence or hoarding themselves. The owner or occupier of the buildings shall pay all the expenses incurred. The expenses shall be made recoverable in the same mode as an amount to be paid on account of a fee or a tax recoverable under this Act²⁶

²⁴ Khanna, B.K., 'Natural Disasters- Exposure and Vulnerability', Sharma, R.K., Sharma, Gagandeep., (Ed) *Natural Disaster* (A.P.H Publishing Corporation, New Delhi, 2016) p. 6.

²⁵ Section 139, Chapter XII (Buildings), *The Mizoram Municipalities Act, 2007, No.B. 13017/6/2007 – UD&PA*, the 6th February, 2015.

²⁶ Section 4, Chapter I (Definitions and Administration), *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018- UD&PA*, the 15th March, 2019.

For proposal of demolition of buildings, the owner of the building may submit an application to the AMC on plain paper which contains proof of ownership, grounds for proposed demolition, the building location, the proposed date for demolition, the possibility of damage which the proposed demolition may cause to the surrounding areas or any other consequence of the demolition within the locality.²⁷ He should also produce from the Local Council a No Objection Certificate (NOC) of where the proposed demolition is to take place. For immediate demolishing or dismantling of a building due to landslide etc., the concerned Local Council may give permission for the demolition communicating to the AMC about the building's condition. In case of ordinary buildings except those situated alongside the motorable road, no permission shall be necessary for its demolition. In Aizawl city, the task of identifying old and ruinous buildings to be demolished is done in collaboration with the Public Works Department (PWD).²⁸ This is because the AMC has not yet had high performing machinery and equipments that is needed for the identification of the state of the buildings. They lack technological development which could give them the capacity to carry out the regulations firmly.

²⁷ Section 139, Chapter XII (Buildings), *The Mizoram Municipalities Act, 2007, No.B. 13017/6/2007* – UD&PA, the 6th February, 2015.

²⁸ Interview with Veronica Vanlalhriatpuii Colney, Assistant Engineer, Aizawl Municipal Corporation on 11.10. 2018.

Table 4.2. Buildings dismantled due to threat of causing disasters in the locality

Sl. No.	District	Number					Percent				
		Yes	Some-times	No	No idea	Total	Yes	Some-times	No	No idea	Total
1	Aizawl	42	0	8	0	50	84	0	16	0	100
2	Champhai	11	0	7	2	20	55	0	35	10	100
3	Kolasib	2	18	0	0	20	10	90	0	0	100
4	Lawngtlai	7	10	6	2	25	28	40	24	8	100
5	Lunglei	11	0	8	1	20	55	0	40	5	100
6	Mamit	14	0	6	0	20	70	0	30	0	100
7	Saiha	22	2	1	0	25	88	8	4	0	100
8	Serchhip	6	0	9	5	20	30	0	45	25	100
	Total	115	30	45	10	200	57.5	15	22.5	5	100

Source: Field Survey October 2018

Dismantling of old and ruinous buildings over cases of threat of disasters take place in every district. The dismantling of buildings is the highest in Kolasib (100 %), Saiha (96 %), Aizawl (84 %), Mamit (70 %), Lawngtlai (68 %), Champhai (55 %), Lunglei (55 %) and Serchhip (30 %). The table also shows that dismantling of buildings is the lowest in Serchhip (70 %).

Regulations for Structural Safety and Services

Collapse of buildings without the influence of disasters is a pointer to the fact that building codes and regulations are openly violated. So the necessity to maintain structural safety and services to avoid collapse of buildings under the influence of disasters can never be underestimated. The ability of a constructed facility to withstand damage, or to prevent or reduce loss of lives during a disaster can be enhanced through the use of appropriate design and building materials. The Aizawl Municipal Council Building Regulations, 2012 provide that for any structural development, the design of the foundation, concrete or timber shall be in conformity

with the National Building Code of India, 2005.²⁹ It also provided that not just the workmanship, but also the materials used for construction should conform to the standards laid down by the Public Works Department, Government of Mizoram, the National Building Code of India, 2005 and the Indian Standards Specifications Codes and Safety, 1987.³⁰ The materials used should be durable, affordable and of good quality and be suited to local context. The installation of lifts, escalators, proper water supply, gas supply, clean sanitation and drainage system should also follow the same norms.³¹

Table 4.3: Compliance of the Instructions of the Architects and Structural Engineers followed by the Locality.

Sl. No.	District	Number					Percent				
		Yes	To some extent	Never	No idea	Total	Yes	To some extent	Never	No idea	Total
1	Aizawl	10	5	2	8	25	40	20	8	32	100
2	Champhai	0	1	1	8	10	0	10	10	80	100
3	Kolasib	0	3	0	7	10	0	30	0	70	100
4	Lawngtlai	8	5	0	2	15	53.33	33.33	0	13.33	100
5	Lunglei	0	1	2	7	10	0	10	20	70	100
6	Mamit	0	2	0	8	10	0	20	0	80	100
7	Saiha	0	14	0	1	15	0	93.33	0	6.67	100
8	Serchhip	0	0	2	8	10	0	0	20	80	100
	Total	18	31	7	49	105	17.14	29.52	6.67	46.67	100

Source: Field Survey October 2018

Compliance of the people on building codes is crucial for the mitigation of disasters. Yet the compliance is very low in the districts of Lunglei and Champhai where 90% of the respondents have either no idea of any working building

²⁹ Section 30, Chapter III (Structural Safety and Services), *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018-* UD&PA, the 15th March, 2019.

³⁰ Section 31, Chapter III (Structural Safety and Services), *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018-* UD&PA, the 15th March, 2019.

³¹ *Ibid.*,

regulations or have never followed any official building guidelines. It is followed by Serchhip and Mamit district with 80% compliance. Non-compliance of the existing building codes, poor qualities of construction, unskilled labours are one of the causes for loss of mankind and property during disasters. The engineers are to give instructions on technical guidelines on cost-effective ways for repair, retrofit and disaster resistant building models which are to be followed by the people in general.

Regulations for Dangerous Structures and Erection of Communication Towers

Unsafe structure has less resistance to winds and earthquakes. If any structure that is in a ruinous condition pose threat to any individual or to any other structure, the owner of such structure may be notified to repair, secure, take down or fence off the structure to avoid danger of any form. The same can be done for a tree or any branch of a tree which is likely to create a dangerous situation for any individual or a structure. The tree or its branch may be cut down by the owner to avert danger on the orders of the executive officer. A notice may also be given to remove, repair, protect or enclose to any owner of a pond, dam, bank, stream, well or tank if it causes any danger to any individuals. If the situation demands, the executive officer himself may carry out temporary measures even before notifying the owner³² and the recovery of the cost from the owner shall be done in the same mode as the recovery of a tax arrear. So any structure that is put up in the municipal area should be so well constructed that it should be able to endure any danger that nature can hurl at.

To safeguard the public from harm that can be imposed by structures such as towers, the Aizawl Municipal Corporation is authorized to implement regulations.

³² Section 165, Chapter XIV, *The Mizoram Municipalities Act, 2007, No.B. 13017/6/2007* – UD&PA, the 6th February, 2015.

Since a lot of towers are erected in residential areas in Aizawl, for the interest of public safety, the AMC has made it mandatory that a certificate of structural soundness of a tower which is to be put up along with certificate of structural soundness of the building on which the tower is to be placed is to be produced. The certificates should be obtained from a licensed Structural Engineer of the AMC and should be produced prior to the erection of the tower.³³ They should be erected by trained and competent workers. Provision for lightning conductor and fire extinguisher at the tower for lightning and fire safety is also mandatory.

Prevention against the Hazards of Quarry

If it is found by the AMC that the working of any quarry including removal of earth, material, or stone, or moving of it from any place is posing danger to any passers-by or is disrupting the natural order or is likely to create nuisance, the Corporation may require the owner or the person in charge of the quarry to discontinue their work to prevent danger or reduce the risk arising or likely to arise.³⁴

Prevention against Fire Disasters

If any firewood, timber or other combustible materials is stored for personal use, the owner may be asked by the executive officer to take precautionary measures to prevent any outbreak of fire.³⁵ If there exists any structure, area or booth that is fully or partially composed of cloths, garments, dry leaves, grass and other highly

³³ Section 44, Chapter IV (Erection for Communication Towers), *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018- UD&PA*, the 15th March, 2019.

³⁴ Section 166, Chapter XIV, *The Mizoram Municipalities Act, 2007, No. B. 13017/6/2007 – UD&PA*, the 6th February, 2015.

³⁵ Section 167, Chapter XIV, *The Mizoram Municipalities Act, 2007, No. B. 13017/6/2007 – UD&PA*, the 6th February, 2015.

inflammable materials, the executive officer may request the owner for their removal to prevent outbreak of fire.

In recent building structures the AMC has undertaken steps to include fire escape in all newly constructed buildings. The Aizawl Municipal Council Building Regulations have recommended that in addition to the main stairs there should be at least one fire escape in any building with three stories including ground floor.³⁶ The fire escape/ exit should be made from non-combustible material and should be free of obstruction at all times. The fire escape should be directly attached to the ground. The Act provided that “the flights of the fire escape should not be less than 75 cm wide with 20 cm tread and riser not more than 19 cm. The limited number for risers should be 16 per flight”.³⁷ A fire escape is not necessary for a floor of a house having a separate entrance. The AMC has also regulated that fixed fire fighting gears should be appropriately located in all buildings indicated by clearly illuminated signs. This is not required in residential buildings which do not exceed 15 metres in height.³⁸ Safety of life from fire, flames, and smoke, should be upheld by every building. The accepted standards and recommendations of the National Building Code of India, 2005 should be upheld by the fire protection and extinguishing system of every household.

³⁶ Section 29, Chapter II, *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018- UD&PA*, the 15th March, 2019.

³⁷ *Ibid.*,

³⁸ Section 35, Chapter III, *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018- UD&PA*, the 15th March, 2019.

Safeguard against Electricity Lines

The AMC has clearly defined the line of demarcation between any building and electricity lines as it poses a dangerous threat in outbreak of fire.³⁹ The distance should be maintained in order to prevent any cause of fire hazard. As per the Indian Electricity Rules, 1956 “no roof of a building or a verandah or a balcony shall be allowed to be erected or re-erected or new addition or alteration made to a building within the distance of an electricity wire as specified in The Aizawl Municipal Council Building Regulations, 2012. The distance from electricity lines provided in the Indian Electricity Rules, 1956 are as below:

Table 4.4 Distances between Buildings and Electricity Lines

SI No	Distance from Electricity Lines	Vertically	Horizontally
1.	Low and Medium Voltage lines and service lines.	2.5 metres	1.2 metres
2.	High voltage lines up to and including 33.000V.	3.7 metres	2.0 metres
3.	Extra high voltage lines beyond 33.00V	3.7 metres (plus 0.3m for every additional 30.000V or part thereof)	2.0 metres (plus 0.3m for every additional 30.000V or part thereof)

Source: The Aizawl Municipal Council Building Regulations, 2019.

³⁹ Section 24, Chapter II, *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018- UD&PA*, the 15th March, 2019.

Regulation for Safe discharge of Rain and Waste Water

Damage caused by improper drainage of rain and waste water from household is an ongoing problem in Aizawl. It is necessary for every household to have proper drainage system by building a conduit/ water channel across their lands and over to the property of their neighbours if necessary. In such a process if any damage, is caused to the neighbour's property by the owner, it shall be the responsibility of the owner to repair/ replace the damaged property of his neighbour and restore it to its original condition. If the situation calls for an inspection or repairing of the conduit, the owner of the land shall allow such inspection and repair as may be necessary. And any case of disputes between the two parties, the decision of the officer of the AMC designated for the purpose shall be final.⁴⁰

4.7 The Aizawl Municipal Corporation Site Development and Slope Modification Regulations, 2017

Site development and slope modification is a precondition in any building development in Aizawl as the city has experienced numerous landslides, rock falls, sinking areas, debris flows, tremors, undue settlement and flooding which has caused numerous loss of lives and property. For this reason, the Aizawl Municipal Corporation Site Development and Slope Modification Regulation was enacted on 4th April, 2017. Aizawl slope is primarily controlled by the underlying geology, of which the type and orientation of rock layers, the degree to which they are fractured and joint, their permeability to water, and their strengths are very important factors,

⁴⁰ Section 37, Chapter III, *The Aizawl Municipal Council Building Regulations, 2019, No. B. 13017/8(2)/2018- UD&PA*, the 15th March, 2019.

in addition to the overall angle and aspects of the slope.⁴¹ Besides the unstable angle of the slopes in Aizawl, human activities such as slope cutting, filling, increasing the amount of groundwater penetrating into slopes, and disposing of sewerage and drainage onto slopes can greatly contribute to slope instability which poses a dangerous condition for infrastructures and the environment. If any construction is to take place on a slope that is a 60 degree angle or greater, the slope will require an assessment by a Geologist from the AMC and a Geologist from the Geology and Mineral Resources Department, Government of Mizoram.⁴² The investigations are done on soil formation and stability, structural stability and, sub soil investigation. This shall ensure not only safety and prevention of disaster, but also the control of natural resources including topography and vegetation.

For effective disaster mitigation plans, hazard maps are necessary to point out the safe and risk- prone zones so that activities are not carried out in any of the risk areas. The hazard maps are useful tools that help save lives and property. The AMC has developed a Landslide Hazard Map⁴³ which has sorted out all site developments into two categories. All site developments that take place in mapped zones of moderate, high or very high landslides hazard are designated as “Engineered Site Development”. All site developments that take place in mapped zones of low landslide hazard are designated as “Regular Site Development”. The Landslide

⁴¹ Section 1, Chapter I, *The Aizawl Municipal Corporation Site Development and Slope Modification Regulations*, Government of Mizoram, No. B. 13017/ 75/ 2016 – UD & PA, the 4th April, 2017.

⁴² Interview with H. Lalbiakkima, Deputy Director, Directorate of Geology and Mineral Resources, Government of Mizoram on 1.05.2019.

⁴³ ‘Landslide Hazard Maps’ means the currently adopted version of the Aizawl Municipal Corporation Landslide Hazard Maps, created in 2014 or later to the standards adopted by the Landslide Policy Committee for Aizawl City, Section 3 of Chapter I, *The Aizawl Municipal Corporation Site and Development and Slope Modification Regulations*, Government of Mizoram, No. B. 13017/ 75/ 2016 – UD & PA, the 4th April, 2017.

Hazard Maps is still under development and any site developments that are not yet mapped and has the average slope greater than or equal to 24 degrees will be grouped into the “Engineered Site Development”, and any site developments that area not yet mapped and has the average slope less than 24 degrees will be grouped into the “Regular Site Development”. During monsoon season, where there is an increase in landslides, erosion hazards and other disruptions, the AMC makes exceptional restrictions and additional measures in site development where in some cases site developments are halted until the end of the monsoon. Any new development in any risk prone area should be discouraged.

Table 4.5: Implementation of the Building Bye- laws by the Government of Mizoram in urban centres of the State.

Sl. No.	District	Number					Percent				
		Strongly upheld	Lightly implemented	Not yet	No idea	Total	Strongly upheld	Lightly implemented	Not yet	No idea	Total
1	Aizawl	8	5	8	4	25	32	20	32	16	100
2	Champhai	1	0	6	3	10	10	0	60	30	100
3	Kolasib	1	3	1	5	10	10	30	10	50	100
4	Lawngtlai	11	0	0	4	15	73.33	0	0	26.67	100
5	Lunglei	0	7	0	3	10	0	70	0	30	100
6	Mamit	0	1	3	6	10	0	10	30	60	100
7	Saiha	0	3	5	7	15	0	20	33.33	46.67	100
8	Serchhip	0	0	8	2	10	0	0	80	20	100
	Total	21	19	31	34	105	20	18.10	29.52	32.38	100

Source: Field Survey October 2018

Although the government has implemented orders to avoid losses on account of destruction of buildings and disasters through its building bye- laws in different urban centres of the State, the rate of awareness is very low. This has tremendously caused a setback in the way of a uniformed engineered construction in some areas. Due to the lack of knowledge, authorities are consulted only after foundations for the infrastructure has already been constructed.

Inspection

The AMC has composed a team of Engineering Geologist, Geotechnical Engineer Civil Engineer, and a Building Official to identify any structural defects or mishaps and to come up with reinforcement strategies. The permit for a site development shall be first inspected by the Building Official. The Engineering geologist shall report on the bedrock excavations of the development. Professional inspection shall be provided by the Geotechnical engineer including observation of fill placement and compaction tests. The Civil Engineer shall provide professional inspection, observation and review of the establishment including development of proper drainage system. The permit holder is the chief coordinator between the construction workers, labourers and any professional consultants involved and in seeing that all necessary precautions are taken to prevent endangerment of life and property that may result from the construction of the site development work.

Construction Safety Precautions, Procedures and Correcting Unsafe Condition

Under the continual inspection of the Building Official, if the permit holder feels that the site development has caused falling of debris on any public roads or interferes with any drainage course, or endangers life and property. A notice may be

given to the person engaged in the construction and such person may immediately stop the work. The permit holder may also notify the owner of the property to implement protective measures or to repair or eliminate such unsafe conditions. If the owner fails to comply with the orders of the Building Official, the AMC may take initiative in repairing or removal of such developments/ structure.⁴⁴ The permit holder is made in charge of taking all necessary actions to protect the damage of any public or private property that may be caused by the construction of the site development work.

Table 4.6. Threats of disasters in the locality due to lack of proper plans.

Sl. No.	District	Number					Percent				
		Yes	Maybe	No	No idea	Total	Yes	Maybe	No	No idea	Total
1	Aizawl	25	23	0	2	50	50	46	0	4	100
2	Champhai	3	14	0	3	20	15	70	0	15	100
3	Kolasib	7	12	0	1	20	35	60	0	5	100
4	Lawngtlai	8	17	0	0	25	32	68	0	0	100
5	Lunglei	5	14	0	1	20	25	70	0	5	100
6	Mamit	6	12	2	0	20	30	60	10	0	100
7	Saiha	14	10	0	1	25	56	40	0	4	100
8	Serchhip	10	9	1	0	20	50	45	5	0	100
	Total	78	111	3	8	200	39	55.5	1.5	4	100

Source: Field Survey October 2018

Careful planning minimizes the impact of disasters. When asked if there was any possibility of threats of disaster in the districts due to lack of proper plans, 95 % of them affirmed there was a possibility of danger due to lack of proper plans. 10 % from Mamit stated that threats were not imminent in their district. Moreover, 4 % of

⁴⁴ Section 21, Chapter I, *The Aizawl Municipal Corporation Site Development and Slope Modification Regulations*, Government of Mizoram, No. B. 13017/75/2016 – UD & PA, the 4th April, 2017.

the respondents could not form an idea on this matter indicating the lack of awareness of building guidelines and regulations.

4.8 Other Measures of Disaster Mitigation

Prevention and Checking of Life Threatening Disease

Public health emergencies disrupt the routine health service which results in high levels of mortality and morbidity and can cause major drain in the economy. There have been instances in history where a sudden outbreak of a disease had a significant effect on an entire civilization. So it is the mission of the AMC to ensure health and well- being of the population at large. If there is a possibility that there is a person believed to be suffering from a dangerous disease that could affect the health of the municipality or if the owner of a building believes that such person is an occupier of his building, he is obliged to give information about the existence of such disease to the Chairman of the AMC.⁴⁵ This is also binding on the medical practitioners, the person being in charge of or in attendance upon of the person with the disease. The Chairman has the power to inspect any place in which there is suspicion that there is a threat of a disease in the area. Preventive measures will be taken up on the suspect and existing report followed by a report to the State Government. The Chairman can carry out the inspection after giving notice or without notice as he think deem reasonable. Early detection and monitoring of the disease is necessary for the safeguard of public health.

⁴⁵ Section 304, Chapter XIX (Restraint of Infection), *The Mizoram Municipalities Act, 2007, No.B. 13017/6/2007* – UD&PA, the 6th February, 2015.

It is also the duty of the Board of Councillors to take necessary safeguards for the prevention of any dangerous disease or any epidemic that could be communicable from animals in the Municipality.⁴⁶ Mass inoculation, vaccination, immunization and disinfection are certain measures taken to prevent the spread of such diseases.

Management of Rubbish and Offensive Matter

There has been a rise in the amount of waste being generated every day by each household. Wastes that are not being properly managed are a serious health hazard and can pollute the air, water and soil and leave various environmental impacts. Moreover, the absence of proper solid waste management has posed a great problem in all cities. To prevent this, the Board of Councillors shall provide carts, motor trucks and other implements for the purpose of removal of solid waste, sewage, rubbish, filth and offensive matter and for the cleansing of latrines, urinals, drains and cesspools. It is enforced on the citizens to collect from their respective premises all solid waste, rubbish and all offensive matters and keep them in bags, sacks or other containers for collection by cart or motor trucks for final disposal. The timing of the garbage disposal trucks have to be firmly followed as no owner is allowed to keep any filth or garbage on his premise or building for more than twenty four hours. The Board of Councillors shall provide in some suitable places dumping

⁴⁶ Section 303, Chapter XIX (Restraint of Infection), *The Mizoram Municipalities Act, 2007, No.B. 13017/6/2007* – UD&PA, the 6th February, 2015.

pits and dumping grounds for final disposal of sewage, rubbish and offensive matters.⁴⁷

To curb the problem of health hazard, pollution and environmental threat as a result of improper waste generated from households every day, the urban local bodies have executed an integrated effort on solid waste management. Accordingly, as stipulated by the Aizawl Municipal Corporation Plastic Waste Management Bye-Law 2019, a new law banning single use plastics and plastic bags of below 50 micron came into effect within the municipal area from 1st August 2019.⁴⁸ In such a close-knit and friendly Mizo society the local bodies have the capability to persuade the community in performing shared tasks. In the execution of any disaster management policy, they play a pivotal role as they influence and strengthen the commitment of citizens to realize the goals of a disaster resilient society.

4.9 Conclusion

Disaster mitigation is as important as any other aspects of disaster management. While disasters cannot be avoided, their harmful impacts can be mitigated. Therefore the importance of disaster management can never be underestimated and there can be no limit to what can be added to the process of mitigation. Safety measures are never to be ignored as it helps in reducing risks by managing its impact, or transferring the risk. For this reason, the local government bodies in Mizoram have made efforts on mitigation strategies, identification of potential threats and actions to prevent major calamities as well as reduce the

⁴⁷ Section 150, Chapter XIII (Public Conservancy and Private Conservancy), *The Mizoram Municipalities Act, 2007, No.B. 13017/6/2007* – UD&PA, the 6th February, 2015.

⁴⁸ *The Mizoram Post* (Mizo Daily) VOL – XVII, Issue 69, RNI No. MIZENG/2002/10461 published on 31.7.2019.

consequences of disasters. However the successes of disaster mitigation strategies depend on the cooperation of the citizens and the compliance of rules and regulations implemented by the authorities. The support of all the stakeholders and communication at all levels is also necessary.

CHAPTER V

**ROLE OF NGOS FOR ENHANCING THE CAPACITY OF
THE STATE GOVERNMENT IN DISASTER MANAGEMENT:
AN ASSESSMENT**

CHAPTER V

ROLE OF NGOS FOR ENHANCING THE CAPACITY OF THE STATE GOVERNMENT IN DISASTER MANAGEMENT: AN ASSESSMENT

5.1 Introduction

Although the church body is often regarded as the highest authority apart from the state government, other NGOs and social organisations have an equal influence on the Mizo society. The NGOs together with the church form the civil society in Mizoram and they have authoritative control of the state decision-making apparatus. The institutions of social associations hold a very important place in a small state like Mizoram, where people feel it is their duty to contribute to the free civil society with their willing participation. These grass roots institutions have an impact on the lives of the people more than any other organisation or agencies in the state. The Young Mizo Association (YMA) is one such non-government organisation in Mizoram with an enrolment of 4,27,393 members.¹ The other prominent social organisations in Mizoram are the Mizo Hmeichhe Insuihkhawm Pawl (MHIP),² Mizoram Upa Pawl (MUP)³ and Mizo Zirlai Pawl (MZP).⁴ Each of these organisations has an impact on each and every individual from birth till death. According to Singh, “Civil society organisations are those organisations found in the space between the state and the household, which are voluntary in nature, and which have significant autonomy from the State. In the context of welfare, this includes

¹ Official record maintained by the Central Young Mizo Association, Aizawl, as on November 2018.

² ‘Mizo Hmeichhe Insuihkhawm Pawl’ means Mizo Women’s Welfare.

³ ‘Mizoram Upa Pawl’ means Mizoram Senior Citizen’s Association.

⁴ ‘Mizo Zirlai Pawl’ means Mizo Students’ Association.

trade unions, consumer organisations, Non-Governmental Organisations (NGOs), Community Based Organisations (CBOs), religious organisations delivery, welfare services, social workers in private practice etc. Therefore, any people's association or organisation can be referred to as a Civil Society Organisation".⁵The state, the market, and the civil society made up of individuals, social networks, and the non-governmental organisations (NGOs) and member based organisations (MBOs) together make for the gigantic task of rehabilitation.⁶

5.2 Civil Society and Disaster Management

The community members are the main actors in disaster management. Their participation in the social organisations gives them leverage of coping and surviving disasters. When a disaster is major or minor, of national or local proportion, it is the people at the community who suffer the most adverse effects. The community based organisations builds and strengthens existing coping strategies and capacities. Although lacking in material assets, communities can rely on traditional wisdom, local knowledge and resources, social organisations, shared values and coping mechanisms such as cooperative endeavour, close family ties, attitudes of perseverance and being resourceful.⁷The voluntary element of these organisations makes them an indispensable aspect in the face of disasters. Any wrath of disaster has to be met with the humanitarian assistance of these organisations. In the past, their role was confined to post disaster relief like providing relief materials,

⁵ Singh, Richa., *Civil Society and Policy Making in India: In search of Democratic Spaces: a Case Study*, (Centre for Democracy and Social Action, Oxfam India Publishers, May 2014) p.15.

⁶ Nagar, Ranita., *Disaster Management*, (A.P.H. Publishing Corporation, New Delhi, 2010) p. 20.

⁷ Lorna, P, Victoria., Community Capacity and Disaster Resilience in *Disaster Management: Global Challenges and Local Solutions*, (Universities Press Private Limited, 2009) p.338.

involvement in rescue operations, and arranging temporary shelters. Recently, it has extended to pre- disaster preparedness and mitigation like providing training, public awareness, mock exercises and education to the common mass.

Table 5.1 Provision of aid to disaster victims from various sources.

Sl. No.	District	Number					Percent				
		Donations from the government, church and individuals	Aid from the government	Donations from individuals, people	Other sources	Total	Donations from the government, church and individuals	Aid from the government	Donations from individuals, people	Other sources	Total
1	Aizawl	23	0	2	0	25	92	0	8	0	100
2	Champhai	3	0	7	0	10	30	0	70	0	100
3	Kolasib	3	0	5	2	10	30	0	50	20	100
4	Lawngtlai	13	0	0	0	15	86.67	0	0	0	100
5	Lunglei	1	0	6	0	10	10	0	60	0	100
6	Mamit	9	0	0	0	10	90	0	0	0	100
7	Saiha	10	1	4	0	15	66.67	6.67	26.67	0	100
8	Serchhip	3	5	0	0	10	30	50	0	0	100
	Total	65	6	24	2	105	61.9	5.71	22.86	1.9	100

Source: Field Survey October 2018

The table represents the impact of the civil society on the rehabilitation of disaster victims. Besides provision of their temporary shelter, food and clothing are also provided to the victims through donations from the government, church and individuals (61.90 %). The other source in Aizawl, Champhai, Kolasib, Lunglei and Saiha include donations from the individuals and people of the community (22.86 %). In Serchhip (50%) and Saiha (6.67 %), the government plays a role in the contribution of food and clothing to the victims.

5.2.1 The Church

Mizoram being a pre-dominant Christian state has often been referred as “the land of a thousand Churches”. The organizational capacity of the churches in Mizoram is strong enough to have an impetus on the community at large. The Christian values integrated with philanthropic virtues have always been the strength of the church in aiding the weaker sections of the society since the olden days. According to the Mizoram Religion Census, 2011, Christians constitute 87.16 % of the population in Mizoram with various denominations.⁸ The Presbyterian Church of Mizoram holds the highest membership with a staggering 6, 11,241 members followed by the Baptist Church of Mizoram with a membership of 1, 72,252.⁹ Kohhran Hmeichhia (Women’s fellowship), Pavalai Pawl (Presbyterian Men’s fellowship) and the Kristian Thalai Pawl (Youth wing) of the local churches are the fundamental actors representing the Presbyterian Church in disaster relief works. Assistance and aid are mostly provided to disaster victims in the form of collection of funds by the Youth wing¹⁰ whereas raising of funds, collection of materials and provision of food supplies are resorted to by the Men’s Fellowship and the Women Wing in aiding victims of disasters. The local church organisations which have the potential to perform a myriad of functions have organised and taken part in countless post disaster activities yet has not played any role in pre disaster activities.

⁸ <https://www.census2011.co.in/data/religion/state/15-mizoram.html> accessed on 15.08.2019.

⁹ Government of Mizoram, *Mizoram State Statistical Profile 2018*, Directorate of Economics and Statistics, p.18.

¹⁰ Interview with Simon Lalramchhana, Secretary, Kristian Thalai Pawl, Zarkawt Presbyterian Church, Aizawl on 14.08.2019.

5.2.2 Mizoram Upa Pawl (MUP)

The Mizoram Upa Pawl is registered under the Charitable Society Act XXI of 1860 SR/-7 of 1977 and is affiliated with the Federation of Associations of Senior Citizens (FASC) of India, and All India Senior Citizen's Confederation (AISCCON).¹¹ It has 6 sub-headquarters and its general headquarters is located in Aizawl. It has 588 units and 83 areas. It covers the whole state of Mizoram, including a part of Tripura, Meghalaya and Manipur states and presently it has a membership of 60,000.¹² The Mizoram Upa Pawl is a purely voluntary organisation and has been involved in disaster relief works as conducive to their aims and objectives. Since most members are at an age where they have health disadvantages, their involvements are usually in the form of relief funds through monetary contributions rather than physical voluntary labour.¹³ When there is an incidence of disaster, relief campaigns are organised for disaster victims and relief funds are collected from all the units and are then presented to the victims of disasters.¹⁴ The Mizoram Upa Pawl has started awarding Mizo Medal to people who have shown extraordinary acts of bravery, and also to successful social workers. This is a platform through which disaster survivors and heroic acts during disasters receive a glorious representation. The MUP has also started the MUP Charity Fund in aid of the poor and the destitute, and also of any member needing medical assistance. For this Charity Fund, each member of the Association contributes Rs. 20/- every year. The MUP Charity fund has been used for disaster relief matters on a lot of occasions.

¹¹ Mizoram Upa Pawl, *Mizoram Upa Pawl Profile*, Aizawl, 2015, p.1

¹² *Ibid.*, p.2.

¹³ Interview with Mr Hrangta Khiangte, Vice- President, MUP Zarkawt Branch, on 9.02.2019

¹⁴ Interview with Mr. R.K Thanga, Chairman, Mizoram Upa Pawl on 15.01.2019

The MUP publishes a monthly Magazine called MUP TLANGAU (Herald of the Senior Citizen's Association). At present 11,200 copies are in circulation.¹⁵ Articles on disaster management and its preparedness, mitigation, and post relief efforts have been published in this journal. It has served to be an important source of social education and is used as research materials by various research scholars. The MUP holds a General Assembly every year in the month of March- April in which they discuss agendas on various important issues and advice to be offered to the state government on various spheres of development.¹⁶

5.2.3 Mizo Hmeichhe Insuihkhawm Pawl (MHIP)

The Mizo Hmeichhe Insuihkhawm Pawl (MHIP) was established on the 6th of July 1974 and is registered under the Society Registration Act, 1860 (ACT XXI of 1060).¹⁷ The MHIP is one of the biggest voluntary organisations in Mizoram with an enrolment of 2, 89,300 members.¹⁸ Its General Headquarters is located in Aizawl. The organisation is divided into 7(seven) sub- headquarters. The sub headquarters are further divided into 16 blocks and 700 branches. Philanthropic social work is the guiding principle of the MHIP with no expectation of any return or benefit. Being a women organisation, most of their activities emphasize on upliftment of women and children. Whenever there is an incidence of a minor disaster in the locality, the site is visited and a condolence fund is offered to the victims or his/ her family.¹⁹ In the case of bigger disasters leading to loss of lives and homes, there is a slight change in

¹⁵ Mizoram Upa Pawl, *Mizoram Upa Pawl Profile*, Aizawl, 2015, p.6.

¹⁶ *Ibid.*, p.5.

¹⁷ MHIP Dan Bu, Published by MHIP General Headquarters, Aizawl, p.1.

¹⁸ *Vanglaini* (Mizo Daily), VOL – XXXIV NO.88, RNI 34227/79, published on 17.04.2019.

¹⁹ Interview with Dr Lalthanpuui, Vice President, MHIP, Mizoram on 1.02.2019.

the direction of initiative taken. Donations are collected from members and other donors from all the MHIP branch levels. Donation campaigns for relief materials such as mattresses, pillows and blankets are organised. The relief materials are then sent to the victims and their family. Nurturing the lives of women disaster victims is a priority as women are more vulnerable compared to male disaster survivors. The MHIP also conduct trainings related to gender issues. The activities of the MHIP also include skill development and entrepreneurship training for widows and orphans who have survived disasters. While helping the destitute, the downtrodden and the weaker sections of society, they also aim at the upliftment of women and seeking a better status for women in the Mizo society.

5.2.4 Mizo Zirlai Pawl (MZP)

The Mizo Zirlai Pawl was established on October 27, 1935. The organisation is one of the most prominent and popular organisations in Mizoram where any student of Mizo origin can be a proud member. It is registered under Firm and Societies Act bearing registration number 35 of 1969- 1970.²⁰The administrative establishment of the MZP General Headquarters comprises of 6 elected office bearers, 10 appointed secretaries, and 50 executive committee members, 8 advisers and 2 legal advisers, an editor of MZP magazine, a representative of the North East Students' Organisation and other ex- officio members. The MZP has 12 Headquarters, 57 sub headquarters, 163 branches, and has an affiliation with 8 students' association who are of Mizo origin. The General Headquarters of the MZP is located in Aizawl. The main objective of the MZP is to seek the welfare of any

²⁰ Mizo Zirlai Pawl, *Mizo Zirlai Pawl Profile*, 2011, p.1.

student and to enhance their knowledge and skill so that they could contribute their best for the society. The MZP abides by the proverb “Unity is Strength.” Consequently, some of the main concerns of the MZP include unity amongst all the Mizos; to inculcate social values, to promote gainful self-employment, to protect and preserve the heritage of the Mizos, protection from assimilation and outside influx and to bring all the contiguous territory of Mizos habitation under one administration.²¹

Since it is an organisation which has an impact over all the students of Mizoram, MZP holds a very important position in initiating efforts for disaster management. The MZP has often been called for their assistance in relief operations. Their most recent operation was in 2018 at Sakawrdai village where four people lost their lives in a boat accident. The student union group from Sakawrdai known as the Hmar Students Association (HAS) immediately contacted the Aizawl MZP Headquarters for assistance and guidance. The distress call was immediately responded to by the MZP who reached the village without any delay.²² Although it did not have the leading part, the MZP organised relief operations through donation boxes which were placed throughout the districts of Mizoram. They also organised street campaigns on the importance of safety precautions to be observed during monsoon season, the severity of the accident at Sakawrdai and an appeal to the people to be more generous with the funds. Besides the massive monetary contribution, the MZP also collected books, food, mattresses, and clothes for the victims and their family. In other cases of disasters when the victims are, or the

²¹ Mizo Zirlai Pawl, *Mizo Zirlai Pawl Profile*, 2011, p.1.

²² Interview with Lalnunmawia Pautu, General Secretary, Mizo Zirlai Pawl on 18.02.2019.

victim is survived by a person who is a student and has no other means of support, the MZP takes up the responsibility of supporting the students through provisions of students' loans and other means of students' benefits.²³

5.2.5 Young Mizo Association (YMA)

However, the only organisation which embraces the whole of Mizoram since its inception is the Young Mizo Association (YMA). The YMA was founded in 1935 and has continued to be the 'torch bearer' of the Mizos and their culture till today. Today the YMA has become the largest and also the most powerful and influential NGO in Mizoram. In due course of time, the role of the YMA has grown and impacted all walks of human life. The YMA was founded by the European Missionaries on 15th June 1935 under the leadership of Rev. David Edward. It was originally called the Young Lushai Association (YLA), as the Mizos were then called 'Lushai' by the colonial British. Indian Independence in 1947 brought about political revival even in Mizoram resulting in the change of YLA to YMA on 7th October, 1947, as the latter has a more panoramic coverage.²⁴ After the decline of Zawlbuk, the Christian Missionaries and the church leaders found it necessary to establish a socio- cultural institution that could take the place of Zawlbuk. So the YMA was envisioned as an alternative for the valued institution. The YMA is registered under the Societies Registration Act (Act XXI of 1860) Registration No. SR4 of 1977.²⁵

²³ Interview with Lalnunmawia Pautu, General Secretary, Mizo Zirlai Pawl on 18.02.2019.

²⁴ Central Young Mizo Association, *Young Mizo Association Profile*, Aizawl, 2010, p.2.

²⁵ Central Young Mizo Association, *Young Mizo Association Profile*, Aizawl, 2010, p.3.

The YMA has three important 'Mottos'. They are:²⁶

- Good use/ proper utilization of free time.
- Revere the virtuous Christian ethics/ lives.
- Striving towards a holistic development of the Mizo society.

The YMA is established in all the other districts, while in Lawngtlai and Saiha they have the Young Lai Association (YLA) and Mara ThyutliaPy (MTP). The highest authority of the Central Young Mizo Association is the General Conference and, the Central Coordination Committee (CCC). Below this governing body is the Central Executive Committee (CEC). All the branches of YMA, within Mizoram and outside of the State are subjected to the control of the Central YMA. The Central YMA has its headquarters at Aizawl, Mizoram, where the Central YMA Office, the Central YMA Hall, the YMA Press and the YMA Free Computer Center are all located within the Headquarters building. All the villages and towns have a set-up of Branch YMA and, Section YMA at the local level. Several of these YMA branches are amalgamated together to form a group YMA, and in turn several Group YMA are combined together to form a sub headquarters YMA under the direct control of Sub-Head- quarters YMA Executive Committee. There are five sub-headquarters under the YMA. Presently, there are 47 YMA Groups and 804 YMA Branches across Mizoram.²⁷ In addition there are YMA Branches and Groups in the neighbouring states of Assam, Manipur, Meghalaya, Tripura, Nagaland and Sajak in

²⁶ Central Young Mizo Association, *Young Mizo Association Profile*, Aizawl, 2010, p.3.

²⁷ Official Record maintained by the Central Young Mizo Association, Aizawl, as on November, 2018.

Bangladesh.²⁸The YMA has a total strength of 427393 members, 172449 female and 254944 male members.²⁹The enormous membership has made the YMA as one of the strongest voluntary organizations. Aizawl coordinates the activities of the Sub-headquarters and all YMA Branch from different villages scattered all over the state. The decisions taken by the Central YMA level are binding on all its subordinate branches in the State. The Central YMA has 18 committees under it out of which Disaster Management Sub- Committee is one of them. It is a vigilant group consisting of 23 members with a Chairman and a Secretary.

The foundation on which the YMA has been found is based on the principle of *Tlawmngaihna*. The purpose of forming the YMA is exclusively for others.³⁰Since the Mizos live in close homogeneity, it is this spirit that joins them to participate and render all possible services whenever there is an occasion of death, missing persons, disasters, etc. The helping spirit of *Tlawmngaihna* is not just a humanitarian act but also a habitual societal function. The YMA is strongly guided by the principle of *Tlawmngaihna*. The word *Tlawmngaihna* is an unwritten code of etiquette.³¹ The term loosely translates to ‘putting others before oneself’ or ‘Altruism’. To a Mizo, *Tlawmngaihna* stands for a compelling moral force of a person which finds expression in self-sacrifice for the service of others.³² A person who possesses *Tlawmngaihna* must be courteous, considerate, unselfish, courageous and industrious. He must always be ready to help others even at considerable

²⁸ Official Record maintained by the Central Young Mizo Association, Aizawl, as on November, 2018.

²⁹ *Ibid.*,

³⁰ Central Young Mizo Association, *Young Mizo Association Profile*, Aizawl, 2010, p.11.

³¹ Singh, A, P, K., *Political Scenario of Mizoram: Past and Present*, (Mittal Publication, New Delhi, 2009) p. 20.

³² *Ibid.*, p.21.

inconvenience to himself.³³ With *Tlawmngaihna* as the guiding principle, the YMA has been responding to the needs of the society and very often they perform tasks which are well beyond their specific objectives.

Another quality that the Mizos have fostered in their life since remote past is the practice of *Hnatlang*. The customary practice of *Hnatlang* is represented as ‘a common service for the common good of the people which all the household should render, either together at one time or one after another, as and when called for’.³⁴ Every individual of the society is under obligation to contribute their labour for the welfare of the community. It promotes the principle of self-help and cooperation and the fulfilment of social obligation by means of voluntary labour. It is this helping and voluntary spirit that the Mizo community depends on in times of distress, disasters and other occasions that require mass contribution. Voluntary works such as construction, cleanliness drive and distress relief missions and other required community works are under taken in *Hnatlang*. There are occasions where the government is not sufficient to carry out particular responsibilities, in times like these; YMA is summoned to assist the work of the Government. Complete trust is given to the YMA by the people.

The voluntary nature of *Hnatlang* integrated with the selflessness character of *Tlawmngaihna* is the foundation of the existence of the YMA. Therefore a member of YMA is naturally hospitable, kind, unselfish. The YMA aims at providing services to the needy, the destitute and the distressed, a mission which is only successful with

³³ Singh, A, P, K. *Op.cit.*, p. 20.

³⁴ Section 26, Chapter IV (*Hnatlang*), *The Mizoram Municipalities (Ward Committee and Local Council) Rules*, 2010, No. B. 13017/21/2008- UD&PA, the 2nd November, 2010.

the incorporation of *Tlawmngaihna* and *Hnatlang*. Service is rendered to the people not just for the accomplishment of a mission, but also as a social obligation. With the community's participation, the YMA undertake work on their own initiative and with their own resources and organise the needed service. Since it is governed by its own members without any external control; voluntary action is by its nature very local. Driven by the force of *Tlawmngaihna* and *Hnatlang* the YMA have increasingly taken initiatives in disaster management and prevention in local settings. The collective labour and self- sacrifice of each citizen is indispensable for the successful disaster management and preparedness plan in each locality. Apart from providing relief and rehabilitation at the time of emergency, they also play a pioneering role in the development of social welfare services. So it can be rightly said that the YMA exists purely for the general well-being of the community.

5.3 Activities taken up by the YMA in Disaster Management

The Disaster Management Sub Committee is one of the 18 Standing Committees that have been constituted by the Central YMA. It regularly holds different kinds of trainings for its members for different aspects of Disaster Management. Further, Disaster Management Sub- Committees were set up in all the branch levels as passed by the Central YMA Executive Committee meeting.³⁵ This was done so that it could foster a more organised and uniform team starting from the lower level for achieving a greater goal. The need for the creation of a Central YMA Disaster Response Team was passed at the meeting of the Disaster Management Sub Committee on 14th January 2016 and 20 people were appointed for the first CYMA

³⁵ Letter No. CYMA. 146/2013-2014/12 of 06.03.2014, Aizawl.

Disaster Response Team on Oct 2016.³⁶Presently the CYMA Disaster Response Team consists of 24 experts who work in very close proximity with the CYMA.³⁷The Central YMA Relief Committee consisting of a Chairman, Vice-Chairman, Secretary and 8 committee members have also been set up. It is also noteworthy that the CYMA has made it mandatory for all the YMA Branches to send a representative to IGNOU to take up the certificate and diploma course on Certificate on Disaster Management (CDM). The admission fee is reimbursed by the CYMA at the end of the year.³⁸

The activities taken up by the YMA in Disaster Management can be broadly categorized into Prevention and Preparedness activities and Post Disaster Relief operations. Training is mandatory for both pre disaster and post disaster challenges. As the nature of disasters gets more complex, it calls for a newer set of skills and techniques. Thus a novel and innovative approach to skills development is needed in order to respond to the demands of complex environments.³⁹

5.3.1 Pre-Disaster Activities

Following are the Pre-Disaster activities of YMA in the State of Mizoram:

(a) Trainings

The CYMA has conducted several trainings over the years to impart theoretical and practical knowledge of disaster management, to the point of appealing to the nodal department to conduct more training. Trainings have been

³⁶ CYMA Annual Report 2016, p.13.

³⁷ Letter No. CYMA. 146/2018-2019/18 of 16.04.2019, Aizawl.

³⁸ CYMA Annual Report 2018, p.14.

³⁹ Pandey Mrinalini, *Disaster Management*, (Wiley India Pvt Ltd, New Delhi, 2014), p.205.

conducted in collaboration with the Department of Disaster Management and Rehabilitation, Government of Mizoram and sometimes as a CYMA'S own undertaking. Training is a prerequisite to face threats and challenges of disastrous situations. The training module contains all necessary set of skills and resources for facing disasters. It includes sets of trainings ranging from Basic Personal Protective Equipments, Construction Materials Structure and Damage Types, Insarac Marking, Triage and Multiple Casualty Incidents, Patient Assessment, Soft Tissue Injuries, Basic Life Support, and Cardio Pulmonary Resuscitation, Musculoskeletal Injuries, Oxygen Therapy, Lifting and Moving Patients, Anatomical References, Equipments to Measure Vital Signs, Hemorrhage and Shock, Infectious Disease and Precautions to Collapsed Structure Search and Rescue.⁴⁰ The Training Programmes on Disaster Management organised by CYMA are shown in year-wise as follows:

For the first time in 2014, YMA had organised Training on Pre- Hospital Treatment and Pre- Disaster Preparedness on 11th March 2014 where 3 volunteers from each YMA Branch were trained by the National Disaster Response Force.⁴¹ A separate Disaster Awareness Campaign cum Training was also held on 16th August, 2014 at Ramhlun Indoor Stadium for the Disaster Management Sub-Committee and the Office Bearers of the 93 YMA Branches within Aizawl City. They were divided into 11 groups and were each allotted a day for the training.⁴² This Training took 11 weeks to be completed (16th August 2014 to 1st November 2014) as only one day per week was viable to conduct the tedious process. Also the Central YMA sent 36

⁴⁰ Interview with Vanlalhraizela, Trainee, NDRF Training on Pre- Hospital Treatment (2017), on 10.05.2019.

⁴¹ Letter No. CYMA. 146/2013- 2014/ 11 of 06.03.2014, Aizawl.

⁴² Letter No. CYMA. 146/2013- 2014/ 51 of 04.08.2014, Aizawl.

volunteers at Police Training Centre (PTC) Lungverh for the Training on Disaster Response of YMA Volunteers from 29th September to 10th October 2014. It was intended for Trainers of Trainees (ToT) and Master Trainer for each YMA branch.⁴³ It was also the 1st Batch Training of Trainers of YMA Volunteers on Disaster Response.

During 2015, in pursuance of the Resolution passed at the 69th YMA General Conference 2014 at Ratu, a very important programme known as the 'Community Awareness Programme on Disaster Management cum Training for YMA Volunteers' from the Sub-Headquarters and the Group YMA were organised in five districts.⁴⁴ It was held on 17th April at Mamit, on 8th May at Kolasib, on 15th May at Lunglei, on 22nd May at Champhai and on 29th May at Serchhip. The volunteers and the community members were trained under the auspices of the resource person, Dr. Lalrokima Chenkual, Head Faculty, ATI and Vice- Chairman, Disaster Management, Sub-Committee in each of the district. Intense training on the importance of assembling and nurturing tactical movements for search and rescue teams was given in all the districts by Zothansanga Hmar, District Organiser, Disaster Management and Rehabilitation Department, and Assistant Secretary, Disaster Management, Sub-Committee. The Health Department, Government of Mizoram also contributed to the event by giving detailed training on First Aid in all the districts. In pursuance of the resolution, a statement was declared where a stronger thrust is to be given in the direction of disaster management awareness in all of the YMA branches and that the

⁴³ Letter No. CYMA. 146/2013-2014/64 of 26.09.2014, Aizawl.

⁴⁴ Letter No. CYMA. 146/2014-2015/51 of 07.04.2015, Aizawl.

initiative should be taken by the CYMA.⁴⁵ And also the 2nd Batch Training of Trainers of YMA Volunteers on Disaster Response was conducted at the same place on 10th March to 1st April 2015.

In 2016, Training of Trainers (ToT) was organised in which the training consists of three (3) batches. The 1st batch consisted of 30 people selected from Aizawl City Area Branch YMA. The 2nd Batch consisted of 30 people from the Sub – Headquarters YMA and the 3rd Batch consisted of 30 people from Group YMA who are directly administered by the Central YMA.⁴⁶ On 17th to 30th October 2016, a Basic Training on Disaster Management was organised at CTI, Sesawng. The training was imparted by the National Disaster Response Force. 6 members were carefully selected from each head- quarters, amounting to 30 people in total. The trainees were given a Daily Allowance of Rs. 150 and trainees from outside Aizawl were also given transportation fees. On cancellation of participation by the trainees, they were required to put a reservation of 7 to 8 individuals for their replacement.⁴⁷ 31 volunteers from the sub headquarters of Lunglei, Champhai, Kolasib, Serchhip, and Mamit were trained from 17th to 30th October. The same training was continued for 31st October to 11th November 2016 for 39 volunteers from the different YMA Groups (Chalfilh, Saitual, Tuivai, Tuisual, Zawlbuk, Chhimpei, Hmuifang Tlang) that are directly administered by the Central YMA. On 3rd to 14th October, 2016 a basic training on disaster management at CTI Sesawng under National Disaster Response Force for Aizawl Branch YMA where 16 members

⁴⁵ Letter No. CYMA. 146/2014- 2015/ 51 of 07.04.2015, Aizawl

⁴⁶ Letter No. CYMA. 146/2015- 2016/ 26 of 08.07.2016, Aizawl.

⁴⁷ Letter No. CYMA. 146/2015- 2016/ 31 of 21.09.2016, Aizawl.

participated.⁴⁸ 2016 also saw the Disaster Management trainings conducted at Khawbung and Tuipuiral group YMA on 11th February, Khawhai village and Sialhawk Joint YMA on 12th February⁴⁹, Sialsuk Joint YMA (for Hmuifang Tlang Group) on 20th August and North Vanlaiphai Joint YMA (for Tuichangral South Group) on 6th September⁵⁰ where the delegates from the Central YMA actively participated in all the trainings.

In 2017, a Special Training on Disaster Management for the blind was undertaken by the CYMA on 15th February at Samaritan Association for the Blind, Durtlang.⁵¹ A Practical Training for Disaster Management was organised by the Central YMA Disaster Management Sub Committee in collaboration with the Central YMA Disaster Response Team. Equipments were rented from the Sports and Youth Services Department, Government of Mizoram for this training.⁵² The borrowed equipments included ropes, harness, jumner, figure of 8, carabiner, ground sheet, and mittens. An awareness campaign on Disaster Management was organised by the Darlung YMA on 25th August and several delegates from the Central YMA took part in it.⁵³ The CEC also resolved the training on Disaster Management for Vanbawng Branch YMA and Tuivai YMA on 29th June and several delegates from the Central YMA took part in it. With the approval of the CYMA, Workshop on Psychosocial Care in Disaster Management was conducted on 22nd to 24th November,

⁴⁸ Letter No. CYMA. 146/2015-2016/31 of 21.09.2016, Aizawl.

⁴⁹ Letter No. CYMA. 146/2015-2016/6 of 05.02.2016, Aizawl.

⁵⁰ CYMA Annual Report 2016, p.14.

⁵¹ CYMA Annual Report 2017, p.13.

⁵² Letter No. CYMA. 146/2017-2018/19 of 10.07.2018, Aizawl.

⁵³ Letter No. CYMA. 146/2016-2017/24 of 10.08.2017, Aizawl.

2017 by the Disaster Management and Rehabilitation Department in collaboration with Mizoram Psychology Association.⁵⁴

On 1st February 2018, the CYMA was responsible for selecting one member from each YMA Branch within Aizawl to take part in the Volunteer Training under AAPDA MITRA Scheme.⁵⁵ A Multi State Mock Exercise on Earthquake Disaster was organised at the DC Conference Hall on 17th April 2018.⁵⁶ On 28th May 2018 Training of Community Volunteers in Disaster Response was organised at CTI, Sesawng.⁵⁷ On 14th July 2018, training was organised at the Tlawng River by the Disaster Management Sub- Committee and YMA Disaster Response Team.⁵⁸ On 24th July 2018 training was organised at Durtlang Branch by the CYMA Disaster Management Sub- Committee and YMA Disaster Response Team.⁵⁹

In 2019, CYMA was requested by the 1st Battalion, National Disaster Response Force, Guwahati, to pass necessary instructions to the YMA volunteers for participation in the Joint Mock Drill on Earthquake organised by the Headquarters, National Disaster Response Force, Guwahati. The mock drills were conducted at Aizawl District on 30th March, Kolasib District on 3rd April and at Mamit District on 25th April.⁶⁰ The CYMA also attended the 3rd Batch Training of Community Volunteers in Disaster Response in selected 30 most flood prone districts of India

⁵⁴ Letter No. CYMA. 146/2016-2017/42 of 02.11.2017, Aizawl.

⁵⁵ Letter No. CYMA. 146/2017-2018/2 of 15.01.2018, Aizawl.

⁵⁶ CYMA Annual Report 2018, p.14.

⁵⁷ *Ibid.*,

⁵⁸ *Ibid.*,

⁵⁹ CYMA Annual Report 2018, p.14.

⁶⁰ Letter No.1126/Trg/1st Bn NDRF/2019/3035, Ministry of Home Affairs, 27th March, 2019.

under AAPDA MITRA organised by the Department of Disaster Management and Rehabilitation on 11th to 22nd March, 2019.⁶¹

Table 5.2 Organisation that conducts Trainings at the local level.

Sl. No.	District	Number					Percent				
		Village/ Local Council	YMA	MUP	MHIP	Total	Village/ Local Council	YMA	MUP	MHIP	Total
1	Aizawl	8	42	0	0	50	16	84	0	0	100
2	Champhai	1	19	0	0	20	5	95	0	0	100
3	Kolasib	2	18	0	0	20	10	90	0	0	100
4	Lawngtlai	0	25	0	0	25	0	100	0	0	100
5	Lunglei	8	12	0	0	20	40	60	0	0	100
6	Mamit	1	19	0	0	20	5	95	0	0	100
7	Saiha	7	18	0	0	25	28	72	0	0	100
8	Serchhip	2	18	0	0	20	10	90	0	0	100
Total		29	171	0	0	200	14.5	85.5	0	0	100

Source: Field Survey October 2018

Of the disaster related trainings conducted in the locality, 85.5 % of the trainings are conducted by YMA in Aizawl, Champhai, Kolasib, Lunglei, Mamit and Serchhip and by the Young Lai Association (YLA) in Saiha and by the Mara Thyutlia Py (MTP) in Lawngtlai. The Village/ Local Council also contributes to 40 % of the trainings in Lunglei, 28 % in Saiha, 16 % in Aizawl, 10 % in Serchhip and Kolasib, 5 % in Mamit and Champhai. The MUP and MHIP remain nil in conducting the trainings.

⁶¹ Letter No. B. 13016/ 39/ 2018- DTE (DMR), 4th March, 2019.

(b) Publications and Mass Media

Every year as Monsoon approaches, the CYMA sends a notification letter to all the YMA Branches in Mizoram to report any occurrences of Landslides, Flash Floods and Mud Flows that take place in the localities⁶² or of any dangerous situation that could arise from such hazards. During Monsoons, they remind the public on the importance of proper drainage of rain and waste water from households, garbage disposal and offensive matters that could hamper the safety of the areas. If these guidelines are not followed stringently, then it is the duty of the CYMA to take up the matter. The CYMA leaders also keep a close vigil of the areas that are prone to disasters during the heavy rains.⁶³

(c) Seminars, Educational Discourse and Awareness Programmes on Disaster Management

Way back in 1999, Mr J. Lalsailova, Central Executive Committee Member of the CYMA become the first Mizo to attend a Disaster Management training at IIPA (Institute of Public Administration) organised by the High Powered Committee on Disaster Management under the Ministry of Home Affairs.⁶⁴ Since then the CYMA has participated and attended numerous national level programmes for sensitizing various stakeholders and the community in general about Disaster Management. CYMA members have attended Study Tour to Tsunami Affected Areas of Andaman and Nicobar Islands, and even had held the position of an Instructor of Earthquake Risk Mitigation and Management Training, Nodal officer of Disaster Risk

⁶² Letter No. CYMA. 146/2015-2016/22 of 05.06.2016, Aizawl.

⁶³ CYMA Annual Report 2018, p.13

⁶⁴ Interview with Mr J. Lalsailova, Office Bearer, CYMA on 10.12.2018.

Management Programme. They also attended trainings on Disaster Management and Sustainable Development and Comprehensive Landslide Risk Management of the State. Dr. Malsawmliana, Central Executive Committee Member presented a paper at the 'International Conference of the Eastern Himalaya III: When the Mountains Move and the Water Rise: Coping with Earthquake and Flooding- The Health and Housing Dimensions' held on 22nd and 23rd February 2016 at Jamia Millia Islamia, New Delhi.⁶⁵ The CYMA leaders had the pristine opportunity to meet Mr Ankush S. Vengurlekar, Manager Communications and Resource Mobilisation, CORDAID during his visit to Mizoram in 2014. Upon his request, a budget estimate was made for the procurement of new tools and equipments (Rupees 7, 18, 71, 033)⁶⁶ by the CYMA. They are also indispensable members for Study Teams constituted by the Disaster Management and Rehabilitation Department, Mizoram along with other experts as and when called for.⁶⁷ The Study Teams are meant for conducting comprehensive surveys on rock falls, landslides, land slips, land subsidence and other hazards in the state. The Chairman of the Disaster Management Committee, CYMA is also appointed as an Office Bearer on interim basis for the Indian Red Cross Society, Mizoram Branch in pursuance of the decision of the meeting of high level officials under the chairmanship of the Hon'ble Governor of Mizoram.⁶⁸

(d) Campaigns on Preventive measures

Fire disasters are widespread in Mizoram and bushfire is one of the most common forms of fire disasters. Majority of the population is engaged in agricultural

⁶⁵ Letter No. CYMA. 146/2015-2016/2 of 13.01.2016, Aizawl.

⁶⁶ CYMA Annual Report 2015, p.13.

⁶⁷ Letter No. B. 13011/114/2015- DMR/ Pt- VI of 23.07.2019, Aizawl.

⁶⁸ Letter No.J. 11011/23/2013- HFW, Health and Family Welfare Department, 18th April, 2019.

activities (Jhumming cultivation). Jhumming cultivation requires the burning of the fertile land before utilizing it and has a high risk of widespread fire. Thus in connections with this, forests are burned on regular basis which often leads to outbreak of wildfire. YMA is one of the biggest forces for putting out unwanted fire and it can be accredited for teaching the people to be more responsible with fire.⁶⁹Year after year, it conducts Fire Prevention Awareness campaigns and Fire Monitoring and Evaluation Report analysis in different districts.⁷⁰ The YMA also campaigns extensively on issues of climate change and sustainable environment. In 2018, the ‘Awareness Campaign on Climate Change’ was organised where the CYMA worked in partnership with the Additional Principle Chief Conservator of Forest and the Nodal Officer, EF & Environment Change.⁷¹

(e) Development in Information and Technology, Equipments and Tools

The YMA has always been the first responder in times of disasters be it landslides, earthquake, flood, fire and river accidents. To commence the search and rescue missions, they need to be equipped with the finest and latest means of technology and instruments. However the unavailability of instruments is the biggest difficulty faced in getting things done on time. Moreover, the outmoded means of technology, telecommunication and insufficient frequency adds to their peril on their missions. So it is the highest priority of the CYMA to obtain the necessary equipments and the latest technological instruments and tools to deliver their

⁶⁹ Central Young Mizo Association, *Young Mizo Association Profile*, Aizawl, 2010, p.11.

⁷⁰ Letter No. CYMA. 127/2013-2014/8 of 21.01.2014, Aizawl.

⁷¹ Letter No. CYMA. 127/2017-2018/57 of 11.09.2018, Aizawl.

services. The following report covers the requests made for the list of tools needed by the CYMA and the equipments gifted to them during the period 2014- 2019.

On 15th July 2014, the CYMA was presented 30 Safety Helmets by the Department of Labour Employment and Industrial Training, Government of Mizoram.⁷²

On 21st August 2015 the CYMA received an inflatable boat and 6 life jackets from the Minister of the Department of Disaster Management and Rehabilitation.⁷³

In 2016, the Department of Disaster Management and Rehabilitation, Mizoram presented the CYMA with 5 bundles of Tarpaulins to be used as and when needed.⁷⁴ In the same year, a request was made by the CYMA to the Department of Disaster Management and Rehabilitation, Mizoram for colored Tarpaulins for the YMA branches who did not own any Tarpaulins for emergency measures. The request was granted and the tarpaulins were distributed to the villages of Dholchhora, Bagbahar, Noxatilla, Luipui, and Zaitte.⁷⁵

On 7th February, 2017 a request was made to the Department of Disaster Management and Rehabilitation, Mizoram for the procurement of new equipments and tools. The demanded equipments included Climbing rope (200 metres), Rappelling rope (200 metres), Full body harness, Seat harness, Carabiner (lock), Jummar, Rescue pulley, Rescue crawl, Tandem pulley, Single pulley, Double pulley, Ettiers, Rappelling gloves, Rechargeable headlamps, Kit bags, Ground sheet, First

⁷² Letter No. CYMA. 146/2013-2014/42 of 15.07.2014, Aizawl.

⁷³ CYMA Annual Report 2015, p.13.

⁷⁴ Letter No. CYMA. 146/2015-2016/5 of 21.01.2016, Aizawl.

⁷⁵ Letter No. CYMA. 146/2015-2016/37 of 19.10.2016, Aizawl.

aid kit, Surgical gloves, Fireman suit, Dry air mask, Fire extinguisher (ABC), Walkie talkie, Scuba gear (full set), and inflatable Rescue boat.⁷⁶

In 2018, a demand was made to the Chief Minister of Mizoram for disaster equipments. The demanded tools included Tata Xenon (vehicle) 4 x 4, tower light, walkie talkie, boat engines, and raft boats.⁷⁷ As resolved from the meeting on 29th June between the Minister and Officers of the Department of Disaster Management and Rehabilitation and the CYMA, it was conceded that the required search and rescue equipments were to be highlighted and demand be made to the nodal Department.⁷⁸ The highlighted equipments included Tata Xenon (vehicle) 4 x 4, Tower Light, Inflatable Rubber Boat with Engine 16 HP, Boat Engine 16 HP, Rappelling Rope, Swivel, Seat Harness, Full Body Harness, Figure of 8, Jummar, Single Pulley, Double Pulley, Tandem Pulley, Rescue Pulley, Ground Sheet, Kit Bag, Tape Sling, Search Light, Working Gloves, Mittens, Carabiner (lock), W.T. Set, Life Jackets (Clip-ons), Blackboard, Cervical Collar, and Splinting Material.

In 2019, a request was made to the Department of Sports and Youth Services, Mizoram for the procurement of instruments such as generator with flood light, helmet, life jacket, head torch, inflatable rubber boat⁷⁹ and to the Chief Minister for instruments such as Vehicle (Bolero Camper), Drone DJI Mavic Pro 2, Corax Harness, Club rope 10 mm to 100 mts Vector 12 mm- 120 mts, Tandem Cable Pulley, Mitten, Jummar, Full body harness, Gemini Prusik Pulley, Ok SI- Carabiner,

⁷⁶ Letter No. CYMA. 146/2016-2017/8 of 07.02.2017, Aizawl.

⁷⁷ Letter No. CYMA. 146/2017-2018/30 of 28.05.2018, Aizawl.

⁷⁸ Letter No. CYMA. 146/2017-2018/51 of 12.07.2018, Aizawl.

⁷⁹ Letter No. CYMA. 146/2018-2019/17 of 16.07.2019, Aizawl.

AmD- Carabiner, Huite, Ground Sheet, Fixe Pulley, Kit Bag, Anneau 80 cm, Cordex Gloves, Rig, Folding Stretcher, Pelican Search Light.⁸⁰

Table 5.3 Problems faced during occurrence of disasters.

Sl. No.	District	Number					Percent				
		Lack of proper instruments	Gathering of crowds	Lack of cooperation from the Government	No idea	Total	Lack of proper instruments	Gathering of crowds	Lack of cooperation from the Government	No idea	Total
1	Aizawl	43	0	0	7	50	86	0	0	14	100
2	Champhai	18	1	1	0	20	90	5	5	0	100
3	Kolasib	10	2	4	4	20	50	10	20	20	100
4	Lawngtlai	18	0	0	7	25	72	0	0	28	100
5	Lunglei	9	0	2	9	20	45	0	10	45	100
6	Mamit	19	0	0	1	20	95	0	0	5	100
7	Saiha	16	0	2	7	25	64	0	8	28	100
8	Serchhip	16	4	0	0	20	80	20	0	0	100
Total		149	7	9	35	200	74.5	3.5	4.5	17.5	100

Source: Field Survey October 2018

Many obstacle lies when carrying out programmes, plans and policies related to disasters which delays getting things done. The biggest problem faced is lack of proper instruments (74.5 %) which happens in all of the districts. The problem of crowd control (3.5 %) is faced in Champhai, Kolasib and Serchhip. The problem of lack of cooperation from the government is also faced in Champhai, Kolasib, Lunglei and Saiha.

⁸⁰ Letter No. CYMA. 146/2018-2019/21 of 30.07.2019, Aizawl.

(f) Construction of Disaster related structures

Accidents in rivers leading to fatal casualties are quite common in Mizoram especially during the monsoon. Recovery operations are organised by the CYMA by deploying members of the YMA branch level on allotted days. There is no guarantee that the recovery operations will be successful since the YMA do not have enough trained personnel and equipments. On account of these setbacks, they have taken measures in the construction of stations that would allow them to undertake less problematic and less complicated rescue operations.

In 2014, The CYMA made a request to the Department of Disaster Management and Rehabilitation, Mizoram to aid Maubawk Joint YMA in reconstructing and redeveloping the post in Dam Li at Tlawng River which is strategically built for the retrieval of drowned victims. Many drowned victims have been recovered in this area due to the post's accessibility to the water. For this purpose, the Central YMA requested the Department of Disaster Management and Rehabilitation, Mizoram for necessary funds after submitting their detailed estimates.⁸¹

In 2015, The CYMA made a request for sanction of funds for the construction of Ngar (safety nets for retrieval of drowned bodies) at all open spots in all the rivers of Mizoram. This was done to ensure safety measures for every search and rescue team in their missions. At Tlawng River, the Ngar has been put up at five spots that is Sihmui, Changsil, Pualhrang, Hortoki, and Bairabi. At Tuirial River, it has been constructed at Tuirial bank, Muthi and Tuirini, and at two places in Tuirini

⁸¹ Letter No. CYMA. 146/2013-2014/13 of 24.03.2014, Aizawl.

River.⁸² On 28th Feb 2015 ‘Venbuk Thlam’ (safety outpost) was opened at Tlawng River (Reiekkkaia) which was constructed by Maubawk YMA with the aid of the CYMA.⁸³

On 30th January 2017, as per the request of the Deputy Commissioner, Aizawl District, the accident prone areas in all the rivers within Aizawl District were identified by the CYMA and Warning Signboards and Ngar were constructed at all the newly identified prone areas. The warning signboards were put up at Tuirini, Tuivawl, and Chite and at 7 places in Tlawng River and 4 places at Tuirial. The Ngar were constructed at 5 places in Tlawng River and 2 places in Tuirial.⁸⁴ On 17th May 2017, as per the instructions of the Deputy Commissioner, Hoardings were put up in the different rivers and tributaries by the Central YMA.⁸⁵

5.3.2 Post-Disaster Operations

In addition to the Pre-Disaster activities, the YMA has carried out the following Post-Disaster operations:

(a) Relief and Rehabilitation Missions

There is no specific law which says that it is the YMA’s duty to construct houses for the homeless, but if anybody is in need of a place to live, YMA has always enthusiastically taken up the responsibility. Construction of houses and temporary shelters for victims of disasters is one of the credos of YMA since time

⁸² Letter No. CYMA. 146/2014-2015/22 of 07.04.2015, Aizawl.

⁸³ CYMA Annual Report 2015, p.13.

⁸⁴ Letter No. CYMA. 146/2016-2017/2 of 30.01.2017, Aizawl.

⁸⁵ Letter No. CYMA. 146/2016-2017/20 of 17.05.2017, Aizawl.

immemorial.⁸⁶With the aid of the community labour, accompanied by *Tlawmngaihna*, building a house seldom becomes a difficult task. The voluntary spirit binds them together to participate and render all possible services to the needy without any reward in return. Houses and shelters are usually built for people whose homes have been destroyed by landslides, storms and fire. YMA is also considered the giver of life, as its members have been voluntarily donating their precious blood on many occasions. On instances of local accidents and disasters when the victims are in need of blood, the YMA takes it as its duty to find donors among its members to donate blood to the victims. Celebrating special days and special occasions, the YMA would every now and then organise voluntary blood donation programmes within their respective branches. This clearly indicates that they often perform tasks which are beyond their specific objectives.

Table 5.4 Blood unit donated to Aizawl Civil Hospital by YMA during the period March 2014- March 2019.⁸⁷

SI No	Year	Unit
1.	2014	1339
2.	2015	1011
3.	2016	927
4.	2017	771
5.	2018	741
6.	2019	62
Total	-	4851

Source: Aizawl Civil Hospital Report April 2019

⁸⁶ Interview with Mr Zochhuana, Secretary, Disaster Management Sub- Committee, CYMA, Aizawl on 11.02.2019.

⁸⁷ Official Record maintained by CVL Malsawma, Divisional Assistant, Model Blood Bank, Civil Hospital, Aizawl as on 3.04.2019.

(b) Relief Funds

Relief funds are one of the biggest post-disaster operation devices of the YMA. Charity and donation boxes are placed all over the towns. Funds also come in from several philanthropists, NGOs, Church, associations and donors who wish to remain anonymous. In 2015, Manipur and the Myanmar were hit by a severe flood caused by the over monsoonal rainfall. Since these were areas with Mizo settlement having YMA groups, the CYMA took an initiative to generate funds for the victims. The relief fund was collected from all the YMA Branch, and YMA sub-Headquarters of the state. Large donations came from churches, individuals, organisations and other miscellaneous sources. The relief funds collected for the victims of flood in Myanmar and Manipur amounted to Rupees 11,900,757.00.⁸⁸The aid was distributed to 418 families in Myanmar and to 25 families in Manipur

2017 witnessed a very severe monsoon where the excessive rains caused floods and landslides and resulted in loss of lives and damage of numerous properties in several parts of Mizoram. The CYMA collected relief funds from all the YMA branches of Mizoram for the landslide and flood victims.⁸⁹Moreover, a request was made to all the concerned Branch YMA to make an assessment of the assets and properties lost by the victims so that the relief funds could be disbursed equally and without any incongruence.⁹⁰The relief funds amounted to Rupees 1, 47, 02,116 by 20th August and it was carefully distributed to the victims at the YMA programme on 11th October 2017. Funds and donations continued to pour in even after its official

⁸⁸ Letter No. CYMA. 146/2014- 2015/ 42 of 07.12.2015, Aizawl.

⁸⁹ Letter No. CYMA. 146/2016- 2017/ 23 of 21.06.2017, Aizawl.

⁹⁰ Letter No. CYMA. 146/2016- 2017/ 24 of 11.07.2017, Aizawl.

disbursement to the victims. By January 2018, the additional funds had accumulated to Rupees 15, 10,000 and the Relief Committee of the Central YMA disbursed it to 10 families. These were victims who have lost their lives, their homes and belongings.

In 2018, the incessant monsoon rains led to the destruction of the residence of Mr. Vanlalpeka of Lunglawn Village, Lunglei on 4th June. This tragedy saw the loss of lives of 10 members of his family and four critically injured. The fund gathered by the YMA from Aizawl City alone was Rupees 4, 57,230.⁹¹ The Central YMA also sent a separate fund of Rs. 5000 to the Lunglawn YMA Branch for the volunteers and selfless labourers working at the disaster site.⁹² In the same year, the Central YMA also sent a fund of Rs. 5000 to the Pangzawl Group YMA Branch, who have toiled selflessly and volunteered at the site of the Siah Night Bus Accident.⁹³

On 2nd July 2019, the Basic Service for Urban Poor (BSUP) Complex in Durtlang in Aizawl District faced a devastating disaster when 3 buildings collapsed due to a massive landslide triggered by heavy downpour killing 3 residents and injuring 11 others.⁹⁴ The relief fund generated by the YMA for the BSUP disaster victims on the initiative of the CYMA amounted to Rs. 6,98,000.⁹⁵

⁹¹ Letter No. CYMA. 146/2017-2018/53 of 03.09.2018, Aizawl.

⁹² Letter No. CYMA. 146/2017-2018/32 of 07.06.2018, Aizawl.

⁹³ Letter No. CYMA. 146/2017-2018/13 of 07.06.2018, Aizawl.

⁹⁴ Mizo Daily *The Mizoram Post*, VOL – XVII, Issue 54, RNI No. MIZENG/2002/10461 published on 16.7.2019.

⁹⁵ Official Record maintained by the Central Young Mizo Association, Aizawl, as on September, 2018

(c) Search and Rescue work

The method of response of search and rescue operations comprise of a cohesive activity of locating and recovery of persons either in distress or missing or at worse dead bodies. The Central YMA responds promptly to disasters by organizing search and rescue operations through *Hnatlang* by engaging the Branch YMA members. The search and rescue teams mainly respond to missing persons, victims of river accidents, boat accidents, and flash floods or, and people trapped under collapsed buildings. A maximum of 7 days is the generic period of time employed by the YMA to recover missing or drowned victims.⁹⁶ After which the search shall be continued by the victim's family on their own undertaking. During 2016, search party for drowned victims had to be conducted 6 times and 2times for missing persons.⁹⁷ During 2017, a search party to rescue drowned victims was organised by the CYMA 8 times and 7 times for missing persons.⁹⁸ When the missing person's family notifies the YMA about the incident, the YMA straight away prepare itself for the response operation. In the response phase, time becomes a crucial factor. Minutes of delay can cost lives and property, so swift action is essential. However, speed of response must be reasonably balanced with proper and judicious planning. An intelligent assessment of the situation should be done prior to taking action to avoid further damage.⁹⁹ The YMA performs the job of rescuing or recovering drowned bodies¹⁰⁰ when the search operations involve searching in water

⁹⁶ Chhiatni Thatni Kaihhruaina , a Central YMA Publication, 2014, pg. 15.

⁹⁷ CYMA Annual Report 2016, p.13.

⁹⁸ CYMA Annual Report 2017, p.14.

⁹⁹ Pandey, Mrinalini. *Op.cit.*, p.121.

¹⁰⁰ Central Young Mizo Association, Young Mizo Association Profile, Aizawl, 2010, p.11.

vicinities. Recovering of drowned bodies in case of accidents is one of the many problems faced in Mizoram as there are no professional lifeguards etc. So it is with great risks that the YMA members take part in these response operations.

5.4 Conclusion

Since time immemorial, civil society organisations have always been the most powerful and influential guardians of the community in times of distress and disasters in Mizoram. In a close knit society like Mizoram, the institutions of social associations hold a very important place and every citizen is obligated to contribute to the free civil society with their willing participation. The non- governmental institutions particularly the Young Mizo Association (YMA) have an impact on the lives of the people more than any other organisation or agencies in the state. The activities undertaken by them in disaster management involve pre- disaster measures to post- disaster measures. Therefore their resources and capacities need to be strengthened so that they can play a better role for the victims of a disaster, for the people and for the state as a whole.

CHAPTER VI
ASSESSMENT OF THE PERFORMANCE OF
THE STATE GOVERNMENT IN
DISASTER MANAGEMENT

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ASSESSMENT OF THE PERFORMANCE OF THE STATE GOVERNMENT IN DISASTER MANAGEMENT

6.1 Introduction

There has been a worldwide shift in policy emphasis from post- disaster relief and rehabilitation to a more proactive approach of disaster preparedness and mitigation. This began a new era in disaster and risk reduction concepts with an important role assigned to national planning and legislation.¹ Many countries in the world have prepared their national action plans for disaster risk management and presented them to the World Conference on Natural Disaster Reduction held in Yokohoma, Japan, in 1994.²The Yokohama Strategy and Plan for Action for a Safer World states: “The world is increasingly interdependent. All countries shall act in a new spirit of partnership to build a safer world based on common interests and shared responsibility to save human lives, since natural disasters do not respect borders.”³ In August 1999, India constituted the High Powered Committee (HPC) on Disaster Management which reviewed the disaster management in India. In fact, this was the first attempt in India to evolve a systematic, comprehensive, and holistic approach towards disasters.⁴ The Recommendations of the HPC which was

¹ Dagur, OS., *Disaster Management: An Appraisal of Institutional Mechanisms in India*, (KW Publishers Pvt. Ltd, New Delhi, 2014) p.29.

² Inter- Agency Secretariat of the International Strategy for Disaster Reduction, *Living with Risk: A Global Review of Disaster Reduction Initiatives*, Geneva, United Nations, 2004.
<https://www.un.org/press/en/2004/iha922.doc.htm> accessed on 13.05.2019.

³ Yokohama Strategy and Plan for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation. World Conference on Natural Disaster Reduction, Yokohama Japan, and 23rd – 27th May 1994.

⁴ Dagur , OS. *Op.cit.* p.30.

submitted in 2001 included suitable legislation to provide appropriate legal framework on disaster management, a separate Ministry of Disaster Management at the national level and a Department of Disaster Management at the state level. Based on the Recommendations of the HPC and evidently affected by the Orissa Super Cyclone in October 1999 and the Gujarat earthquake in 2001, the nodal responsibility for managing disasters was shifted from the Department of Agriculture and Cooperation to the Ministry of Home Affairs. The Disaster Management Division has been functional in the Ministry of Home Affairs since July 2002. The Recommendations of the HPC also birthed the National Disaster Management Act, 2005 which brought about changes in the institutional mechanisms in the government. The Disaster Management Act was enacted by the Parliament on 26th December 2005. This Act has 11 Chapters and 79 Sections. As per the provisions of the Disaster Management Act of 2005, the State Disaster Management Authority, State Executive Committees, District Disaster Management Authority, State Disaster Response Force, District Disaster Response Force have been set up in all the states of India. The details with respect to members, functions and powers are included in the Disaster Management Act, 2005. The states have been advised to structure the state institutional framework to pursue a holistic approach to disaster management. The administrative set-up has existed at the national, state and district level.

6.2 Institutional Set-Up of Disaster Management in Mizoram

6.2.1 The Disaster Management and Rehabilitation (DM & R) Department, Mizoram

In 1979, the Relief and Rehabilitation Department was set up in Mizoram. It was a department which was set up solely to provide immediate relief to the victims of natural calamities. It also dealt with matters like evacuation of population (refugees), ex-gratia grant to victims of communal riots, police firing, and unnatural death on injuries sustained while in police or judicial custody. Soon after Mizoram became a full-fledged State in 1987, a new allocation of business was notified by the Government of Mizoram.⁵ The purview of the Department was widened to encompass Pre- disaster Management besides giving immediate relief and rehabilitation. The Relief and Rehabilitation Department was changed to Disaster Management and Rehabilitation Department to bear wider responsibilities of disaster management in accordance with the Disaster Management Act, 2005. The vision of the Department is to make Mizoram a safer, secure and disaster resilient State. It has since been strengthened with a number of officers and staff. The Department went on to undertake different subjects under its responsibility as per the guidelines of the Government.⁶ The Department accords priority to disaster management through measure of prevention, mitigation, preparedness, rehabilitation and reconstruction. It has differentiated between Pre- Disaster Management and Post-Disaster Management. Pre-Disaster Management is viewed as a proactive strategy including preparedness, prevention and mitigation wherein every department has important

⁵ Government of Mizoram, Notification *No.J.12011/ 11/87* – POL dated 23rd March, 1987.

⁶ Government of Mizoram *Notification No.A.46013/ 2/ 2006- GAD*, dated 26th August, 2006.

roles. Post- Disaster Management is viewed as a reactive strategy including relief, rehabilitation, reconstruction and the coordination natural calamities with special focus on people living in hazard prone and vulnerable areas.⁷ The stakeholders of the Department include Elected Representatives, Government Officials, NGOs and victims of natural calamities.⁸

6.2.2 State Disaster Management Authority (SDMA)⁹

SDMA was constituted on 23rd May 2006 as per Section 14 of Chapter III of the Disaster Management Act, 2005. The Chief Minister acts as the Chairman, with the Minister of State (Disaster Management and Rehabilitation) as the Vice Chairman and the Chief Secretary as the Chief Executive Officer. The members include Ministers of Home Department, Agriculture Department, Public Health Engineering, Health and Family Welfare, Local Administration Department, Urban Development and Poverty Alleviation and experts from Disaster Management and Rehabilitation Department. It is the highest body for policy formulation and taking appropriate decision in regards to disaster risk reduction activities in the State. Section 18, Sub- section 1 of the Act provides that the State Authority shall have the responsibility for laying down policies and plans for disaster management in the State.¹⁰

⁷ Citizen's Charter, Department of Disaster Management and Rehabilitation, Government of Mizoram, p.4.

⁸ *Ibid.*,

⁹ Section 14, Chapter III of the *Disaster Management Act, 2005* Notification No. B. 13011/17/2006- REH, 23rd May, 2006.

¹⁰ Section 18, Chapter III of the *Disaster Management Act, 2005*, Gazette of India, Ministry of Law and Justice, 26th December 2005.

6.2.3 State Executive Committee (SEC)¹¹

SEC was constituted on 23rd May, 2006 as per Section 20, Chapter III of the Disaster Management Act, 2005. The Chief Secretary is the Chairman, with the Principal Secretary (Disaster Management and Rehabilitation) as Member Secretary. The members include Commissioner/ Secretary of Planning, Finance and Home Department and the Executive-in-Charge of the Public Works Department. As the highest working group in the State to assist the State Disaster Management Authority, they shall have the responsibility for implementing the National Plan and State Plan and act as the coordinating and monitoring body for management of disaster in the State.¹²

6.2.4 District Disaster Management Authority (DDMA)¹³

DDMA was constituted in all the districts of Mizoram on 6th June, 2006 as specified in Section 25, Chapter IV of the Disaster Management Act, 2005. The Deputy Commissioner acts as the Chairman and the Projector Director of the District Rural Development Agency (DRDA) as the Co-Chairperson and the Additional Deputy Commissioner as the Chief Executive Officer. Its members include the Superintendent of Police, Chief Medical Officer of the district, Executive Engineer of the Public Works Department, and Public Health Engineering Department. The Co- Chairperson in Lawngtlai and Saiha Districts include the Chief Executive Member of the Mara Autonomous District Council, Chakma Autonomous District

¹¹ Section 20, Chapter III of the *Disaster Management Act, 2005* Notification No. B. 13011/17/2006- REH, 23rd May, 2006.

¹² Section 22, Chapter III of the *Disaster Management Act, 2005* Notification No. B. 13011/17/2006- REH, 23rd May, 2006.

¹³ Section 25, Chapter IV of the *Disaster Management Act, 2005* Notification No. B. 13011/17/2006- REH, 23rd May, 2006.

Council or the Lai Autonomous District Council. The District Disaster Management Authorities shall act as the district planning, coordinating and implementing body for disaster management in the district in accordance with the guidelines laid down by the National Authority and the State Authority.¹⁴

6.3 Important Works Undertaken By Disaster Management and Rehabilitation (DM & R) Department, Government of Mizoram

Following are the works carried out by DM & R Department as the nodal Department of the State Government:

(a) Training of State Disaster Response Force (SDRF)

The headquarters of the National Disaster Response Force for the North East region is located in Guwahati. They provide trainings to the State Disaster Response Force in the different North East states. In Mizoram, the members of the National Disaster Response Force have their base camp at Police Training Centre (PTC) at Lungverh. On consultation with the Home Department of the Government of Mizoram, the trainings for Disaster Response have been conducted at Central Training Institute (CTI), Sesawng on various courses- Pre-Hospital Treatment, Search and Rescue techniques for collapsed building structure, water rescue, alpine rescue and urban search & rescue. So far, 853 SDRF personnel from 1st Bn. MAP (148), 2nd Bn. MAP (130), 3rd Bn. MAP (114), 1st Bn. IR (88), 2nd Bn. IR (118), 3rd Bn. IR (9), 4th Bn. IR (129) and 5th Bn. IR (126) have been trained.¹⁵ Besides, the above mentioned Battalions, training was imparted to 10 personnel from Mizoram

¹⁴ Section 30, Chapter IV of the *Disaster Management Act, 2005* Notification No. B. 13011/17/2006-REH, 23rd May, 2006.

¹⁵ Official Record maintained by the Department of Disaster Management and Rehabilitation, Government of Mizoram, as on February, 2019.

Home Guards & Civil Defence Department. The trained personnel are then alerted when disaster occurs in their respective districts. Search and rescue equipments have been distributed by the Department to all Deputy Commissioners/ EOCs as well as the trained units of the SDRF under the commandants of Armed Police battalions.¹⁶

(b) Incident Response System (IRS)

As per the Incident Response System Guidelines issued by National Disaster Management Authority, Government of India, Incident Response Teams (IRT) at the State and district level have been formed for effective, efficient and comprehensive management of disasters.¹⁷ The Incident Response System has been set up as a measure to devise a systematic disaster response system in the state. The Incident Response System (IRS) incorporates all the tasks that may be performed during Disaster Management irrespective of their level of complexity. The IRS functions through Incident Response Team (IRTs) in the field.¹⁸ In line with the administrative structure and Disaster Management Act of 2005, Responsible Officers (ROs) have been designated at the state and district level as overall in charge of the Incident Response Management while the Incident Commander (IC) will manage the incident through IRTs. The IRT is a team comprising of all positions of IRS organisation. The IRTs will be pre-designated at all levels of State and District. On receipt of early warnings, they will be activated by the ROs. A Nodal Officer has to be designated

¹⁶ Government of Mizoram, *Citizen Charter*, Department of Disaster Management and Rehabilitation, p.4.

¹⁷ Although the guidelines for Incident Response System have not been highlighted in the Disaster Management Act of 2005, it is highlighted in the National Disaster Management Authority Website, [https://en.wikipedia.org/wiki/National_Disaster_Management_Authority_\(India\)](https://en.wikipedia.org/wiki/National_Disaster_Management_Authority_(India)) accessed on 4.06.2019.

¹⁸ Incident Response System, Crisis Management Plan for Mizoram, Department of Disaster Management and Rehabilitation, Government of Mizoram, p. 31.

for proper coordination between the District, State and National level in activating air support for response.¹⁹ Apart from the RO and Nodal Officer, the IRS has a Command Staff and a General Staff. The team member also consists of a Logistics Team who is in charge of providing vital statistics and operation Support groups.

(c) Training of Non-Governmental and Community Based Organisations (NGOs)/ CBOs)

The National Disaster Response Force also separately trains a number of community volunteers from the NGOs and CBOs at the local level on Basic First Aid, Search and Rescue and Incident Management at the community level. 208 YMA volunteers, 33 YLA volunteers, 27 MTP volunteers, 22 students from various Higher Secondary Schools and 55 Youth Adventure Club members (a total of 245) were trained on more intensive and comprehensive Disaster Response Course.²⁰

(d) Training of Volunteers under AAPDA MITRA Scheme

AAPDA MITRA, a National Disaster Management Authority Scheme, focuses on training 6000 community volunteers in disaster response in 30 most flood prone districts (200 volunteers per district) of 25 states of India. Aizawl district was selected for implementing the scheme in Mizoram. 1st and 2nd trainings of AADPA MITRA (Friends in Disasters) for training community volunteers in disaster response were held during 28th May- 7th June, 2018 and 20th – 30th June, 2018 respectively at Central Training Institute (CTI), Sesawng. AAPDA MITRA scheme aims to provide the community volunteers with the skills that they would need to respond to their

¹⁹ Incident Response System, Crisis Management Plan for Mizoram, Department of Disaster Management and Rehabilitation, Government of Mizoram, p. 31.

²⁰ Record maintained by Zoenmawii, Assistant Coordinator, Department of Disaster Management and Rehabilitation, Government of Mizoram, as on February, 2019.

community's immediate needs in the aftermath of a disaster thereby enabling them to undertake basic relief and rescue tasks during emergency situations such as floods, flash- floods, urban flooding and any other natural and man- made calamities. Although AADPA MITRA was initially meant to be a flood relief scheme, its implementation in Aizawl was carried out differently as there is very little occurrence of flood in Mizoram.²¹ Training on rescue operations for all types of disasters including flood was organized under this scheme. 86 volunteers from different villages and localities within Aizawl district were trained. For this, the Department got the prior approval of the Central YMA in notifying and requesting YMA members from the Aizawl district area localities to attend the rescue operation training. Areas prone to flood and other disasters were selected for the training. They first batch training included the flood prone areas of Aizawl District that are Sihphir, Saitual, Sakawrdai, Maubawk, Chite, Sihhmui, Sairang, Sairang Dinthar and Tuirial village. The second batch training included Zemabawk, Tuikual South, Tuikual North, Tuithiang, Armed Veng, Bethlehem Vengthlang, Leitan, Sesawng, and South Kanan.²² Personal Emergency Responder kit and Village wise Emergency Responder kit were dispersed to each volunteer. This intense training took up to two weeks to develop maximum capability of the volunteers. The fourth batch of AADPA MITRA training was conducted on 3rd May 2019 which was attended by 54 volunteers from 10 YMA Branches.²³

²¹ Interview with Mr H. Dolianbui, Deputy Director, Department of Disaster Management and Rehabilitation, Government of Mizoram on 5.12.2018.

²² Report on 1st Batch AAPDA MITRA Training, Department of Disaster Management and Rehabilitation, Government of Mizoram, 2018, p.1.

²³ *Vanglaimi*, (Mizo Daily), VOL- XXXIV, No.103, RNI 34227/79, published on 6.5.2019.

(e) Workshop/ Seminar on Disaster Management related Topics

The Department in collaboration with Mizoram Psychology Association (MPA) conducted a workshop/ seminar on psycho- social care on 22nd November, to impart the importance of understanding the psychological characteristics of traumatized victims of disasters. Though they are not in a position to give professional treatment or counselling to the victims, they act as a guide in identifying the post traumatic symptoms, mental degradation and the need for medical help. To increase awareness on this, a high degree of attendance is desired from the NGO members by the department. The gender issues are concerned with nurturing the lives of women who are victims of disasters because they are more vulnerable compared to male disaster survivors. Experts from special fields are invited in the seminars and the volunteers mainly comprise of the female NGO members and members of the MHIP. They also conduct workshops on school safety which also involves reviewing of the curriculum in schools concerning Disaster Management. The topic of Disaster Management is a compulsory syllabus which is studied in the Environmental Studies which is learnt throughout Grade I to XII in Schools. It is the duty of the department to see that the lessons are effective enough to be binding on the students. The Department conducts trainings and workshops along with consultations to the representatives of MBSE (Mizoram Board of School Education, State Council of Educational Research and Training (SCERT), District Institute for Education and Training (DIET), Higher & Technical, Primary and Middle School Teachers Association and Institute of Advance Studies in Education (IASC).

(f) Disaster Management Plan and Hazard Risk Vulnerability Assessment (HRVA)

Section 22 (2), Section 38 (2), Section 40 (1, 2, 3) of the Disaster Management Act, 2005, requires all government department and offices to prepare their Disaster Management Plan. So far 54 departments have submitted their Departmental Disaster Management Plan which needs to be updated and revised.²⁴ To devise a disaster management plan is a very meticulous task and it needs an expert insight of all the departments. An officer is selected from each department to go through intense training to develop the disaster management plan of each of their departments. A per the regulations of the Supreme Court of India, all the schools are requested to submit their Disaster Management plan to the Education Department. The representatives from each school are given training to develop their Disaster Management Plan. Besides this, all the orphanage homes, protective homes, blind schools and juvenile homes in Mizoram registered under the Social Welfare Department are included to develop their Disaster Management Plans. The training programmes are conducted in collaboration with the Social Welfare Department. Besides these, Mizoram Remote Sensing Application Centre (MIRSAC), Directorate of Science and Technology published the Hazard Risk and Vulnerability Assessment (HRVA) of 8 District Headquarters and Digital 3-D Terrain Mapping and Modelling (DTM) on 16th September, 2019.²⁵ It reflects the vulnerability and risk analysis of all the eight districts in the occurrence of landslides, earthquakes, and cyclones.

²⁴ Official Record maintained by the Department of Disaster Management and Rehabilitation, Government of Mizoram, as of February, 2019.

²⁵ *Zalen*, VOL- 16, No.37, RNI MIZMIZ/2010/38382, published on 21.9.2019.

(g) Mock Exercise

Mock exercise has been conducted at the state level, district level, offices, schools and community levels at regular intervals to assess the status of preparedness levels of the community and different stakeholders and to generate awareness among the masses.²⁶The participants include the NGO members, Force personnel and different line department personnel. Mega Mock Exercise at the district and state level has been conducted under the guidance of National Disaster Management Authority, New Delhi from time to time or on particular important occasions.

(h) School Safety Programme

Under the initiative of National Disaster Management Authority, National School Safety Programme (2011- 2012 to 2013- 2014) was launched in two districts of Mizoram, Serchhip and Aizawl districts, where students and teachers were sensitized and trained on disaster risk reduction measures. School disaster management plans were prepared, and mock drills were conducted at the schools to test their plans. Under this National School Safety Programme, 400 schools; 250 schools in Aizawl District and 150 schools in Serchhip District had been covered.²⁷Under this programme, building of J.L Higher Secondary School was retrofitted as a pilot project. Fire extinguishers and First Aid Kit were distributed to selected schools. In 2016, the National Disaster Management Authority formulated the National Disaster Management Guidelines on School Safety with a vision of safety for school children. This is a mandatory statutory requirement to be

²⁶ Record maintained by Zoenmawii, Assistant Coordinator, Department of Disaster Management and Rehabilitation, Government of Mizoram, as on February, 2019.

²⁷ Interview Mr H. Dolianbuai, Deputy Director, Department of Disaster Management and Rehabilitation, Government of Mizoram on 5.11.2018.

implemented in each of the schools in the country (as per the judgment of Hon'ble Supreme Court of India vide WP No. 483 of 2004, Shri Avinash Mehrotra Vs Union of India dated 14.8.2017). Training of Trainers Course at State level who will impart training at the district level for implementing the said guidelines was conducted during 27th to 28th June, 2018.²⁸ As a part of Disability Inclusive Disaster Risk Reduction, awareness programme, demonstrative mock drill and mock exercise were conducted on 18th November, 2016 at Gilead Special School to sensitize faculties and persons with disabilities on the importance of institutional safety and awareness on the do's and don'ts during natural and man- made disasters.²⁹ The evacuation drill is being practiced regularly till date.

(i) Disaster Audit

As decided in the meeting of the State Disaster Management Authority (SDMA) held on 13th January, 2016 under the Chairmanship of Shri Lal Thanhawla, the then Hon'ble Chief Minister, Government of Mizoram, the Disaster Management and Rehabilitation Department conducted Disaster Audit to carry out physical inspection of equipments provided to District Administration and to the State Disaster Response Force Units.³⁰ The audit can be classified into financial and non-financial audit. The non- financial audit consists of inspection of the equipments given to each district Disaster Management authority. The conditions of the equipments are inspected if they are functional or have been obsolete or worn out.

²⁸ Record maintained by Zoenmawii, Assistant Coordinator, Department of Disaster Management and Rehabilitation, Government of Mizoram, as of February, 2019.

²⁹ Official Record maintained by the Department of Disaster Management and Rehabilitation, Government of Mizoram, 2018.

³⁰ *Ibid.*,

(j) Disaster Risk Reduction Week

The Disaster Risk Reduction Week is observed separately and on different timings for each district because the Disaster Risk Reduction Week involves a hectic programme of activities and tasks to be managed by the State Department. The State Department faces a problem of manpower in many aspects and this is one of the activities where there is a setback of meeting the goals due to lack of manpower. During the Disaster Risk Reduction Week, the government officials, NGOs, Village Council members, masons and teachers are trained on their respective roles. This requires a whole lot of time as training has to be given to three different groups of sections who are firstly the department officials, then the NGO members and thirdly the school representatives.³¹ Since the training consumes a lot of time, the disaster risk reduction is therefore observed on different weeks in each districts.

(k) Rapid Visual Survey (RVS)

RVS of offices, schools and other public lifeline buildings have been conducted in Serchhip, Aizawl, Kolasib and Mamit District.³² A number of unsafe buildings have been detected and recommendations to the concerned authorities were furnished. The recommendations and findings of the state department are not binding on the authorities of unsafe department buildings.

³¹ Interview with Zoenmawii, Assistant Coordinator, Department of Disaster Management and Rehabilitation, Government of Mizoram, on December, 2018.

³² Official Record maintained by the Department of Disaster Management and Rehabilitation, Government of Mizoram, as on February, 2019.

Table 6.1 Support of the people rendered to the government's disaster related programmes

Sl. No.	District	Number					Percent				
		Yes	To some extent	No	No idea	Total	Yes	To some extent	No	No idea	Total
1	Aizawl	7	15	1	2	25	28	60	4	8	100
2	Champhai	1	6	3	0	10	10	60	30	0	100
3	Kolasib	2	6	2	0	10	20	60	20	0	100
4	Lawngtlai	0	9	0	1	10	0	90	0	10	100
5	Lunglei	1	9	0	0	10	10	90	0	0	100
6	Mamit	0	6	4	0	10	0	60	40	0	100
7	Saiha	9	1	0	0	10	90	10	0	0	100
8	Serchhip	2	4	3	1	10	20	40	30	10	100
	Total	22	56	13	4	95	23.16	58.95	13.68	4.21	100

Source: Field Survey October 2018.

The support of the people is a big factor for the success of the government's disaster programmes. 23.16 % of the respondents have acknowledged that adequate support of the people has been rendered to the government while 58.95 have affirmed that the support are rendered only to some extent. 40 % in Mamit, 30 % in Champhai and Serchhip, 20 % in Kolasib and 4 p. in Aizawl think that no support is given to the government by the people.

Table 6.2. Reasons for lack of support from the public.

Sl. No.	District	Number					Percent				
		Feeling of not requiring the support	Lack of awareness	Due to biases	No idea	Total	Feeling of not requiring the support	Lack of awareness	Due to biases	No idea	Total
1	Aizawl	4	0	0	21	25	16	0	0	84	100
2	Champhai	2	1	0	7	10	20	10	0	70	100
3	Kolasib	2	0	0	8	10	20	0	0	80	100
4	Lawngtlai	0	0	0	10	10	0	0	0	100	100
5	Lunglei	2	0	0	8	10	20	0	0	80	100
6	Mamit	3	2	0	5	10	30	20	0	50	100
7	Saiha	0	0	0	10	10	0	0	0	100	100
8	Serchhip	1	3	0	6	10	10	30	0	60	100
	Total	14	6	0	75	95	14.74	6.32	0	78.95	100

Source: Field Survey October 2018.

78.95 % of the respondents cannot particularly point out the reason why the people do not provide adequate support to the government. This shows that stronger measures need to be taken towards promoting awareness on the importance and utility of the disaster related programmes. The reason for not backing up the government's programmes is lack of awareness in Serchhip (30 %), Mamit (20 %) and Champhai (10 %). The feeling of not requiring the support is felt in all the districts except for Lawngtlai and Saiha. Due to biases is not an issue in any of the districts (0 %).

(l) State Disaster Mitigation Fund³³

The State Government has introduced for the first time in 2018 the State Disaster Mitigation Fund as contrary to the State Disaster Response Fund which is a Central fund. As per the guidelines and norms of State Disaster Response Fund, no fund is provided for control and mitigation. A need was felt to introduce special fund for control and mitigation. To reduce risk in the State, the Finance Department sanctioned State Disaster Mitigation Fund for the year 2017- 2018 to the tune of 690 lakhs.³⁴ The different state government departments are expected to have a matching share of 20: 80 for the mitigation fund.

(m) Emergency Operation Centres (EOC)

Emergency Operation Centres at the State and district levels were established and activated to be used during disasters. State Emergency Operation Centre (SEOC) is established at the Directorate of Disaster Management and Rehabilitation Department, Chawnpui, Aizawl. District Emergency Operation Centres (DEOC) are established at each district in the Deputy Commissioner's Office and are equipped with basic communication system, search and rescue equipments. District Organisers/ Disaster Management Coordinators are posted at each DEOC to look after its functions. In the events of disasters, the Emergency Operation Centre will be contacted and after determining the intensity of the scenario, it may deploy forces or even search and rescue forces. The zonal officer will verify the content of the disaster

³³ Section 48 (1c), Chapter IX of the Disaster Management Act, Notification *No. B. 13011/17/2006- REH*, 23rd May, 2006.

³⁴ Official record maintained by the Department of Disaster Management and Rehabilitation, Government of Mizoram, as on February, 2019.

with the assistance of representatives of different departments. It should be noted that all communications are passed on to the District Commissioner.³⁵

(n) Grievances Redressal Mechanism³⁶

The Department is committed to redress grievances in a responsible and effective manner. It receives suggestions for improving the functioning of the department and promoting accountability and transparency relating to details of programmes and activities. The grievances are submitted electronically³⁷ or personally or by post to the Nodal Officer, Directorate of Disaster Management and Rehabilitation. In case of any grievances requiring appeals, it can be submitted to the Director of the Department. The Director is also frequently contacted on matters related to overall policy and coordination of programmes. Grievances, suggestions and enquiries are received with courtesy and patience. Final disposal/status report/responses are ordinarily within a period of one month.

(o) Assistance from the State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF).³⁸

Based on the consideration of the Recommendations of the Fourteenth Finance Commission (FFC) on financing of expenditure on immediate relief during natural disasters for the period of 2015- 2020 and the report of the Expert Group set up by the Ministry of Home Affairs, the Government of India has revised the items

³⁵ Official record maintained by the Department of Disaster Management and Rehabilitation, Government of Mizoram, as on February, 2019.

³⁶ Government of Mizoram, *Citizen Charter*, Department of Disaster Management and Rehabilitation., p.4.

³⁷ www.mipuiaw.nic.in and www.dmr.mizoram.gov.in.

³⁸ Government of India, Notification No. 32- 7/ 2014- NDM- I, Ministry of Home Affairs (Disaster Management Division), New Delhi, 8th April 2015.

and norms for assistance from SDRF/ NDRF. The revised norms were effective from 1st April 2015. There is adjust balance amount of SDRF whenever NDRF amount is released. Therefore revision of 50 % of SDRF balance, as on 31st March of the preceding final year, was adjusted while releasing the assistance from NDRF for the first disaster in a financial year. In case the same state faces another severe disaster during the same year, no adjustment will be made while releasing NDRF assistance.³⁹

Table 6.3 Issues and Norms of Assistance from the State Disaster Response Fund (SDRF) and the National Disaster Response Fund (NDRF) for the Period 2015- 2020.⁴⁰

(1) Gratuitous Relief

	Items	Norms of Assistance
a)	Ex- Gratia payment to families of deceased persons	Rs 4 lakh per deceased person including those involved in relief operation or associated in preparedness activities, subject to certification regarding cause of death from appropriate authority
b)	Ex- Gratia payment for loss of a limb or eyes	Rs. 59100/- per person, when the disability is between 40% and 60% Rs. 2 lakh per person when the disability is more than 60% Subject to certification by a doctor from a hospital or dispensary of government, regarding extent and cause of disability.
c)	Grievous injury requiring hospitalization	Rs. 12,700/- per person requiring hospitalization for more than a week Rs 4,300/- per person requiring hospitalization for less than a week

³⁹ Government of India, Notification No. 32- 7/2014- NDM- I, Ministry of Home Affairs (Disaster Management Division), New Delhi, 8th April 2015

⁴⁰ *Ibid.*,

d)	Clothing and utensils/ house-hold goods for families whose houses have been washed away/ fully damaged/ severely inundated for more than two days due to a calamity	Rs 1,800/- per family, for loss of clothing Rs 2,000/- per family, for loss of utensils/ household goods.
e)	Gratuitous relief for families whose livelihood is seriously affected	Rs 60/- per adult and Rs 45/- per child, not housed in relief camps as certified by the state government.

(2) Agriculture

A.	Assistance farmers having land holding upto 2 ha (Assistance for land and other loss)	
a)	De- silting of agriculture land	Rs. 12,200/- per hectare for each item.
b)	Removal of debris on agricultural land in hilly areas	
c)	Restoration/ Repair of fish farms	
d)	Loss of substantial portion of land caused by landslide, avalanche, change of course of rivers	Rs. 37,500/- per hectare to the small and marginalized farmers whose ownership of the land is legitimate as per the revenue records.
B.	Input subsidy (where crop loss is 33% and above)	
a)	For agriculture crops, horticulture crops and annual plantation crops	Rs 6,800/- per ha in rainfed areas and restricted to sown areas. Rs 13500/- per ha in assured irrigated areas, subject to minimum assistance not less than Rs 1000 and restricted to sown areas
b)	Perennial crops	Rs. 18,000/- ha for all types of perennial crops subject to minimum assistance not less than Rs. 2000/- and restricted to sown areas.

c)	Sericulture	Rs.4,800/- per ha for Eri, Mulberry, Tussar Rs.6,000/- per ha for Muga
C.	Input subsidy for farmers having more than 2 Ha of landholding	Rs.6,800/- per hectare in rain fed areas Rs.13,500/- per hectare for areas under assured irrigation Rs.18,000/- per hectare for all types of perennial crops

(3) Animal Husbandry

a)	Replacement of milch animals, draught animals or animals used for haulage	Milch animals- Rs. 30,000/- Buffalo/Cow/Camel/Yak/Mithun Rs. 3,000/- Sheep/ Goat/ Pig Draught animals- Rs.25,000/- Camel/horse/bullock etc Rs.16,000/- Calf/Donkey/Pony/Mule
b)	Provision of fodder/ feed concentrate including water supply and medicines in cattle camps.	Large animals- Rs. 70/- per day Small animals- Rs.35/- per day
c)	Transport of fodder to cattle outside cattle camps	As per actual cost of transport, based on assessment of need by SEC and recommendation of the Central Team.

(4) Fishery

a)	Assistance to Fisherman for repair/ replacement of boats, nets- damaged or lost	Rs. 4100/- for repair of partially damaged boats Rs.2,100/- for partially damaged nets Rs.9,600/- for replacement of fully
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		damaged boats Rs.2,600/- for replacement of fully damaged nets
b)	Input subsidy for fish seed farm	Rs.8,200/- per hectare

(5) Handicrafts/ Handloom Assistance to Artisans

a)	For replacement of damaged tools/ equipments	Rs.4,100/- per artisan for tools/ equipments
b)	For loss of raw material/ goods in processed or finished goods	Rs.4,100/- per artisan for raw material

(6) Housing

a)	Fully damaged/ destroyed Pucca and Kutcha house	Rs.95,100/- per house in plain areas
b)	Severely damaged Pucca and Kutcha house	Rs.1,01,900/- per house in hilly areas
c)	Partially damaged houses	
	i. Pucca house where the damage is at least 15%	Rs.5,200/- per house
	ii. Kutcha house where the damage is at least 15%	Rs.3,200/- per house
	iii. Damaged/ destroyed huts	Rs.4, 100/- per hut.
	iv. Cattle shed attached with house	Rs.2, 100/- per shed.

Source: Official Record maintained by Department of Disaster and Rehabilitation, Mizoram

The scale of relief assistance against each item for all disasters should not exceed the norms of the SDRF/NDRF. Any amount spent by the State for such disaster over and above the ceiling would be borne out of the resources of the state

government and not from SDRF.⁴¹ While providing compensation and relief to the victims of disaster, there shall be no discrimination on the ground of sex, caste, community, descent or religion.⁴²

During 2017- 2018 a number of families were provided financial assistance from SDRF as per norms: Aizawl District- 698 families, Lunglei District- 867 families, Siahla District- 85 families, Champhai District- 173 families, Serchhip District- 345 families, Lawngtlai District- 70 families, Kolasib District- 313 families, Mamit District- 302 families. Total: 2853 families during 2017- 2018.⁴³ It is remarkable to cite that the economic rehabilitation in the form of State Disaster Relief Funds have been given to the rightful beneficiaries. So far, there have been no delays, gaps and deficiencies in reaching relief and assistance to the affected persons or families.⁴⁴

6.4 Fire and Emergency Services Department

The Mizoram Fire and Emergency Services Department initially known as the Fire Brigade (technically, a fire station) was set up on 1st October 1972 under the administrative control of the Mizoram Police Department. Realizing the growing importance of the fire Brigade and the multifarious functions it had to perform, the Government of Mizoram upgraded the Fire Brigade and reorganized it as the Mizoram Fire Service Organisation, a full-fledged unit (under the Police

⁴¹ Government of India , Notification *No. 32- 7/2014- NDM- 1*, Ministry of Home Affairs (Disaster Management Division), , New Delhi, 8th April 2015, p. 7.

⁴² Section 61, Chapter XI of the Disaster Management Act, Notification *No. B. 13011/17/2006- REH*, 23rd May, 2006.

⁴³ Official Record maintained by the Department of Disaster Management and Rehabilitation, Government of Mizoram as of February, 2019.

⁴⁴ Interview with Zoenmawii, Assistant Coordinator, Department of Disaster Management and Rehabilitation, Government of Mizoram, on December, 2018.

Department) headed by a Superintendent of Police on 17th August 1992 and eventually it has been further upgraded to a Directorate under the Home Department on 20th March 2008. The Mizoram Fire Service Organisation was renamed as the Fire and Emergency Services in 2004. The department is not only confined to the sole purpose of fire fighting, but to provide other emergency services.⁴⁵

The second most common disaster in Mizoram is Fire disaster which has resulted in loss of numerous lives and properties worth several crores of rupees every year. Fire disasters emanate from domestic fire and bush fires in Mizoram. The practice of Jhumming method of cultivation which requires the cutting of burning of the forest during the first quarter of every year is a major source of fire in the state. So the dry seasons in Mizoram witness a lot of outbreak of forest fire which has to be controlled with the help of the Mizoram Fire and Emergency Services Department. The gradual urbanization and growth of population which has fashioned new problems and challenges is another source of fire. The role of the Mizoram Fire and Emergency Services Department is to save lives and property from Fire and its allied incidents and to minimize the outbreak of fire and its consequential loss within the jurisdiction of its responsibilities. They department generally attends to emergency calls, which are directly connected with fire and anyone who is in distress. Besides saving lives and properties from the ravages of fire, the department has been employed on certain missions apart from their statutory duties such as rescuing animals to retrieval of properties from perilous cliffs.⁴⁶

⁴⁵ Government of Mizoram, *Citizen Charter*, Fire and Emergency Services Department, p.1.

⁴⁶ Interview with Jonathan Lalruatfela, Fireman, Fire and Emergency Services Department, Government of Mizoram on 24.04.2019.

The mission of the department in each district is ensuring community and public safety in each district. This mission entitles them to deal with other activities besides dealing with emergencies. They have been conducting Fire and Evacuation drills in schools and colleges, and demonstrations with Fire engines, Fire extinguishers as part of Fire and Emergency Safety Awareness Campaigns.⁴⁷The campaigns are also promoted through various means such as displaying banners, posters and distribution of pamphlets, booklets and leaflets and, through electronic and print media, radio and talk shows and public concerts. Besides conducting Refresher courses and training for Fire personnel for better and effective service, they also present papers, trainings, demonstration, seminars to other governmental departments and NGOs on Fire Safety Awareness. They check Fire fighting equipments installed at government and private buildings, public places. They also have provided basic fire fighting equipments and demonstration to the trainees of National Cadet Corps (NCC) Annual Training Camp at Tanhril, Aizawl. They also hold annual inspection of Fire Safety measures in High risk fire place like Mualkhang Gas Bottling Plant/ ISPAT Steel Plant, Lengte.⁴⁸As per the order of the state government, the Jhum cultivators are requested to burn and clear their land before the onset of 15th of every March and crop on it thereafter. Moving one step ahead of their statutory orders, the Department on numerous occasions sends a patrol on duty after the mentioned deadline to monitor any incidents of fire from the forest.⁴⁹

⁴⁷ *Vanglaini*, (Mizo Daily) VOL XXXIV No. 120, RNI 34227/79, published on 27.05.2019.

⁴⁸ Government of Mizoram, *Citizen Charter*, Fire and Emergency Services Department, p.1.

⁴⁹ Interview with VL Biakhnuna, Fireman, Fire and Emergency Services Department, Government of Mizoram on 23.04.2019.

The following table represents the statistics of the incidents of fire, other rescue calls, lives lost, injured, property damaged and value of property salvaged by the Mizoram Fire and Emergency Services Department during the year 2015 to March 2019.

Table 6.4 Fire disaster statistics for the Year 2015 to March 2019.⁵⁰

Sl No	Year	House Fire	Forest Fire	Other rescue calls	Lives lost	Injured	Value of property damaged	Value of property salvaged
1.	2015	44	127	38	5	6	Rs. 1,23,58,960	Rs. 3,60,18,350
2.	2016	35	69	71	2	1	Rs. 53,390,934	Rs. 66,107,928
3.	2017	44	46	61	-	2	Rs. 4,68,64,800	Rs. 6,73,40,000
4.	2018	37	56	47	-	14	Rs. 9,24,33,637	Rs. 24,91,36,750
5.	2019	18	66	20	-	1	Rs.2,04,73,000	Rs. 5,57,31,000
	Total	178	376	237	7	24	Rs. 22,55,21,331	Rs. 47,43,34,028

Source: Official Record maintained by Fire and Emergency Services Department, Mizoram

Presently, there are 13 fire stations in the state. Realizing the need for making water filling facility, 40 (forty) Fire hydrants in Aizawl were constructed by the PHE Department which were recently handed over to the Fire and Emergency Service Department.⁵¹ 3 (three) fire hydrants in Lunglei, 3 (three) in Champhai and 1 (one) fire hydrant have also been completed. Works are underway in the making of more Fire hydrants in other districts.

The Fire and Emergency Services Department faces an array of issues and challenges. Their nature of duty which is to be performed without minimum delay is

⁵⁰ Official record maintained by the Fire and Emergency Services Department, Government of Mizoram as on April 2019.

⁵¹ Government of Mizoram , *Citizen Charter*, Fire and Emergency Services Department, , p.8.

slowed down by vehicular traffic congestion on almost every emergency calls. Too much volunteers at the disaster site and unmanageable crowd⁵² can cause dangerous situations for the fire-fighters and the public as a whole. They often have to control the crowd with the assistance of the Local Councils and the YMA leaders. Lack of proper supply of water during the operation often leads to the delay of getting things done. The work performed by the Firemen is dangerous. Their equipments, gears and resources are essential for their safety. The present condition of their gears and equipments including their vehicles is not satisfactory. This could cause fire-fighters severe injuries or even death in their duties. The shortage of man power is filled up with fireman employed on a temporary basis with less experience and training which can affect the tactic of the operation. Even with the temporary staffing, there is still insufficiency of personnel in the department. When there is an outbreak of fire, the responders are slow to act on contacting the Fire Department⁵³ which is due to many factors. In a state of panic, the first intuition is to extinguish the fire on their own capability. Secondly in a state like Mizoram where the people are more familiar with the number 911 than 100 and 101 for emergency calls and where citizen journalism is a trending practice, the Fire department is summoned only when an ample lot of time has already been lost. Although the department faces a lot of challenges in their tasks, the firemen always emerge as the first turnouts in disaster incidents, be it fire outbreak, flood, landslide or earthquakes. This ensures that they respond to people in distress that are not specifically set out in the act but which will help them meet their statutory duties.

⁵² Interview with Saidingliana, Superintendent of Police, Fire and Emergency Services Department, Government of Mizoram on 23.04.2019.

⁵³ Interview with Lalremmawia, Station Officer, Fire and Emergency Services Department, Government of Mizoram on 23.04.2019.

6.5 Directorate of Geology and Mineral Resources

The Directorate of Geology and Mineral Resources Staff was established as a Wing under the Department of Industries since 7th April, 1980 with a single staff. The department was upgraded to a full-fledged Directorate on 1st September, 2010 by bifurcation of the Directorate of Industries. The main activities of this department include scientific, technical, field oriented activities and activities involving structural mitigation in a systematic and scientific manner. Presently the Directorate does not have any District Offices and all works are undertaken from the Directorate, Aizawl.⁵⁴

The department deals with construction and house site safety that are aimed at reducing the economic and social impacts of disasters. In Mizoram where houses are built on uneven hillsides or slopes, the heavy monsoonal rains cause sliding of earth and rock masses which are very harmful to mankind in terms of life loss and economic loss. Landslides are more widespread than any other geological event.⁵⁵ The majority of the landslides in Mizoram take place in Aizawl. As a means to prevent the occurrence of more landslides and to protect the stability of the area, landslide investigation is conducted by the department. There are instances when a joint investigation⁵⁶ is conducted and the investigation team would include Zonal officers, PWD and AMC members and sometimes the District Disaster Management Authority personnel. On occasions the investigations are done by the Geologists alone as required by the condition. For instance, the PWD would investigate the

⁵⁴ Government of Mizoram, *Citizen Charter*, Directorate of Geology and Mineral Resources, p.2.

⁵⁵ Ghosh, G, K., 'Hazards of Landslides' in *Disaster Management*, Vol III (APH Publishing Corporation, New Delhi, 2015) p. 1191.

⁵⁶ Memo No. C. 16011/205/2017-DC (A)/112, Directorate of Geology and Mineral Resources, Government of Mizoram on 1st May, 2019.

construction materials while the Geology Department would investigate soil formation and stability.⁵⁷The assessment is also often required for land subsidence,⁵⁸ rock fall,⁵⁹ demolition of unsafe buildings.⁶⁰ Although the majority of the landslide investigations have been conducted on sites of residential buildings, it has also been carried out for schools,⁶¹ government department offices,⁶² churches,⁶³ sports complex,⁶⁴ industrial estates⁶⁵ widening of roads,⁶⁶ retaining walls⁶⁷ and developmental works for dam sites. A report is prepared on each of the special investigation carried out by the different departments which is then submitted to the Deputy Commissioner or the concerned agency with the necessary remedial measures to be taken thereafter. The report will be composed of a very detailed account of the local geology of the investigated site, topography, lithology, type of material, type of movement, rate of movement, failure mechanism, geomorphology, hydrological condition, triggering factor, structure, drainage condition, geo- scientific causes, remedial measures, recommendations and suggestions with supporting photographic evidence.

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- ⁵⁷ Interview with H. Lalbiakkima, Deputy Director, Directorate of Geology and Mineral Resources, Government of Mizoram on 1.05.2019.
- ⁵⁸ Memo No. I. 11014/ 5/ 2017- DGMR, Directorate of Geology and Mineral Resources, Government of Mizoram on 3rd August, 2017.
- ⁵⁹ Memo No. I. 11014/ 3/ 2014- DGM, Directorate of Geology and Mineral Resources, Government of Mizoram on 30th April, 2019.
- ⁶⁰ Memo No. B. 13011/ 109/ 2013- DMR, Directorate of Geology and Mineral Resources, Government of Mizoram on 25th April, 2019.
- ⁶¹ Memo No. C. 16011/ 73/ 2012- DC (A)/ 140, Directorate of Geology and Mineral Resources, Government of Mizoram on 30th April, 2019.
- ⁶² Memo No. B. 13011/ 1/ 2016- DTE (DMR), Directorate of Geology and Mineral Resources, Government of Mizoram on 15th February, 2016.
- ⁶³ Memo No. B. 11014/ 3/ 2014- DGM, Directorate of Geology and Mineral Resources, Government of Mizoram on 8th January, 2018.
- ⁶⁴ Memo No. I. 11014/ 3/ 2014- DGM, Directorate of Geology and Mineral Resources, Government of Mizoram on 6th April, 2017.
- ⁶⁵ Memo No. L. 11014/ 2/ 2017- AZL (N)/DGMR, Directorate of Geology and Mineral Resources, Government of Mizoram on 2nd November, 2017.
- ⁶⁶ Memo No. C. 16011/ 105/ 2013- DC (A)/ 100, Directorate of Geology and Mineral Resources, Government of Mizoram on 25th September, 2018.
- ⁶⁷ Memo No. I. 11014/ 1/ 2012- DGM, Directorate of Geology and Mineral Resources, Government of Mizoram on 21st November, 2014.

The second function carried out by the department in the task of disaster mitigation is the House sites stability investigation which is also known as the Geotechnical investigation. It is conducted as required by user departments and private parties to assure safer house construction. The investigation of the geotechnical investigation is crucial to assure quality control of the ground on which the building is to be constructed. Presently the AMC has developed the Site Development and Slope Modification Act. As provided by the act, if any construction is to take place on a slope that is a 60 degree angle or greater, the slope will require an assessment by a Geologist from the Geology and Mineral Resources Department. The investigations are done on soil formation and stability, structural stability and, sub soil investigation. The Geotechnical investigation has also been conducted on sites for medical college hostels⁶⁸, multi-level car parking⁶⁹ and sites for retaining walls. Reports are furnished for each investigation which is then submitted to the Deputy Commissioner or the concerned agency with the necessary remedial measures to be taken thereafter. The report will compose of a very detailed account of the local geology of the investigated site, topographic features, lithology, structural features, slope morphometry, unstable area, proposed development activity, field observation and recommendations with supporting photographic evidence. This is a means to prevent further of human and material damage caused by landslide.

⁶⁸ Memo No. I. 11015/ 2/ 2017- DGM, Directorate of Geology and Mineral Resources, Government of Mizoram on 12th November, 2018.

⁶⁹ Memo No. I. 13011/ 1/ 2010-DTE-GMR, Directorate of Geology and Mineral Resources, Government of Mizoram on 24th August, 2018.

Table 6.5 House Sites and Landslide Investigation Statistics from April 2014-March 2019.⁷⁰

Sl No	Year	House Sites	Landslide Investigation
1.	April 2014-March 2015	127	27
2.	April 2015-March 2016	133	31
3.	April 2016-March 2017	170	59
4	April 2017-March 2018	56	84
5.	April 2018-March 2019	93	59
Total		452	233

Source: Official Record maintained by Directorate of Geology and Mineral Resources, Mizoram.

The problem faced by the department is that there are incidents of conflict of opinion with other agencies involved in the investigation leading to a split in the outcome. Sometimes the geology department is consulted when the construction has already been started and nothing can be done about the safety of the building. Another problem faced is when a building is given approval by the other authorities but the public files a complaint to the Deputy Commissioner or the AMC fearing for the safety of the surrounding area. The report/ assessment given by the department are not binding on the owners/builders of the house⁷¹ and there is no law which allows the punishment of the offenders. The government has not created a post for

⁷⁰ Official Record maintained by the Directorate of Geology and Mineral Resources, Government of Mizoram as on May 2019.

⁷¹ Interview with P. Sanghnuna, Geologist Senior, Directorate of Geology and Mineral Resources, Government of Mizoram on 1.05. 2019.

the post of Geologist since 2000 causing an acute shortage of man power in the department. Since the Directorate of Geology does not have any District Offices and all works are undertaken from the Directorate, Aizawl, they face a big problem of mobility. The problems of shortage of man power and mobility have resulted in the uneven implementation of mitigation strategies at the state and local levels. Efforts have to be joint at times with the professors of Lunglei Government College to solve seismic crisis in other districts. The department also faces the problem of paucity of funds when conducting investigations and assessment projects, specifically when it requires travelling to other districts.⁷²

6.6 Public Works Department

Being the State Government's main agency for all civil engineering works, the three zones under the department i.e, the Building Division, the Road Division and the Highway Division undertake the responsibility of planning, design, construction and maintenance of all state Government buildings, stadiums, educational institutions and other government infrastructures. They are also responsible for maintaining more than 4000 Kms of road network in the state.

The Department has constituted a special cell which is known as the Hazard Safety Cell. The main role of the cell is to reduce the ill- effects of disasters and to stop further damages that may be caused by disasters. The Chief Engineer (Building Division) of the PWD is the Chairman of the Hazard Safety Cell, and its members include the Superintendent Engineer (Central Circle), Superintendent Engineer (Project Circle), Executive Engineer (Roads Division), Executive Engineer (Project

⁷² Memo No. I. 11011/ 1/ 2010-DTE-DGM, Directorate of Geology and Mineral Resources, Government of Mizoram on 11th September, 2015.

Division- I), Executive Engineer (Quality Control Division), and Executive Engineer (Design Cell). The Hazard Safety Cell carries out projects that are directed to minimise the destructive and disruptive effects of hazards. Due to unprecedented heavy rains during the monsoons, heavy landslips, landslide, land subsidence, cracking, formation breach, retaining wall collapse may occur resulting of loss of lives and property and causing dangerous conditions for the public. When there is a request from owners of buildings whose buildings are suspected of being vulnerable to imminent threats or sites or buildings that want to prevent further damage, the respective owners can send an application to the Deputy Commissioner for mitigation measures. The Chairman of the Hazard Safety Cell is then requested by the Deputy Commissioner to conduct investigations on the affected sites.⁷³ A joint verification⁷⁴ is conducted with the Geology and Mineral Resources Department for which a concrete proposal with remedial measures is submitted to the Deputy Commissioner. The recommendations of the investigations are either mitigation measures or actions to determine if a building needs dismantling or not. Their main goal is to integrate a solution that will create the least damage to nature and to ensure the safety of the people. The Hazard Safety Cell of the PWD will investigate the structure (material, proportion), the Geologist will investigate the foundation on which the construction stands. They will see if the building needs to be vacated, or suggestion to dismantle the building due to poor geological conditions as reported by the geologists. To prevent further landslides, properly designed wall may be constructed from the lower road. The bank filling may be properly embanked in

⁷³ Interview with PC Lallianzuala, Executive Engineer, Public Works Department (Building Division), Government of Mizoram on 3.05.2019.

⁷⁴ Memo No. C. 16011/ 73/ 2012-DC (A)/ 140, Public Works Department (Building Division), Government of Mizoram on 3rd April, 2019.

sloping manner and stone pitching of the surface may be carried out to prevent percolation in the back fill.

The financial requirement for the dismantling work will have to be worked out between the Offices of the Chairman, District Disaster Management Authority and Directorate, Disaster Management and Rehabilitation Department, and the required money will be placed before the Disaster Management and Rehabilitation Department Secretariat before sanctioning of the fund. Since there is no provision of fund for dismantling of buildings under the SDRF/NDRF the authorities are of the opinion that the fund for dismantling of buildings under State Specific Disaster for which the approval of the government will be required. Proposal will be prepared by the District Disaster Management Authority and the same is to be submitted to the Directorate, Disaster Management and Rehabilitation Department for further necessary action.⁷⁵ Certain cases have been re-investigated by the Hazard Safety Cell on the request of the District Disaster Management Authority.⁷⁶ In the dismantling of buildings junior engineers have to be present on the site for security measures.

6.7 Department of Urban Development and Poverty Alleviation (UD&PA)

The Urban Development and Poverty Alleviation (UD&PA) was created on 24th August 2006 to implement various urban development and poverty alleviation programmes. Although the Department of Urban Development and Poverty Alleviation (UD&PA) executes several services under it, the technical cell plays the

⁷⁵ Memo No. C. 16011/138/2014-DC (A)/435, District Disaster Management Authority, Aizawl on 4th April, 2019.

⁷⁶ Memo No. C. 16011/117/2013-DC (A)/632, District Disaster Management Authority on 20th July, 2018.

major role in disaster mitigation and prevention.⁷⁷ Creation of quality urban infrastructure to help promote urban areas as engines of economic growth through the improvement in the quality of urban life is one of the missions of the department. Some of their allocation of business includes Town and Country Planning which includes the Mizoram Urban and Regional Development Act, 1990, the Urban Development Plans Formulation and Implementation Guidelines, 1996, and the National Building Code of India under the Bureau of Indian Standards Act, 1986, City Development Plan for Urban regions, Urban Housing, Residential Tenancy, Tilting and Related Matters, Integrated Development of Small and Urban Towns (Urban areas), City/ Towns and Regional Development Authorities (Aizawl Development Authority) and the Mizoram Urban Sanitation and Solid Waste Management Policy, 2011.

The construction projects carried out by them are mostly composite infrastructure works.⁷⁸ To uphold structural safety has always been the guiding principle of the department. As Mizoram is an area lying in the Seismic Zone V, utmost importance has to be given to the area of structural mitigation by engineers and planners. Further, the urban areas continue to witness a surge of population, rapid development and infrastructure, making structural engineering a crucial component in building a disaster resilient state. All the designs of the construction projects carried out by the Department of Urban Development and Poverty Alleviation Earthquake are executed in accordance with the Earthquake Resistant

⁷⁷ Interview with Lalrinpuii Hnamte, Deputy Director, Department of Urban Development and Poverty Alleviation, Government of Mizoram on 3.05.2019.

⁷⁸ Interview with Laldinsanga Hnamte, Assistant Engineer, Department of Urban Development and Poverty Alleviation, Government of Mizoram on 3.05.2019.

Design and Construction of Buildings- Indian Standard Code.⁷⁹ It is binding on the engineers and the architects of UD&PA to follow Code 1893 and Code 4326 of the Indian Standard Code (ISC) which is the criteria of earthquake resistant design of structures. The code is also severely complied with by the architects and contractors involved in the construction.⁸⁰ Constructions designed as per the guidelines of Indian Standard Code (ISC) do not guarantee that no structure shall suffer any damage during earthquake of all magnitude. It has been endeavoured to ensure that, as far as possible, structure are able to respond, without structural damage to shocks out of moderate intensities and without total collapse to shocks of heavy intensities.⁸¹

Their work deals mainly with structural mitigation therefore they do not conduct landslide investigations⁸² like the PWD or the Geology and Mineral Resources Department. However occasionally they work together with geologists for soil formation assessments and the Quality Control Cell of the PWD for assessment of building materials. The infrastructure works carried out by the UD&PA mainly involves construction of retaining walls, multi-level car parking, link drains, embankments, sewage canals and, a small number of government buildings. Innumerable measures have been taken by the Department to eliminate landslide and floods through the construction of proper drainage system. The Department has also

⁷⁹ *Indian Standard Earthquake Resistant Design and Construction of Buildings- Code of Practice, (Fifth Revision)*, Bureau of Indian Standard, New Delhi, 2002.
https://rahat.up.nic.in/sdmplan/Earthquake/AnnexureI-V/AnnexureII_earthqk.%20prac.-1.pdf
accessed on 12.05.2019.

⁸⁰ Memo No. D. 24012/36/2018-NEDP/Tech/DTE-UD&PA, Department of Urban Development and Poverty Alleviation, Government of Mizoram on 25th September, 2018.

⁸¹ Bureau of Indian Standard, Part 1, General Provisions and Buildings, *Indian Standard Earthquake Resistant Design and Construction of Buildings- Code of Practice, (Fifth Revision)*, New Delhi, 2002.

⁸² Interview with Laldinsanga Hnamte, Assistant Engineer, Department of Urban Development and Poverty Alleviation, Government of Mizoram on 3.05.2019.

taken concrete steps in urban sanitation and cleanliness through the collection, transportation and disposal of solid wastes.⁸³ Improper waste disposal may threaten public health, hinder reconstruction, impact the environment and may lead to environmental disasters. Therefore it is the primary responsibility the Department to take up solid waste management and prevent any environmental and health disasters that could set off from it.

6.8 Department of Health and Family Welfare

The Health and Family Welfare Department is one of the oldest and most permanent Departments of the Government of Mizoram. Although no document can be found to trace its establishment, there is evidence of E. Christian Harr, Surgeon Captain of the Lushai Hills' visit to the Champhai Dispensary on 22nd November 1896.⁸⁴ The Department of Health and Family Welfare is bifurcated into the Directorate of Health Services (DHS) and the Directorate of Hospital and Medical Education (DHME).

The Health sector has the most challenging and visible responsibilities in preparedness and response during disasters. They play a disaster preventing role by controlling communicable and non-communicable diseases and epidemics and a disaster response role by coordinating and controlling the mobilization of all health responses when emergencies occur. The Health sector should have a response capacity for external disasters as well as internal disasters which could occur due to building collapse, earthquake, fire, explosion and blast, landslide, storm and

⁸³ Interview with J. Laldingliana, Assistant Engineer, Department of Urban Development and Poverty Alleviation, Government of Mizoram on 3.05.2019.

⁸⁴ Government of Mizoram, *Citizen Charter*, Directorate of Health Services, Department of Health and Family Welfare, p.2.

epidemics within the hospital. As a result, there is a dual need of higher level of preparedness to respond to disaster victims, and also for the hundreds of hospital inmates and provide them with the best facility.⁸⁵

As per the request of the Disaster Management and Rehabilitation Department and the District Commissioner, all the hospitals under the Health and Family Welfare Department are required to come up with their Disaster Management Plans and be revised and updated every year.⁸⁶ In addition to their External Disaster Management Plan, the Aizawl Civil Hospital housing more than 273 patients (as on September 2017) has developed a detailed and systematic Internal Disaster Management Plan.⁸⁷ The Plan is composed of certain teams and groups detailed in certain positions-

- i. Emergency Operation Center (EOC) - the Medical Superintendent Office.
- ii. Immediate Response – Disaster Alert System, Rapid Response Team (RTT).
- iii. Mass Evacuation System- the senior most duty at each ward/section is in charge of evacuation process, and is responsible for immediate alert of the hospital disaster committee.

⁸⁵ Interview with Dr Robert Khawlhiring, State Nodal Officer cum P.O, Directorate of Hospital and Medical Education, Department of Health and Family Welfare, Government of Mizoram on 29.04.2019.

⁸⁶ Letter *No.F.23015/1/2016- MS/54*, Office of the Medical Superintendent, Civil Hospital, Aizawl on 10th October, 2017.

⁸⁷ Disaster Management Plan (September 2017), Part B, Internal Disaster Plan & Operations, p.14, Civil Hospital, Aizawl.

- iv. Reception Center- the designated Reception Center is Main road at Ground Floor of Block C.
- v. Triaging and First Aid- the designated Triaging and First Aid area is the Reception Center. However it can be at multiple areas if the disaster is in a massive scale.
- vi. Accommodation Plan and Housing- areas are earmarked for makeshift wards depending on the damage and effect of the disaster.

The Aizawl Civil Hospital has Disaster Management Plan booklets and flow charts (evacuation plan) being displayed in certain strategic places. The hospital has several flow chart designs for different medical blocks and for responding to external and internal disasters. Furthermore, there is a separate flow chart being prepared for the different floors and medical wards.⁸⁸The Aizawl Civil Hospital Disaster Committee has been constituted and has established either a Quick Response Team or a Rapid Response Team⁸⁹ who are actively involved in all Mock Drills and Table Top Exercises.⁹⁰Sometimes they are requested to detail doctors, nurses, grade staff, ward staff and drivers for this purpose. As scheduled by the Fire Safety Audit of hospitals, fire extinguishers of type A, B and C have been allotted in all of the wards, theatres, corridors, staff room, medical record room, library room, driver's room and

⁸⁸ Interview with Dr John Zohmingthanga, Deputy Medical Superintendent, Civil Hospital, Aizawl on 25.04.2019.

⁸⁹ Memo No. A. 33023/1/2014- MS/55, Office of the Medical Superintendent, Civil Hospital, Aizawl on 10th July, 2017.

⁹⁰ Letter No. D. 12015/2/2009- MS/6946, Office of the Medical Superintendent, Civil Hospital, Aizawl on 22nd November 2016.

the kitchen in the hospital.⁹¹ Besides these, most of each room has an emergency exit provision.

It is the primary responsibility of the Disaster Management and Rehabilitation Department to conduct Rapid Visual Screening on hospitals and lifeline buildings in all the districts to assess the structural vulnerability and seismic security.⁹² Envisioning the need for a fully functional hospital in times of a state wide catastrophic event with secure equipments and service, the Health and Family Welfare Department has made numerous requests to the government for a establishing a makeshift hospital⁹³ at Assam Rifles Ground which is a viable location with an appropriate space. It includes the arrangement of a site for establishing the makeshift hospital at Assam Rifles Ground by constructing a small house (24 ft x 36 ft) to store necessary emergency makeshift beds, portable generator, emergency surgical kits, and emergency medicines as it is of vital importance to be fully ready in case disaster strikes. The request has been sent to different agencies but has not been materialised till today.

A meeting on Disaster Management is held regularly in the office chamber of the Principal Director of Health and Family Welfare which is attended by medical officers and concerned personnel.⁹⁴ On 29th and 30th November, 2016, a ‘Two days State Level Workshop on Strengthening Health Emergency Preparedness plan for

⁹¹ Memo No.D.12015/2/2009- MS/6946, Office of the Medical Superintendent, Civil Hospital, Aizawl on 22nd November, 2016.

⁹² Letter No. B. 13017/5/2017- DTE (DMR), Disaster Management and Rehabilitation Department, Government of Mizoram, 30th May, 2017.

⁹³ Memo No. D. 12017/2/2015- DHME/DM/PROG/NHM, Health and Family Welfare, Government of Mizoram on 17th August, 2015.

⁹⁴ Memo No. B. 11014/1/2015- DHME/DM/PROG/NHM, Health and Family Welfare, Government of Mizoram on 17th August, 2015.

Government and Health Sector Partners’ was conducted in collaboration with Sphere India and the Disaster Management and Rehabilitation Department. With Mizoram lying in the seismic zone, it is vulnerable to multiple threats and hazards. The seminar was aimed at strengthening the capacity of the emergency nodal officers on emergency health preparedness and risk management for government and health sector. It was attended by Nodal officers and district representatives of different departments. Immediately, the Disaster Management & Rehabilitation Department requested a follow up action for the recommendations and key actions proposed by the participants in the seminar.⁹⁵

Recognising the need to foster to psychological traumas of distressed disaster victims, numerous programmes have been attended and organised by the Directorate of Hospital and Medical Education (DHME) in relation to psychological care in disaster management. The department conducted a 3 days Training on Mental Health cum Disaster Management for Medical officers on the 6th to 8th September, 2016.⁹⁶ The second batch of training was for the Staff Nurses. It was followed by the training of Paramedics/ Lab Technicians and Pharmacists.⁹⁷ The training covered topics such as Depression/ Suicide, Psychological Aspect of Depression, Dissociative Disorders, Anxiety Disorder, Psychiatric Social Work Aspect of Anxiety Disorder, Psychiatric Emergencies, Nursing Aspect of Psychiatric Emergencies, substance Use Disorders and, Psychiatric Social Work Aspect of Substance Use Disorder. Upon the invitation of the Joint Secretary, Ministry of Health and Family Welfare, Government of India,

⁹⁵ Letter No. B. 13017/2/2016- DTE, Disaster Management and Rehabilitation Department, Government of Mizoram, 12th January, 2017.

⁹⁶ Letter No A. 35023/1/2016-DM/PD/HFW, Directorate of Health and Medical Education, Department of Health and Family Welfare, Government of Mizoram on 9th November, 2016.

⁹⁷ *Ibid.*,

3 medical personnel attended a Training Workshop on Health Sector Disaster Preparedness and Response at NIMHANS, Bangalore.⁹⁸The department also took part on 'Coordination Meeting on Conduct of Multi State Mock Exercise in Earthquake Disasters'.⁹⁹A report on 'Psychosocial Management in a Disaster' was given by Dr. Ruth Lalmuanpuii at the meeting of Mental Health Professionals on 5th April 2019.¹⁰⁰

6.9 Department of Food, Civil Supplies and Consumer Affairs

The main objective of Food, Civil Supplies and consumer Affairs Department is to ensure, by undertaking State Trading Scheme, regular supply of foodstuff at reasonable price to the general public, particularly to the weaker section of the society under the nationwide network of Public Distribution System in the State of Mizoram and to ensure supply of essential commodities at reasonable price to the public.¹⁰¹In the past, the department had carried out the role of supplier of food (rice) to disaster victims and their family, or to the search and rescue teams or community volunteers engaged in the scene of disasters. This was done on the notification from the Deputy Commissioner and the Department of Disaster Management and Rehabilitation. To complete this process, the Food and Civil Supplies had to get the approval of the Secretariat. Once they get the approval, the department contacted the supply centre nearest to the disaster site, and is given the order to make the delivery. The amount of bags to be given was usually decided by the office of the District

⁹⁸ Letter No. D. 12016/13/2015- DMH/MH/NHM, Directorate of Health and Medical Education, Department of Health and Family Welfare, Government of Mizoram, 12th February, 2017.

⁹⁹ Letter No. C. 16011/163/2015- DC (A)/199, Disaster Management and Rehabilitation Department, Government of Mizoram, 19th April, 2018.

¹⁰⁰ Official Record maintained by Directorate of Health and Medical Education, Department of Health and Family Welfare, Government of Mizoram, as on April, 2019.

¹⁰¹ <https://fcsca.mizoram.gov.in/page/allocation-of-business> accessed on 22.04.2019.

Commission. The delivery amounted to 20 to 30 quintals normally.¹⁰²The rations reached to the far corners of the state where disasters took place. Unfortunately, the last of this special provision took place on March 2014.¹⁰³This was because of the implementation of the National Food Security Act¹⁰⁴ (NFSA) which delimited the extent of rations received by the state of Mizoram. The NFSA created such a setback that the supplies fell short for the consumption for the people of Mizoram, and the special provisions which used to be made to the disaster victims had to be discontinued. So the Department has played a dormant role in disaster management since 2014. As of now, the scenario in Mizoram is such that the amount of food earmarked by the central government for the state does not meet the requirement of 1200 lakh quintals of rice needed for the people of Mizoram. This incongruence in the supply and demand has resulted in the procurement of a significant number of supplies of rice from MIZOFED by the Department. For the Department to continue the special provisions to the disaster victims there needs to be a proper Mizoram food contingency rule approved by the Finance Department to avoid a vacuum or a deficit in the supplies. Another part of the solution is if the state government makes a proposal to the central government for issuing of more rations.

6.10 Conclusion

The accountability to handle natural and man- made disasters is a fundamental task of the state- level government. The concerned departments should be able to coordinate with other departments within the state government to manage

¹⁰² Interview with Mr MS Thuamluaia, Lower Division Clerk, Department of Food, Civil Supplies and Consumer Affairs, Government of Mizoram on 22.04.2019.

¹⁰³ *Ibid.*,

¹⁰⁴ The National Food Security Act, 2013, the Gazette of India, Registered No. DL- (N) 04/0007/2003-13, New Delhi, 10th September, 2013.

disaster resources and operations effectively. Although various pre- disaster and post- disasters measures have been initiated by the government, the response and support from the public is very weak. Moreover shortage of man power is pervasive in all the government departments involved in disaster management. This hinders the work of each department in accomplishing their objectives and the observation of certain requirements and procedures related to disaster management. Recognising the vulnerability of the state, disaster awareness should be made a priority by all the state departments concerned.

CHAPTER VII
CONCLUSION

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7.1 Introduction

The primary objective of the study is to assess how far the State of Mizoram has conceived Disaster Management; where it has failed and also how it can nurture its assets and resources to raise a culture of safety and resilience at all levels. The study also strived to reveal the voice of the citizens in examining the level of developments brought about in the trend of Disaster Management. The whole work is divided into seven Chapters:

The *first* Chapter is the introduction which deals with the generic meaning of disasters including its classifications. The chapter also highlighted the global and national scenario of disaster management leading to the current scenario at the state level. The chapter also presented the background of the present study, statement of the problem, literature review, objectives of the study, the research questions, scope and methodology adopted for carrying out the present study.

The *second* Chapter is an assessment of the concepts and dimensions of disasters, both natural and man-made. It gave a descriptive study of the affects and chaos caused by each disaster.

The *third* Chapter is concerned with the profile of Mizoram and the Mizo society including their history, culture and traditions. It also summarized the topography, geology and the climate of Mizoram which play a factor in the

occurrence of various disasters. The Chapter also gave an account of the valuable principles of the Mizo life which are indispensable for the management of disasters.

The *fourth* Chapter is an assessment of the role played by the local government in disaster prevention and mitigation. It made a study of the acts and regulations which are implemented to create a community safe from disasters.

The *fifth* Chapter is the descriptive study of the various Non-Governmental Organisations in Mizoram and their respective involvement in disaster management. The Chapter highlighted cases of post disaster relief and rehabilitation and response, giving emphasis on the Young Mizo Association (YMA). It also studied the role of the other leading non- governmental organisations in Mizoram such as Mizoram Upa Pawl, Mizo Hmeichhe Insuihkhawm Pawl, Mizo Zirlai Pawl and the Church.

The *sixth* Chapter is an analytical study of the various stakeholders involved in the area of disaster management in Mizoram. Their role and contribution in the direction of disaster mitigation and post- disaster measures are highlighted. It made an in-depth study of the Disaster Management and Rehabilitation Department. It also studied the role of the Fire and Emergency Services Department, Directorate of Geology and Mineral Resources, Public Works Department, Department of Urban Development and Poverty Alleviation, Department of Health and Family Welfare and, Department of Food, Civil Supplies and Consumer Affairs.

The *seventh* Chapter is the concluding Chapter which summarizes the findings of the study and the observations made during the course of research. It also presents the suggestions for improvement and elimination of barriers in disaster management.

7.2 Major Findings of the Study

Major Findings of the local government, civil society and the state society relating to disaster management in Mizoram are the following:

7.2.1 Findings relating to Civil Society

Landslides accounts for 63.81 % of the disasters that takes place in Mizoram. 34.29 % of the disaster on the other hand is caused by fire disasters. These are fire disasters arising from domicile fire accidents and from bush fires particularly during the first quarter of the year where the cultivators have to slash and burn their fields. 1.90 % of the disasters are caused by cyclones. Records of loss of lives and sparking massive disasters arising from the consequences of flood have not been found in Mizoram until July 2019 when More than 700 houses from 32 villages were submerged due to flood in Tlabung in Lunglei district and more than 100 houses were inundated by flood at Chawngte in Lawngtlai district. More than 500 families have been affected out of which 3 people have lost their lives. Apart from Lunglei and Lawngtlai district, flood has hit Serchhip and Mamit district where the heavy downpour of the monsoon rains has not only caused floods but also triggered landslides in different parts of the area.

Community participation has always been the essential element in disaster scenarios. A very unique principle that the Mizos have fostered since remote past is the practice of *Hnatlang*. *Hnatlang* which is basically a form of community participation is represented as ‘a common service for the common good of the people which all the household should render, either together at one time or one after

another, as and when called for'. It is this helping and voluntary spirit that the Mizo community depends on in times of distress, disasters and other occasions that require mass contribution. The collective labour and contribution of each citizen is indispensable for the successful disaster management and preparedness plan in each locality. It is through the practice of *Hnatlang* that the Local Councils have increasingly taken initiatives in disaster management and prevention in local settings. Though it is a customary practice, the Local Councils are entrusted with the power to enforce their own Local Council *Hnatlang* in their respective areas in the interest of the public whenever an occasion demands. *Hnatlang* plays a very significant factor for the local administration that the Local Councils have the power to impose a fine on any household that does not comply with the *Hnatlang* order at a fixed rate. The study revealed that 38.5% of the respondents place their trust in the initiatives of the community better than the measures taken by the government authorities in times of disasters.

The field study conducted on October 2018 revealed that threat of disasters due to urban growth and urbanization is the highest in Aizawl (82 %) which may be a result of the rise of population and urban settlement. It is followed by Lunglei (70 %), Mamit (60 %), Saiha (60 %), Lawngtlai (56 %) and Champhai (45 %), Kolasib (30 %) and Serchhip (30 %). Urban areas are congested and more prone to disasters. The reason for this is either residents stay in high rise buildings or in squatter settlements due to high densities and low availability of land. Another reason for higher risk in urban areas is due to the disturbance of the ecological system.

The earthquake zoning map of India divides India into four seismic zones (Zone 2, 3, 4 and 5). Zone 5 covers the area with the highest risk zones of earthquakes intensity and Mizoram is one of the regions that falls in this zone. The study reveals that 20 % of the government officials in Saiha do not have a working knowledge of the seismic zone status of Mizoram. Of all the NGO respondents, 18 % from Aizawl district are not acquainted with this information. 5 % of the NGO respondents from Kolasib and Serchhip and, 4 % of the respondents from Lawngtlai and Saiha also are not aware of this information. It is very impressive to remark that the elected representatives from all the districts have a clear and vivid knowledge about this information (100 %).

Compliance of the people on building codes is crucial for the mitigation of disasters. The engineers are to give instructions on technical guidelines on cost-effective ways for repair, retrofit and disaster resistant building models which are to be followed by the people in general. Non compliance of the existing building codes, poor qualities of construction, unskilled labours are one of the causes for loss of lives and property during disasters. 46.66% of the respondents think that the building codes and guidelines have been followed by the public while 53.34% of the respondents feel that the implementation of the building codes has not been a success. This clearly suggests that mitigation strategies are not made a priority and that the role of the engineers and planners is not stressed enough

From the interview with the Secretary General of the Mizo Zirlai Pawl, it is evident that the Department of Disaster Management and Rehabilitation do not devolve enough responsibilities to the organisation which happens to have the largest

membership in the state. This is reflected on the difference of involvement of the Mizo Zirlai Pawl with other departments and organisations such as the Tobacco Department compared to disaster management matters. The area of the operation of the Mizo Zirlai Pawl extends to all the students of Mizo descent. However the Department of Disaster Management and Rehabilitation has failed to see the potential of the group's influence and large workforce to achieve optimal disaster management goals and objectives. Being an organisation which has an impact on all the students of Mizoram and beyond, it is surprising to know that Mizo Zirlai Pawl has been involved in only a few post disaster relief works and activities till date. Unless roles and responsibilities are allocated to them by the nodal department, maximum utilization of the organisation's best resources can never be furnished.

Instruments are the lifelines of the YMA in getting things done. The endless list of demanded equipments and tools made to the government is an indicator that the YMA do not have the instruments it needs to function properly. Because of the lack of instruments they often have to resort to conventional means to conduct their operations which results in the waste of time, money and effort. Moreover the equipments they have are outmoded and needs to be upgraded with newer models. The underwater remotely operated vehicle is a device which is used by search and rescue teams worldwide but which is unknown in Mizoram. It is a device which has multiple view sonar to identify and map objects of all types underwater. It creates a near photo- like image of exactly what is under the water. Once it has detected the body, they could deploy the professional diver easily to retrieve the dead body. Since they are a voluntary organisation, lack of funds is a prevailing problem. Having no

proper source of income, they are incapable of carrying out certain responsibilities and duties the community requires from them.

The role of the Young Mizo Association (YMA) cannot be emphasized enough when the search operations involve searching in water vicinities. The biggest problem faced by them in recovering drowned bodies is the absence of professional lifeguards in Mizoram. There have been many instances when a member of the rescue team died mid operation. So it is with great risks that the YMA members take part in these rescue operations. Professionally trained diving team, paramedics, water search dogs and, an underwater remotely operated vehicle, with knowledgeable operator should be introduced in their team.

The church organisations which have the potential to perform a myriad of functions have so far only played a role in post disaster activities. The church organisations in Mizoram with their familiarity and closeness to the community that they serve can facilitate a wider network to the community including pre disaster and response activities like public education awareness, preparedness planning, community mobilization, first aid training, trauma counselling, family and community supporting networks, physical, social, spiritual and emotional healing centres for those affected by disasters. Since churches have been increasing in size and numbers they could also open more doors to victims of disasters awaiting shelter.

7.2.2 Findings relating to the Local and State Government

As specified in Section 25, Chapter IV of the Disaster Management Act, 2005. District Disaster Management Authorities have been set up in all the eight districts of Mizoram on 6th June, 2006. The district authorities prepare the District Plan in consultation with the local authorities. The District Plan comprises of allocation of responsibilities, response plans and procedures, capacity building and preparedness measures to be taken by the different government departments at the district level and the local authorities in the prevention and mitigation of disasters. The District Plan is reviewed and updated every year and is made available to all the government departments in the district. The field study reveals that 26.67 % of the special trainings, mock drill sessions and awareness programmes are conducted by the District Disaster Management Authorities in their respective districts for different levels of voluntary rescue workers, employees and officers. The district authorities also provide mechanism for early warning systems and identification of areas in the districts vulnerable to disasters.

The AMC does not have a separate Disaster Management committee or division. But it is a powerful body in tackling disasters through mitigation strategies, relief distribution and providing shelter to the victims. They do not perform the multifarious functions like the state government does over disaster management. Yet, they have the authority to inspect, control or even curtail any developments that could lead to an occurrence of disasters. They set rules and regulations that can minimize or eliminate any incidence of disasters and mitigate their consequences. The AMC is the instrument of the State to enforce safety in all areas that involves the

elimination of the hazards of landslides, earthquakes sinking areas, debris flows, rock falls, and outbreak of fire, flooding, spread of dangerous disease and epidemics and other conditions. The role played by the AMC in disaster management can be interpreted mostly in terms of developmental works. The AMC constitutes for a Ward Committee. In every ward there is a Chairman, who is an elected councillor from that ward. The Councillor is allotted a sum of Rupees 1, 00,000 as emergency funds to be used in their respective wards at the time of disasters.

The disaster victims or their families receive economic rehabilitation in the form of State Disaster Response Funds (SDRF). During 2017- 2018 the SDRF fund was received by a total of 2853 families in Mizoram. The SDRF Norms of assistance provided that the scale of relief assistance against each item for all disasters should not exceed the norms of the SDRF/NDRF. The SDRF Norms of assistance also provided that any amount spent by the State for such disaster over and above the ceiling would be borne out of the resources of the state government and not from SDRF. So far, there have been no delays, gaps and deficiencies in reaching relief and assistance to the affected persons or families. Section 61, Chapter XI of the Disaster Management Act, 2005 provides that in providing compensation and relief to the victims of disaster, there shall be no discrimination on the ground of sex, caste, community, descent or religion. It is remarkable to cite that the economic rehabilitation in the form of State Disaster Relief Funds have been given to the rightful beneficiaries and within the stipulated time.

As per the Disaster Management Act 2005, Section 22 (2), Section 38 (2), Section 40 (1, 2, 3) all departments and offices under the state government are

required to prepare their Disaster Management Plan. So far, 53 out of 57 departments have submitted their Disaster Management Plans to the Department of Disaster Management and Rehabilitation. As per the regulations of the Supreme Court, the Education Department have notified all the schools to come up with their Disaster Management plan and to submit it duly on time. However, out of the 4393 schools in Mizoram, only 802 schools have submitted their Disaster Management Plans to the nodal Department.

The psychological symptoms of trauma resulting from devastation of affected people remain much longer and sometimes throughout their entire lives. The course of psychological recovery is more important than the material and physical relief. Therefore it is crucial to include psychological components of mental health and the treatment of the affected persons as a part of disaster management. The nodal department has only one record of the psycho- social care training conducted in the last 5 years which implies that more training needs to be organised in relation to this issue. Women are more vulnerable and susceptible to disasters and take longer time to recuperate physically and mentally than men. This also calls for more training on gender issues. More training on child care and other weaker sections of the society should also be undertaken. On the other hand, the Directorate of Health and Medical Education under the Department of Health and Family Welfare has conducted and attended several trainings and conventions regarding the psychological aspects of disasters and disaster victims.

A critical factor in reducing vulnerability to disasters is proper enactment of law related to it. The Disaster Management Act was enacted in December 2005.

Some of the states have also enacted their own Acts. Others are in the process of doing so including at the local level. Proper legislation on Disaster Management and public safety should be considered an essential part of disaster risk reduction yet it is largely overlooked in a state like Mizoram. The implementation of laws by the elected representatives differs from district to district. 10 % of the respondents from Champhai district have passed laws in connection with guidelines for safety in case of disasters. 20 % of the respondents of both Lunglei and Saiha have asserted that legislation on disaster management has been passed in their respective district. 28 % of the respondents of Aizawl, 30 % in Mamit, 40 % in Kolasib, 53.33% in Lawngtlai and 80 % in Serchhip have stated that laws have been passed by the elected representatives to be followed by the people for their safety in case of disasters. A uniform legislation on disaster prevention is needed in the state, which should be viewed by the public as part of the solution.

The Disaster Management and Rehabilitation Department faces a problem of manpower in many aspects and this is one of the activities where there is a setback of meeting the goals due to lack of manpower. During the Disaster Risk Reduction Week, the government officials, NGOs, Village Council members, masons and teachers are trained on their respective roles. This requires a whole lot of time as training has to be given to three different groups of sections who are firstly the department officials, then the NGO members and thirdly the schools representatives. Since the training consumes a lot of time, the disaster risk reduction is therefore observed on different weeks in each districts. This greatly affects the carrying out of disaster management activities in all the districts.

The biggest difficulty faced by the Fire and Emergency Services Department is the shortage of man power and trained personnel in the department. Presently the department engages numerous firemen with little training on a temporary basis to fill the surge of emergency duties in the stations. Since the nature of their duty requires constant vigilance and responding to all emergency calls, the lack of trained personnel could impede their efficient functioning. At present there are 16 leading fireman and 101 firemen stationed in 11 fire stations across the state which is very small in proportion to the area covered by their services.

Time is critical in rescue situations. Although the Fire and Emergency Services Department take action on emergency calls immediately, the narrow roads and the congested traffic prohibits them from reaching the destination on time. In the current scenario, due to the lack of smart traffic management, the fire engines' arrivals at the incident location are mostly delayed leading to innumerable loss of property and even lives. One solution for this is the elimination of using pavements for storing parked cars. Surface streets should be kept free to accommodate traffic. Encroachment of buildings on road levels should also be strictly prohibited. The existing traffic regulations are also not strict enough. Public transport should be encouraged which can be enhanced with provision of free transport fares by the government. Bus services should be improved. Carpooling reduces unnecessary travel and can bring down the level of traffic congestion. Non- resident co-workers can go to the same place at the same time.

The efficiency of the Fire and Emergency Service depends on the sufficiency of water during emergencies. The present status of water sources for Fire stations is

not sufficient as most of the water sources like streams and rivers are too far away from the stations. Although the PHE Department of the Government of Mizoram has constructed 40 fire hydrants in Aizawl and in Lunglei, Champhai and Siaha for refilling facility, there is still opportunity for raising of the level of water to be used during emergencies. The disadvantageous locations of the Fire stations also cause delay on reaching the sites on time. The construction of community owned water reservoirs could lessen the problem of inadequate supply and storage of water during emergencies. Rain water will be harvested to make sure that the reservoir does not run empty at all times.

Presently the Directorate of Geology and Mineral Resources does not have any District Offices and all works are carried out from the Directorate, Aizawl. Their problem of mobility makes it impossible for them to conduct house site investigations (Geotechnical investigations) in other districts. This greatly hinders the effort of creating a disaster resilient state. The Landslide investigations also have received a setback because of the Department's mobility problem. Landslide that occurs outside of Aizawl district cannot be investigated and studied as the department is incapacitated by the inadequacy of funds. In such dire situations when the problems are beyond their reach, functions sometimes have to be devolved to the academicians of the Department of Geology, Lunglei Government College to take up the matter. Moreover, the last vacant Geologist post under the government was filled up 19 years ago ie, 2000. This has caused an acute shortage of geologists in the state, a state where geologists should be accorded the highest priority as landslides and land sinking is rampant.

7.3 Suggestions for Improvement

The task of Disaster Management cannot be carried out by a single organisation. The Disaster Management and Rehabilitation Department should involve more agencies and organisations by collaborating with them in rescue and relief work. Since disaster management involves pre-disaster and post- disaster plans, there is no specific limit to the amount of man power required. Therefore an influential organisation with a large membership such as the Mizo Zirlai Pawl should be devolved more responsibilities and functions. Disaster management requires team work which will foster better cooperation and higher performance in disastrous situations. It is necessary for the parent department to reach out to other organisations to have a forefront for efficient disaster management in the state.

To overcome the lack of participation of the Mizo Zirlai Pawl in disaster management, the Department of Disaster Management and Rehabilitation should foster collaboration with them. In the present scenario, the government fails to see the potential of the Mizo Zirlai Pawl and their input goes duly unappreciated. The government needs to impart about the shared purpose of disaster development. The government should involve the Mizo Zirlai Pawl in the planning process so that it can maintain a close liaison with them during emergency situations. Also, tasks and responsibilities should be devolved to the organisation so that the members can be active in achieving the disaster management goals. The big difference on the involvement of the Mizo Zirlai Pawl with the nodal department and with other organisations reflects the failure of the nodal department to motivate others. The Mizo Zirlai Pawl which has such impact on the state machinery has no more than a

few post disaster relief operations carried out till date. The area of the operation of the Mizo Zirlai Pawl extends to all the students of Mizo descent. Unless roles and responsibilities are allocated to them by the nodal department, maximum utilization of the organisation's best resources can never be furnished.

Response and recovery activities are mainly directed to post disaster alleviations in terms of physical and economical help but it is evident that the survivors are affected mentally. The psychological needs of survivors have been neglected by the nodal government. Training on psychosocial care for disaster victims or their family has been conducted by the department only once in the last 5 years. Moreover, there is no record of training for women and children who are the most vulnerable in disaster situations. Most of these children and women suffer from Post-Traumatic Stress Disorder (PTSD), anxiety disorder, fear, traumas and behavioural change. The psychological care of these victims have to be properly planned and managed because if timely action is not taken, it could lead to a bigger tragedy. The department has also conducted only one mock drill/ training for the specially abled and blind school. This makes them vulnerable to social risks higher than other sections of the society. Therefore it is an important task of the department to work on providing mental and emotional support for disaster victims and also to impart more trainings and drills for the blind and the specially abled students.

Shortage of man power is pervasive in all the government departments involved in disaster management. This hinders the work of each department in accomplishing their objectives. The Fire and Emergency Services Department is one such department which faces the problem of shortage of personnel. Recruitment of

permanent fireman with proper training is necessary to replace the temporary fireman without proper training. The government needs to recruit fireman on a permanent basis to effectively function as public services. Moreover, the last vacant Geologist post under the government was filled up 19 years ago ie, 2000. This has caused an acute shortage of geologists in the State, to a point where academicians have to be engaged to perform fieldworks involving landslide investigation and house site assessments which is a deviation from their profession. In a land where landslides and land sinking are rampant, creation of posts for geologists is a necessity. The Disaster Risk Reduction Week which is to be observed vehemently has received setbacks because of the acute shortage of trainers in the Department of Disaster Management and Rehabilitation. The Disaster Reduction Week requires trainers to travel to each district to conduct an intense training of all the department officials, NGO members and School representatives in all districts. Due to insufficient trainers to be dispersed in each district, the Disaster Risk Reduction Week cannot be observed effectively and efficiently. Therefore it is required of the state government to create posts for qualified and experienced personnel to fill the vacuum in each department.

Disaster management is basically a team based activity. A cohesive working relationship is needed between the Disaster Management and Rehabilitation Department and the other stakeholders involved such as the Fire and Emergency Services Department, Public Health Engineering Department, the Transport Department, the Power and Electricity Department, , the Public Works Department, the Geology and Mineral Resources Department, the Urban Development and Poverty Alleviation Department, the Health sector, the YMA and the Police units in

times of emergencies.. Without coordination, the best of the expertise personnel become dysfunctional. Conflict of opinion and authority on events of disasters could transpire. However, integrated efforts should be taken to achieve a common goal for the common good. The problem of inadequate water supply, medical help and relief, traffic congestion, insufficient equipments, structural safety, unruly crowd gathering, power cuts, and security can be effectively resolved only if the stakeholders put together a united front at the time of facing disasters.

To avoid shortage of water during emergencies, a proper reservoir or water tank should be built at every place where fire stations exist. The refilling of water for fire tenders is usually done from the PHE water tanks or the nearest streams and rivers which takes several minutes or hours. So the construction of reservoir in the fire station vicinity is crucial for time and cost cutting. The reservoirs may be filled up by harvesting rain water or manual filling or as per required.

Effective measures should be re-implemented to generate awareness, knowledge and education on Disaster Management to the people of Mizoram. The study has shown that the majority of the people are unaware of Mizoram lying within the Seismic zone V. If the public is not aware of such relevant information, then building the capacity to prepare and respond to the extremities of disastrous events is not a possibility. Interviews with several firemen has also revealed that as a result of the influence of western culture, the number 911 is more popular among the people than the state's police, fire and emergency numbers. They further reveal that the response from the public is very slow in incidents of fire disasters as it has become compulsive for people to first put up the circumstances on social media and then call

the Fire services, which by the time an ample lot of time has already been lost. This can also be said to be the result of the influence of social media and the trending practice of citizen's journalism. Therefore the state government and the NGOs should initiate stronger efforts for educating the citizens on their roles and duties and the importance of disaster management.

Structural engineering is the most effective tool of structural mitigation. Structural mitigation entails reduction of loss of lives and property for which standard building guidelines and regulations have been implemented. The enactment of the Building Regulations is the sole apparatus for the prevention of disasters for the AMC. The study has revealed that the rate of compliance of the people to building regulations and guidelines is very low. Apart from the ignorance of the people, the rules are not complied with because the decisions of the authorities are not binding on the owners of the buildings. It is necessary to create stricter rules that will have the power to punish offenders. Section 29, Chapter II of the Aizawl Municipality Council Building Regulations specifically states the inclusion of fire exits in newly constructed buildings. Any building with three stories including ground floor should have at least one fire escape other than the main stairs. The reservation of room space for building a fire escape is a concept new to the Mizos and is received reluctantly. There are hardly any three storied buildings in Aizawl which has a fire escape. The mission of mitigation efforts is deeply thwarted by the disobedience of the public in upholding the building codes and guidelines.

7.4 Suggestions for Further Research

While we have emphasized the remarkable role played by the YMA in their search and rescue missions, one point that needs to be made clear is that the YMA is not employed immediately by the victim's family when the circumstance takes place. Initially the search for the missing person is undertaken by the victim's family, relatives and friends. Once they feel that their efforts are being ineffective, the YMA is notified and then a search party is commenced. Time and man power are essential in rescue operations. If the services of the YMA can be officially utilized only when the victim's families' hopes are in vain, it creates a disadvantage of the chances of recovery. Therefore the need to form a proper search and rescue team who can be hired at any given day and time arises. A maximum of 7 days is the generic period of time employed by the YMA to recover missing or drowned victims. After which the search shall be continued by the missing person's family on their own undertaking. The search and rescue party would be able to take up the search operations after the end of the allotted time given to the YMA.

The AMC has no official affiliation (written or unwritten) with the Aizawl District Disaster Management Authority unless the Deputy Commissioner calls for a joint investigation or a joint developmental activity. This has greatly hindered the unification of mobile resources and basic standards of assistance. Further, in recent events the Councillors can do only so much as the allocation of a sum of Rupees 1,00,000 as emergency funds and the distribution of tarpaulins to disaster stricken areas and the victims of disasters or participation in post- disaster investigation and

committees. A more coherent affiliation is needed between the stakeholders to achieve the goals of disaster management.

The creation of a makeshift hospital for a state wide catastrophic event with secure equipments and service which has been envisioned by the Health and Family Welfare Department has been requested to the government countless number of times. When disaster strikes it is possible that hospitals can meet both internal disaster and external disaster. Any viable location with an appropriate space to store necessary emergency makeshift beds, portable generator, emergency surgical kits, and emergency medicines is what is needed by the state. The need of a makeshift hospital should be studied by the government and any factors that could impede the development should be removed by the government.

7.5 Limitations of the Study

In 2001, the Central YMA passed a resolution stating that a Disaster Management Sub- Committee should be constituted in all the YMA Branches and YMA groups of Mizoram. This resolution was executed by the different YMA Branches in the initial years. However, as of the present context the Disaster Management Sub Committees in some of the Branches have either disintegrated or has been amalgamated with other groups within the YMA. This has greatly hindered the scope of studying disaster management at the grassroots level.

The Inspection of site developments by a team of experts of the Engineering Geologist, Geotechnical Engineer, Civil Engineer, and the Building Official as envisioned in the Site Development and Slope Modification Regulations has not been properly enforced as the concerned officials have not yet bred familiarity with the

process as of present. Moreover the AMC has not yet possessed in its name high performing tools and equipments that are required to determine the state of any structure. This has obstructed their capacity to take measures in prevention and reduction of disasters. Moreover the equipments they have are outmoded and needs to be upgraded with newer models.

Another limitation of the study is that the trend of rescue and relief activities such as mock drills, trainings and economic rehabilitation are more familiar to the government officials, elected representatives and even to the NGO members than the mitigation aspects of disaster management. In addition, certain departments, government officials and elected representatives are unaware of their role in disaster management. Their incumbency and status fail to enable them to realize themselves as leaders of managing disasters.

7.6 Concluding Observations

Analysing the performance of the Central YMA, it can be seen that majority of the role they play in disaster management is the role of rehabilitation and relief operations. This is so because they are not equipped with the necessary tools and equipment to play other roles. This is also evident from the multitude of list of demands made to the government for new tools and equipments. The shortage of instruments is a problem and so are their instruments becoming obsolete and outdated. Novelty tools also need to be provided as the role and task of the YMA is increasing at an immense rate. A device like the underwater remotely operated vehicle should be owned by the CYMA in respect to the multitude of search and rescue operations they embark on. It is a device which has multiple view sonar to

identify and map objects of all types under water. It creates a near photo- like image of exactly what is under the water. Once it has detected the body, they could deploy the professional diver easily to retrieve the dead body. NGOs in many developing nations update themselves with the growing technology and communication which is needed for their operations. This is also a prerequisite for the NGOs in India. The concept of search dogs and special paramedics for drowned victims can also be introduced to the CYMA.

The devolution of powers and the coordination of the urban local bodies are greatly thwarted as a result of the different political party orientation in each of the local government bodies. Moreover, the devolution of powers and finances to the Ward Committees and the Local Councils by the AMC is inadequate which has led to the failure of accomplishing maximum disaster mitigation goals and objectives. The AMC has failed to see the potential of the Local Councils in uniting the community.

The study concludes that in places where awareness on disaster management is uniformly generated, uniform reception cannot be guaranteed. Community is the first responder in any emergency situations in the community. Yet, they are resistant to act. They see and are aware of the situations but they have no intention to act. They shy away when it is time to take any concrete step on important issues. They do not cooperate in undergoing training and carrying out mock drills regularly. These categories of people depend on the local leaders to take up responsibilities and handle situations by themselves. They remain generally unaware of impending hazards and hardly contribute towards managing disasters. The study reveals that

14.74% of the community possesses the feeling of not requiring the support, 6.32% lack awareness and 78.95% have no idea of the events taking place in the community. On the other hand, there is another group of people, a group consisting of a few people who have been exposed to the awareness and are motivated to act. They make efforts to increase their knowledge of disasters so that they can prepare to cope with disastrous situations. In Mizoram, the prospect of incorporating the different aspects of Disaster Management may be slow. Yet sensitivity towards disasters and its proper management is gradually developing. Mizoram lying within Seismic Zone V and its unfeasible geographical terrain should induce the government functionaries, the community leaders and the citizens to critically examine any disaster situation in the state.

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APPENDICES

QUESTIONNAIRE

ON

ROLE OF LOCAL GOVERNMENTS IN URBAN DISASTER MITIGATION
AND MANAGEMENT IN MIZORAM

(For Elected Representatives)

Sir/ Madam, _____

I am requesting you to kindly fill up the following questionnaire prepared by me for my research leading to the degree of Doctor of Philosophy (Ph.D) under the supervision of Prof Dr. Lalrintluanga, Department of Public Administration, Mizoram University. The data collected will be used for such purpose only and personal information will not be disclosed at any cost.

I shall be very thankful to you if you could kindly cooperate with me in my endeavor to generate new knowledge.

MAL SAWMI PACHUAU

Research Scholar (Ph.D)

Dept of Public Administration

Mizoram University

A. Profile of Respondent

(a) Name :

(b) Sex: Male (), Female ()

(c) Age : 20 – 30 (), 31 – 40 (), 41 – 50 (), 50 above ().

(d) Qualifications : HSLC (), 12+ (), Graduate (), Post Graduate (), Ph.D ()

(e) Name of local government:

(f) Designation/ responsibility:

(g) Length of holding the responsibility:

(h) Number of Respondents:

i) Aizawl- 25

ii) Champhai- 10

iii) Kolasib- 10

iv) Lawngtlai- 15

v) Lunglei- 10

vi) Mamit- 10

vii) Saiha- 15

viii) Serchhip- 10

B. Put a Tick mark () in the appropriate answer

1. Has any disaster taken place in your locality/ village?

(a) Yes, it has ()

(b) Not aware of one ()

(c) No ()

(d) No idea ()

2. If yes, which of the following disasters has taken place?

(a) Landslide ()

(b) Arson ()

(c) Cyclone ()

(d) Earthquake ()

(e) Flood ()

(f) Any others ()

3. Have you met any calamity where your homes have been destroyed?

(a) Yes ()

(b) No ()

(c) Not yet ()

(d) Not aware ()

4. If yes, what measures have you taken to help those who have lost their homes?

(a) They are accommodated in government buildings ()

(b) Temporary houses are constructed to accommodate them ()

(c) They are asked to stay with their relatives ()

(d) No idea ()

5. Has the government insisted on the compliance of the instructions of the Architects and Structural Engineers to the owners of newly constructed buildings in your locality?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

6. Do you feel that certain disasters occur in your locality due to the lack of compliance of proper building guidelines and regulations in your locality?

(a) Yes ()

(b) Maybe ()

(c) No ()

(d) No idea ()

7. As a representative of the people, has any laws been passed in regard to guidelines to be followed by the people for public safety in case of disasters?

(a) Yes ()

(b) No ()

(c) No idea ()

8. As a representative of the people, has there been any generation of awareness among the public on the importance of construction of buildings in accordance with the guidelines given by the government?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

9. Due to what threat of disaster has buildings been dismantled in your locality, if there is any?

(a) Landslide ()

(b) Arson ()

(c) Cyclone ()

(d) Earthquake ()

(e) Flood ()

(f) Any others ()

(g) None ()

10. As a representative of the people, has any preventive measures been taken to prevent or minimise the impact of disasters?

(a) Yes ()

(b) Sometimes ()

(c) Never ()

(d) No idea ()

11. Are you aware that Mizoram is in Seismic Zone-V?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

12. Has the government taken any measures to identify vulnerable risks or structures in disaster prone areas?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

13. If yes, which of the following governments conduct the identification of vulnerable risks and structures in disaster prone areas?

(a) Central Government ()

(b) State Government ()

(c) Local Government ()

(d) No idea ()

14. Has the owners of public safety threatening buildings been asked by the government to retrofit or dismantle their buildings?

(a) No ()

(b) Not really ()

(c) Never ()

(d) No idea ()

15. As a representative of the people, have you conducted any mock drills, training or rehearsals on disaster management?

(a) Yes ()

(b) Sometimes ()

(c) Never ()

(d) No idea ()

16. As a representative of the people, what measure would be most appropriate in case of occurrence of disasters in the locality?

(a) Initiative taken by the government authorities ()

(b) Initiative taken by the community ()

(c) Initiative taken by the Non government organisation ()

(d) No idea ()

17. Is the Local Government effective in preventing and minimising casualties in case of occurrence of disasters?

(a) Yes ()

(b) To some extent ()

(c) No idea ()

(d) No ()

18. How far has the government implemented the Building Bye- laws in the urban areas of the state?

(a) Strongly implemented ()

(b) Lightly implemented ()

(c) Not yet ()

(d) No idea ()

19. Are the police force, fire fighters and ambulance crews adequately trained to render help to the public in case of disasters?

(a) Yes ()

(b) Quite well ()

(c) No ()

(d) No idea ()

20. Which of the following organisations has imparted training to the public on the preparedness and prevention of disasters?

- (a) Young Mizo Association (YMA) ()
- (b) Mizo Hmeichhe Insuihkhawm Pawl (MHIP) ()
- (c) Mizoram Upa Pawl (MZP) ()
- (d) Government organisations ()
- (e) No idea ()

21. Which of the following organisations has imparted mock drills and training in your locality?

- (a) National Disaster Response Force (NDRF) ()
- (b) State Disaster Response Force (SDRF) ()
- (c) District Disaster Response Force (DDRF) ()
- (d) No idea ()

22. Do you feel that the people have benefitted from the training programmes?

- (a) Yes ()
- (b) Not really ()
- (c) No ()

(d) No idea ()

23. Do you feel that the adequate support is rendered by the people to the programmes of the government related to disasters?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

24. If not, what are the reasons?

(a) Feeling of not requiring the support ()

(b) Lack of awareness ()

(c) Due to biases ()

(d) No idea ()

25. Do you feel that the Local Government of your locality is receiving sufficient calamity relief funds and financial aid from the Central Government?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

26. If not, what is the reason?

(a) Political involvement ()

(b) Gender issue ()

(c) Other reasons ()

(d) No idea ()

27. Do you think the Government properly utilises the service of the local NGOs in the event of disasters?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

28. What is the biggest problem faced during disasters?

(a) Lack of proper instruments ()

(b) Gathering of crowds ()

(c) Lack of cooperation from the government ()

(d) No idea ()

29. Is any report made to the Government regarding the above problem faced?

(a) Yes ()

(b) No ()

(c) No idea ()

30. Do you think the Government of Mizoram has taken adequate preventive measures to minimise destruction and casualties in case of disasters?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

31. Do you think the Local Governments have adequate funds which can be used timely and effectively in times of disasters?

(a) Yes ()

(b) No ()

(c) No idea ()

32. Has the Government of Mizoram prepared the Local Governments, Municipal Corporation and Autonomous District Councils to properly deal with the people as per the provisions of The Disaster Management Act, 2005 and National Policy on Disaster Management, 2009?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

QUESTIONNAIRE

ON

ROLE OF THE STATE GOVERNMENT IN URBAN DISASTER MITIGATION
AND MANAGEMENT IN MIZORAM

(For Government Officials)

Sir/ Madam, _____

I am requesting you to kindly fill up the following questionnaire prepared by me for my research leading to the degree of Doctor of Philosophy (Ph.D) under the supervision of Prof Dr. Lalrintluanga, Department of Public Administration, Mizoram University. The data collected will be used for such purpose only and personal information will not be disclosed at any cost.

I shall be very thankful to you if you could kindly cooperate with me in my endeavor to generate new knowledge.

MAL SAWMI PACHUAU

Research Scholar (Ph.D)

Dept of Public Administration

Mizoram University

A. Profile of Respondent

(a) Name :

(b) Sex: Male (), Female ()

(c) Age : 20 – 30 (), 31 – 40 (), 41 – 50 (), 50 above ().

(d) Qualifications : HSLC (), 12+ (), Graduate (), Post Graduate (), Ph.D ()

(e) Name of Department:

(f) Designation/ responsibility:

(g) Length of holding the responsibility:

(h) Number of Respondents:

i) Aizawl- 25

ii) Champhai- 10

iii) Kolasib- 10

iv) Lawngtlai- 15

v) Lunglei- 10

vi) Mamit- 10

vii) Saiha- 15

viii) Serchhip- 10

B. Put a Tick mark () in the appropriate answer

1. Has any disaster taken place in your locality/ village?

(a) Yes, it has ()

(b) Not aware of one ()

(c) No ()

(d) No idea ()

2. If yes, which of the following disasters has taken place?

(a) Landslide ()

(b) Arson ()

(c) Cyclone ()

(d) Earthquake ()

(e) Flood ()

(f) Any others ()

3. Do you feel that there are any threats of disasters due to urban growth and urbanisation?

(a) Yes ()

(b) Not aware ()

(c) Not yet ()

(d) Others ()

4. Has the government insisted on the compliance of the instructions of the Architects and Structural Engineers to the owners of newly constructed buildings in your locality?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

5. If not, do the people of your locality still follow the instructions of the Structural Engineers in letter and spirit despite any insistence from the Government?

(a) Yes ()

(b) To some extent ()

(c) Never ()

(d) No idea ()

6. Do you feel that certain disasters are imperative in your locality due to the lack of proper guidelines for building construction?

(a) Yes ()

(b) May be ()

(c) No idea ()

(d) No ()

7. Have there been any buildings dismantled in your locality due to threat of causing disasters. If yes, for what reason?

(a) Landslide ()

(b) Arson ()

(c) Cyclone ()

(d) Earthquake ()

(e) Flood ()

(f) Any others ()

(g) None ()

8. As one of the government officials directly or indirectly involved in disaster management, has any preventive measures been taken to prevent or minimise the impact of disasters?

(a) Yes ()

(b) Sometimes ()

(c) Never ()

(d) No idea ()

9. Are you aware that Mizoram is in Seismic Zone-V?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

10. If yes, do you feel that the government has taken measures to identify the hazards that can threaten the life and property of people?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

11. As a government official, have you been instructed by the government to take measures to identify vulnerable risks and earthquake prone areas?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

12. Have you been instructed by the government to check the safety of schools, markets, auditoriums, cinema halls, temples and churches?

(a) Yes ()

(b) Sometimes ()

(c) No ()

(d) No idea ()

13. Which of the following governments conduct the identification of vulnerable risks and structures in disaster prone areas?

(a) Central Government ()

(b) State Government ()

(c) Local Government ()

(d) No idea ()

14. Have you asked the owners of public safety threatening buildings to retrofit or dismantle their buildings?

(a) No ()

(b) Not really ()

(c) Never ()

(d) No idea ()

15. As a government official, have you conducted any mock drills, training or rehearsals on disaster management?

(a) Yes ()

(b) Sometimes ()

(c) Never ()

(d) No idea ()

16. As a government official, what measure would you take in case of threat of buildings collapsing and landslides?

(a) Inform the government authorities to take necessary measures ()

(b) Call upon the people of the locality to promptly take initiative ()

(c) Request the owners to dismantle their dangerous buildings ()

(d) No idea ()

17. How far has the Government of Mizoram implemented the Building Bye- laws in different urban centres of the state?

(a) Strongly implemented ()

(b) Lightly implemented ()

(c) Not yet ()

(d) No idea ()

18. Are the police force, fire fighters and ambulance crews adequately trained to render help to the public in case of disasters?

(a) Yes ()

(b) Quite well ()

(c) No ()

(d) No idea ()

19. Have you conducted any training to the urban people in case of disasters?

(a) Yes ()

(b) Sometimes ()

(c) No ()

(d) No idea ()

20. If yes, in collaboration with which organisation has it been conducted?

(a) Young Mizo Association (YMA) ()

(b) Mizo Hmeichhe Insuihkhawm Pawl (MHIP) ()

(c) Mizoram Upa Pawl (MZP) ()

(d) Government Departments ()

(e) No idea ()

21. Who conducts the mock drills and training in your locality?

(a) National Disaster Response Force (NDRF) ()

(b) State Disaster Response Force (SDRF) ()

(c) District Disaster Response Force (DDRF) ()

(d) No idea ()

22. Do you feel that the people have benefitted from the training programmes?

(a) Yes ()

(b) Not really ()

(c) No ()

(d) No idea ()

23. Do you feel that the adequate support is rendered by the people to the programmes of the government related to disasters?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

24. If not, what are the reasons?

(a) Feeling of not requiring the support ()

(b) Lack of awareness ()

(c) Due to biases ()

(d) No idea ()

25. Do you feel that the Local Government of your locality is receiving sufficient calamity relief funds and financial aid from the Central Government?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

26. If not, what is the reason?

(a) Political involvement ()

(b) Gender issue ()

(c) Other reasons ()

(d) No idea ()

27. Do you think there is an exemplary working relation between the government and the local NGOs in disaster mitigation and management in Mizoram?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

28. Do you think the Government properly utilises the service of the local NGOs in the event of disasters?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

29. What are the biggest problems that you face during disasters?

(a) Lack of proper instruments ()

(b) Gathering of crowds ()

(c) Lack of cooperation from the government ()

(d) No idea ()

30. Is any report made to the Government regarding the above problem faced?

(a) Yes ()

(b) No ()

(c) No idea ()

31. Do you think the Government of Mizoram has taken adequate preventive measures to minimise calamities in case of earthquakes and other disasters?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

32. Has the Government of Mizoram prepared the Local Governments, Municipal Corporation and Autonomous District Councils to properly deal with the people as per the provisions of The Disaster Management Act, 2005 and National Policy on Disaster Management, 2009?

(a) Yes ()

(b) To some extent ()

(c) No ()

QUESTIONNAIRE

ON

ROLE OF NON- GOVERNMENTAL ORGANISATIONS IN URBAN DISASTER
MITIGATION AND MANAGEMENT IN MIZORAM

(For NGO Leaders)

Sir/ Madam, _____

I am requesting you to kindly fill up the following questionnaire prepared by me for my research leading to the degree of Doctor of Philosophy (Ph.D) under the supervision of Prof Dr. Lalrintluanga, Department of Public Administration, Mizoram University. The data collected will be used for such purpose only and personal information will not be disclosed at any cost.

I shall be very thankful to you if you could kindly cooperate with me in my endeavor to generate new knowledge.

MAL SAWMI PACHUAU

Research Scholar (Ph.D)

Dept of Public Administration

Mizoram University

A. Profile of Respondent

(a) Name :

(b) Sex: Male (), Female ()

(c) Age : 20 – 30 (), 31 – 40 (), 41 – 50 (), 50 above ().

(d) Qualifications : HSLC (), 12+ (), Graduate (), Post Graduate (), Ph.D ()

(e) Name of NGO:

(f) Society registration No & Year:

(g) Post held (eg. President, Chairman etc):

(h) Length of participation / involvement in that NGO:

1. Number of respondents-

i) Aizawl- 50

ii) Champhai- 20

iii) Kolasib- 20

iv) Lawngtlai- 25

v) Lunglei- 20

vi) Mamit- 20

vii) Saiha- 25

viii) Serchhip- 20

B. Put a Tick mark () in the appropriate answer

1. Has any disaster taken place in your locality/ village?

(a) Yes, it has ()

(b) Not aware of one ()

(c) No ()

(d) No idea ()

2. If yes, which of the following disasters has taken place?

(a) Landslide ()

(b) Arson ()

(c) Cyclone ()

(d) Earthquake ()

(e) Flood ()

(f) Any others ()

3. Have there been any buildings dismantled in your locality due to threat of causing disasters. If yes, for what reason?

(a) Landslide ()

(b) Arson ()

(c) Cyclone ()

(d) Earthquake ()

(e) Flood ()

(f) Any others ()

(g) None ()

4. To what extent does the government expect aid and assistance from the NGOs to dismantle those buildings in the vulnerable areas?

(a) In every aspect ()

(b) To some extent ()

(c) No ()

(d) No idea ()

5. According to you, do you feel that there are any threats of disasters due to urban growth and urbanisation?

(a) Yes ()

(b) No ()

(c) No idea ()

(d) Others ()

6. Are you aware that Mizoram is in Seismic Zone-V?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

7. If yes, do you feel that the government has taken measures to identify the hazards that can threaten the life and property of people?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

8. As one of the government officials directly or indirectly involved in disaster management, has any preventive measures been taken to prevent or minimise the impact of disasters?

(a) Yes ()

(b) Sometimes ()

(c) Never ()

(d) No idea ()

9. As one of the leaders of NGOs, do you think your State and Local Governments have taken measures to identify vulnerable risks, old buildings and earthquake prone areas?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

10. If yes, have officials of the government checked the safety of schools, markets, auditoriums, cinema halls, temples and churches?

(a) Yes ()

(b) Sometimes ()

(c) No ()

(d) No idea ()

11. As members of NGOs, have you taken any measures to create awareness among the people of your locality on the need for compliance of the instructions of the Architects and Structural Engineers in constructing buildings?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

12. Do the people of your locality comply with the instructions of the Structural Engineers in constructing new buildings as demanded by the Government?

(a) Yes ()

(b) Partially ()

(c) No ()

(d) No idea ()

13. Have the NGOs in your locality always been invited by the government to strengthen its arms and hands in ensuring strict compliance to the Building Bye- laws by the people in your locality?

(a) Yes ()

(b) Sometimes ()

(c) No ()

(d) No idea ()

14. In your opinion, are there any threats of disaster in your locality due to lack of proper plans?

(a) Yes ()

(b) May be ()

(c) No ()

(d) No idea ()

15. As leaders of NGOs, have you taken any measures to mitigate the drastic effects that can take place in case of any disaster?

(a) Yes ()

(b) Sometimes ()

(c) Never ()

(d) No idea ()

16. If yes, have you checked the safety of schools, markets, auditoriums, cinema halls, temples and churches under the auspices of the concerned officials?

(a) Yes ()

(b) Sometimes ()

(c) Never ()

(d) No idea ()

17. Which of the following governments has dispatched its officials in conducting the identification of dangerous buildings and vulnerable risks?

(a) Central Government ()

(b) State Government ()

(c) Local Government ()

(d) No idea ()

18. Has the government asked the owners of public safety threatening buildings to retrofit or dismantle their buildings?

(a) No ()

(b) Not really ()

(c) Never ()

(d) No idea ()

19. As an NGO leader, have you conducted any training programmes in collaboration with the government?

(a) Yes ()

(b) Sometimes ()

(c) Never ()

(d) No idea ()

20. As an NGO leader, have you received any training from any experts of the government to prepare you as trainers to conduct awareness campaigns to handle disasters in your community?

(a) Yes ()

(b) Sometimes ()

(c) Never ()

(d) No idea ()

21. As one of the leaders of NGOs, what measure would you take in case of threat of buildings collapsing and landslides?

(a) Request the government authorities to take necessary measures ()

(b) Organise the people of the locality to take initiative ()

(c) Request the owners to dismantle their buildings ()

(d) No idea ()

22. How far has the Government of Mizoram implemented the Building Bye- laws in different urban centres of the state?

(a) Strongly implemented ()

(b) Lightly implemented ()

(c) Not yet ()

(d) No idea ()

23. Are the police force, fire fighters and ambulance crews adequately trained to render help to the public in case of disasters?

(a) Yes ()

(b) Quite well ()

(c) No ()

(d) No idea ()

24. Have you organised any training in collaboration with the government for your locality on how they could make valuable contributions before, during and after disasters?

(a) Yes ()

(b) Sometimes ()

(c) No ()

(d) No idea ()

25. If yes, what kind of training has been organised?

(a) Preventive measures ()

(b) Crowd control ()

(c) Rescue operations ()

(d) Measures to be taken in case of any disasters ()

26. In collaboration with which organisation has it been conducted?

(a) Young Mizo Association (YMA) ()

(b) Mizo Hmeichhe Insuihkhawm Pawl (MHIP) ()

(c) Mizoram Upa Pawl (MZP) ()

(d) Government Departments ()

(e) No idea ()

27. Who conducts the mock drills and training in your locality?

(a) National Disaster Response Force (NDRF) ()

(b) State Disaster Response Force (SDRF) ()

(c) District Disaster Response Force (DDRF) ()

(d) No idea ()

28. Do you feel that the people have benefitted from the training programmes?

(a) Yes ()

(b) Not really ()

(c) No ()

(d) No idea ()

29. Do you feel that the adequate support is rendered by the people to the programmes of the government related to disasters?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

30. If not, what are the reasons?

(a) Feeling of not requiring the support ()

(b) Lack of awareness ()

(c) Due to biases ()

(d) No idea ()

31. Do you feel that the Government gives adequate recognition to the rescue works that is performed by the NGOs?

(a) Yes ()

(b) Not really ()

(c) No ()

(d) No idea ()

32. If not, what is the reason?

(a) Political involvement ()

(b) Gender issue ()

(c) Other reasons ()

(d) No idea ()

33. Do you think there is a good and cordial relation between the government and the local NGOs in Mizoram?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

34. Do you think the Government properly utilises the services of the NGOs in the event of disasters?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

35. Do you think the efforts that you have rendered as an NGO in times of disasters is adequate?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

36. What are the biggest problems that you face as NGOs during disasters?

(a) Lack of proper instruments ()

(b) Gathering of crowds ()

(c) Lack of cooperation from the government ()

(d) No idea ()

37. Do you think you have received the required instruments from the government?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

38. If no, what do you feel is the reason?

(a) Lack of concern on the part of the government ()

(b) Non- availability of the required instruments ()

(c) Lack of follow up on the part of the public ()

(d) No idea ()

39. Do you feel that the Local Government of your locality is receiving sufficient funds and financial aid which can be immediately used in times of disasters?

(a) Yes ()

(b) To some extent ()

(c) No ()

(d) No idea ()

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**STATE, CIVIL SOCIETY AND DISASTER MANAGEMENT
IN MIZORAM**

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STATE, CIVIL SOCIETY AND DISASTER MANAGEMENT
IN MIZORAM

By

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DEPARTMENT OF PUBLIC ADMINISTRATION

Submitted in partial fulfillment of the degree of Doctor of Philosophy in Public
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STATE, CIVIL SOCIETY AND DISASTER MANAGEMENT

IN MIZORAM

Introduction

A disaster can be defined as a sudden, accidental event of great magnitude that causes distress situations, both individual and communal. Disasters take many different forms, and the duration can range from an hourly disruption to days or weeks or months of ongoing disruption. The damage brought about by disasters is not just damaging the socio-economic conditions of a particular area; disasters also affect the mental health of the affected population. The psychological impact is not as noticeable or obvious as the destruction of homes, and social infrastructure; yet, recovering from the emotional and psychological consequences may take far longer than dealing with the material losses. In recent years, these hazards took toll of thousands of lives and cause massive destruction of property.

There are various types of disasters- both natural and man-made or technological in nature. When disasters occur due to natural forces over which hardly man has any control, they are called natural disasters. When the disasters are consequences of human interactions with the environment or human errors or due to carelessness during technological and industrial use or mishandling of dangerous equipments they are called man-made disasters. Disasters whether they are natural or man-made take a huge toll on life and property. The intensity it affects the community is the same in all cases.

Global Scenario

The United Nations' General Assembly, in 1989, declared the decade 1990-2000 as the International Decade for Natural Disaster Reduction with the objective to reduce loss of lives and property and restrict socio-economic damage through concerted international action, especially in developing countries. Many countries prepared national action plan for disaster risk management and presented them to the World Conference on Natural Disaster Reduction held in Yokohama, Japan, in 1994, the Conference being the main outcome of the International Decade for Natural Disaster Reduction. It was attended by government officials, NGOs, local governments and private sector representatives from all over the world.

National Scenario

The Government of India in recognition of the importance of disaster management as a national priority set up a High Powered Committee (HPC) in August 1999 and a National Committee after the Gujarat earthquake. In 2001, the nodal responsibility for managing disasters was shifted from the Department of Agriculture and Cooperation to the Ministry of Home Affairs. The Disaster Management Division has been functional in the Ministry of Home Affairs since July 2002. During the Tenth Five Year Plan (2002-2007), the Government of India enacted the National Disaster Management Act on 23rd December, 2005 which envisioned the creation of several authorities and legislations for a holistic and integrated approach to disaster management in India.

State Scenario

The *Mautam* famine which hit Mizoram in 1959 was the first known disaster faced by Mizoram although records from the British Raj indicate that Mizoram suffered famine in 1862 and again in 1911. The Mizo National Famine Front was formed for the relief of the Mizo people who were in great distress because of the severe famine. It was followed by the Relief and Rehabilitation (R & R) Department whose function was confined to giving immediate relief and rehabilitation to the victims of natural calamities. When Mizoram became a full-fledged State in 1987, the Relief & Rehabilitation Department was renamed as 'Disaster Management and Rehabilitation Department' to shoulder wider responsibility of disaster comprising more subjects. On 23rd May 2006, the Government of Mizoram constituted the State Disaster Management Authority as per Section 14 of Chapter III of the Disaster Management Act, 2005. The Act also gave provisions for the creation of State Executive Committee and District Disaster Management Authority in all the districts of Mizoram.

Objectives of the Study

- to study different types of disasters in Mizoram.
- to expose different cases of disasters in Mizoram
- to study the working of the Disaster Management and Rehabilitation Department of Mizoram
- to examine the contribution of NGOs and community based organizations in enhancing the capacity of the state government in disaster management.

- to enhance the involvement of the local government and its various committees in calamity relief and preparedness
- to assess the overall performance of the State government in disaster management
- to examine the underlying obstacles in the way of rehabilitation and relief to disaster victims.

Research Questions

- (1) Can the Disaster Management Department broaden their role and task to the remotest villages in Mizoram who are deprived of awareness of disaster management and control?
- (2) How important is the involvement of a large workforce of the local government in disaster mitigation?
- (3) Can people's participation and involvement in emergency situations make disaster management and mitigation effective and efficient?
- (4) Is it possible to ensure timely availability of compensation funds to disaster victims and that there is flexibility in budgeting and financing from the donor agencies?

Scope of the Study

The vulnerability of any region or area towards disasters, both natural and man-made can never be clearly determined. Life is unpredictable and, under any circumstances, can lives and properties be lost in a matter of seconds. Disasters are not confined to a particular locality or community. Every walk of life, every phase of

activity and every human being is affected by the peril of disasters. The study aims at preparing the community for preparedness, prevention, mitigation and, rehabilitation in a disaster prone world.

The study covers the entire Mizoram state as an area of study but delimited to Aizawl District in *Chapter IV* as the chapter deals with the assessment of the Aizawl Municipal Corporation (AMC). The study has examined the implementation of the Disaster Management Act of 2005 in the different districts. The work has also disclosed cases where the efforts of disaster management have failed and exposed irregularities in the government, society and among the social institutions. It has also highlighted the assets and resources possessed by different concerned Government and Non-Government agencies in the State to raise disaster awareness, build community potentials to raise a culture of safety and resilience at all levels.

Research Methodology

The study was based on secondary and primary quantitative as well as qualitative data. Quantitative data were collected by a Sample Survey of respondents through Questionnaire and Interview Schedule including phone interviews. A Structured Questionnaire covering the issues connected with the objectives of the study was constructed. A sample size of 400 out of which 115 were randomly selected from Elected Representatives, 95 purposively selected from Government Officials and 200 randomly selected from members of Non- Governmental Organisations was administered representing the 8 districts of Mizoram. The primary data have also been collected through face-to-face interviews with 24 specialised personnel from each field of study. Telephonic interviews were also conducted on 4

(four) individuals having involvement in disaster management trainings who were out of station during the period of the study.

The study used secondary data collected from books, journals, research articles, newspapers, websites, government documents and records and, other relevant published or unpublished works which have been extensively utilised for the present study.

Organisation of the Study

The present study has been organised into *seven* Chapters.

The *first* Chapter is the introduction which deals with the generic meaning of disasters including its classifications. The chapter also highlights the global and national scenario of disaster management leading to the current scenario at the state level. The chapter also presents the background of the present study, statement of the problem, literature review, objectives of the study, the research questions, scope and methodology adopted for carrying out the present study.

The *second* Chapter is an assessment of the concepts and dimensions of disasters, both natural and man- made. It gives a descriptive study of the affects and chaos caused by each disaster.

The *third* Chapter deals with the profile of Mizoram and the Mizo society including their history, culture and traditions. It also summarizes the topography, geology and the climate of Mizoram which play a factor in the occurrence of various disasters. The Chapter also gives an account of the valuable principles of the Mizo life which are indispensable for the management of disasters.

The *fourth* Chapter is an assessment of the role played by the local government in disaster prevention and mitigation. It makes a study of the acts and regulations which are implemented to create a community safe from disasters.

The *fifth* Chapter is the descriptive study of the various Non-Governmental Organisations in Mizoram and their respective involvement in disaster management. The Chapter has highlighted cases of post disaster relief and rehabilitation and response, giving emphasis on the Young Mizo Association (YMA). It has also studied the role of the other leading non- governmental organisations in Mizoram such as Mizoram Upa Pawl (MUP), Mizo Hmeichhe Insuihkhawm Pawl (MHIP), Mizo Zirlai Pawl (MZP) and the Church.

The *sixth* Chapter is an analytical study of the various stakeholders involved in the area of disaster management in Mizoram. Their role and contribution in the direction of disaster mitigation and post- disaster measures are highlighted. It has made an in-depth study of the nodal department that is the Disaster Management and Rehabilitation. It also studied the role of the Fire and Emergency Services Department, Directorate of Geology and Mineral Resources, Public Works Department, Department of Urban Development and Poverty Alleviation, Department of Health and Family Welfare and, Department of Food, Civil Supplies and Consumer Affairs.

The *seventh* Chapter is the concluding Chapter which summarizes the findings of the study and the observations made during the course of research. It also presents the suggestions for improvement and elimination of barriers in disaster management.

Major Findings of the Study

Major Findings of the local government, civil society and the state society relating to disaster management in Mizoram are the following:

Findings relating to Civil Society

Landslides accounts for 63.81 % of the disasters that takes place in Mizoram. 34.29 % of the disaster on the other hand is caused by fire disasters. These are fire disasters arising from domicile fire accidents and from bush fires particularly during the first quarter of the year where the cultivators have to slash and burn their fields. 1.90 % of the disasters are caused by cyclones. Records of loss of lives and sparking massive disasters arising from the consequences of flood have not been found in Mizoram until July 2019 when More than 700 houses from 32 villages were submerged due to flood in Tlabung in Lunglei district and more than 100 houses were inundated by flood at Chawngte in Lawngtlai district. More than 500 families have been affected out of which 3 people have lost their lives. Apart from Lunglei and Lawngtlai district, flood has hit Serchhip and Mamit district where the heavy downpour of the monsoon rains has not only caused floods but also triggered landslides in different parts of the area.

Community participation has always been the essential element in disaster scenarios. A very unique principle that the Mizos have fostered since remote past is the practice of *Hnatlang*. *Hnatlang* which is basically a form of community participation is represented as ‘a common service for the common good of the people which all the household should render, either together at one time or one after

another, as and when called for'. It is this helping and voluntary spirit that the Mizo community depends on in times of distress, disasters and other occasions that require mass contribution. The collective labour and contribution of each citizen is indispensable for the successful disaster management and preparedness plan in each locality. It is through the practice of *Hnatlang* that the Local Councils have increasingly taken initiatives in disaster management and prevention in local settings. Though it is a customary practice, the Local Councils are entrusted with the power to enforce their own Local Council *Hnatlang* in their respective areas in the interest of the public whenever an occasion demands. *Hnatlang* plays a very significant factor for the local administration that the Local Councils have the power to impose a fine on any household that does not comply with the *Hnatlang* order at a fixed rate. The study revealed that 38.5% of the respondents place their trust in the initiatives of the community better than the measures taken by the government authorities in times of disasters.

The field study conducted on October 2018 revealed that threat of disasters due to urban growth and urbanization is the highest in Aizawl (82 %) which may be a result of the rise of population and urban settlement. It is followed by Lunglei (70 %), Mamit (60 %), Saiha (60 %), Lawngtlai (56 %) and Champhai (45 %), Kolasib (30 %) and Serchhip (30 %). Urban areas are congested and more prone to disasters. The reason for this is either residents stay in high rise buildings or in squatter settlements due to high densities and low availability of land. Another reason for higher risk in urban areas is due to the disturbance of the ecological system.

The earthquake zoning map of India divides India into four seismic zones (Zone 2, 3, 4 and 5). Zone 5 covers the area with the highest risk zones of earthquakes intensity and Mizoram is one of the regions that falls in this zone. The study reveals that 20 % of the government officials in Saiha do not have a working knowledge of the seismic zone status of Mizoram. Of all the NGO respondents, 18 % from Aizawl district are not acquainted with this information. 5 % of the NGO respondents from Kolasib and Serchhip and, 4 % of the respondents from Lawngtlai and Saiha also are not aware of this information. It is very impressive to remark that the elected representatives from all the districts have a clear and vivid knowledge about this information (100 %).

Compliance of the people on building codes is crucial for the mitigation of disasters. The engineers are to give instructions on technical guidelines on cost-effective ways for repair, retrofit and disaster resistant building models which are to be followed by the people in general. Non compliance of the existing building codes, poor qualities of construction, unskilled labours are one of the causes for loss of lives and property during disasters. 46.66% of the respondents think that the building codes and guidelines have been followed by the public while 53.34% of the respondents feel that the implementation of the building codes has not been a success. This clearly suggests that mitigation strategies are not made a priority and that the role of the engineers and planners is not stressed enough

From the interview with the Secretary General of the Mizo Zirlai Pawl, it is evident that the Department of Disaster Management and Rehabilitation do not devolve enough responsibilities to the organisation which happens to have the largest

membership in the state. This is reflected on the difference of involvement of the Mizo Zirlai Pawl with other departments and organisations such as the Tobacco Department compared to disaster management matters. The area of the operation of the Mizo Zirlai Pawl extends to all the students of Mizo descent. However the Department of Disaster Management and Rehabilitation has failed to see the potential of the group's influence and large workforce to achieve optimal disaster management goals and objectives. Being an organisation which has an impact on all the students of Mizoram and beyond, it is surprising to know that Mizo Zirlai Pawl has been involved in only a few post disaster relief works and activities till date. Unless roles and responsibilities are allocated to them by the nodal department, maximum utilization of the organisation's best resources can never be furnished.

Instruments are the lifelines of the YMA in getting things done. The endless list of demanded equipments and tools made to the government is an indicator that the YMA do not have the instruments it needs to function properly. Because of the lack of instruments they often have to resort to conventional means to conduct their operations which results in the waste of time, money and effort. Moreover the equipments they have are outmoded and needs to be upgraded with newer models. The underwater remotely operated vehicle is a device which is used by search and rescue teams worldwide but which is unknown in Mizoram. It is a device which has multiple view sonar to identify and map objects of all types underwater. It creates a near photo- like image of exactly what is under the water. Once it has detected the body, they could deploy the professional diver easily to retrieve the dead body. Since they are a voluntary organisation, lack of funds is a prevailing problem. Having no

proper source of income, they are incapable of carrying out certain responsibilities and duties the community requires from them.

The role of the Young Mizo Association (YMA) cannot be emphasized enough when the search operations involve searching in water vicinities. The biggest problem faced by them in recovering drowned bodies is the absence of professional lifeguards in Mizoram. There have been many instances when a member of the rescue team died mid operation. So it is with great risks that the YMA members take part in these rescue operations. Professionally trained diving team, paramedics, water search dogs and, an underwater remotely operated vehicle, with knowledgeable operator should be introduced in their team.

The church organisations which have the potential to perform a myriad of functions have so far only played a role in post disaster activities. The church organisations in Mizoram with their familiarity and closeness to the community that they serve can facilitate a wider network to the community including pre disaster and response activities like public education awareness, preparedness planning, community mobilization, first aid training, trauma counselling, family and community supporting networks, physical, social, spiritual and emotional healing centres for those affected by disasters. Since churches have been increasing in size and numbers they could also open more doors to victims of disasters awaiting shelter.

Findings relating to the Local and State Government

As specified in Section 25, Chapter IV of the Disaster Management Act, 2005. District Disaster Management Authorities have been set up in all the eight districts of Mizoram on 6th June, 2006. The district authorities prepare the District Plan in consultation with the local authorities. The District Plan comprises of allocation of responsibilities, response plans and procedures, capacity building and preparedness measures to be taken by the different government departments at the district level and the local authorities in the prevention and mitigation of disasters. The District Plan is reviewed and updated every year and is made available to all the government departments in the district. The field study reveals that 26.67 % of the special trainings, mock drill sessions and awareness programmes are conducted by the District Disaster Management Authorities in their respective districts for different levels of voluntary rescue workers, employees and officers. The district authorities also provide mechanism for early warning systems and identification of areas in the districts vulnerable to disasters.

The Aizawl Municipal Corporation does not have a separate Disaster Management committee or division. But it is a powerful body in tackling disasters through mitigation strategies, relief distribution and providing shelter to the victims. They do not perform the multifarious functions like the state government does over disaster management. Yet, they have the authority to inspect, control or even curtail any developments that could lead to an occurrence of disasters. They set rules and regulations that can minimize or eliminate any incidence of disasters and mitigate their consequences. The AMC is the instrument of the State to enforce safety in all

areas that involves the elimination of the hazards of landslides, earthquakes sinking areas, debris flows, rock falls, and outbreak of fire, flooding, spread of dangerous disease and epidemics and other conditions. The role played by the AMC in disaster management can be interpreted mostly in terms of developmental works. The AMC constitutes for a Ward Committee. In every ward there is a Chairman, who is an elected councillor from that ward. The Councillor is allotted a sum of Rupees 1, 00,000 as emergency funds to be used in their respective wards at the time of disasters.

The disaster victims or their families receive economic rehabilitation in the form of State Disaster Response Funds (SDRF). During 2017- 2018 the SDRF fund was received by a total of 2853 families in Mizoram. The SDRF Norms of assistance provided that the scale of relief assistance against each item for all disasters should not exceed the norms of the SDRF/NDRF. The SDRF Norms of assistance also provided that any amount spent by the State for such disaster over and above the ceiling would be borne out of the resources of the state government and not from SDRF. So far, there have been no delays, gaps and deficiencies in reaching relief and assistance to the affected persons or families. Section 61, Chapter XI of the Disaster Management Act, 2005 provides that in providing compensation and relief to the victims of disaster, there shall be no discrimination on the ground of sex, caste, community, descent or religion. It is remarkable to cite that the economic rehabilitation in the form of State Disaster Relief Funds have been given to the rightful beneficiaries and within the stipulated time.

As per the Disaster Management Act 2005, Section 22 (2), Section 38 (2), Section 40 (1, 2, 3) all departments and offices under the state government are required to prepare their Disaster Management Plan. So far, 53 out of 57 departments have submitted their Disaster Management Plans to the Department of Disaster Management and Rehabilitation. As per the regulations of the Supreme Court, the Education Department have notified all the schools to come up with their Disaster Management plan and to submit it duly on time. However, out of the 4393 schools in Mizoram, only 802 schools have submitted their Disaster Management Plans to the nodal Department.

The psychological symptoms of trauma resulting from devastation of affected people remain much longer and sometimes throughout their entire lives. The course of psychological recovery is more important than the material and physical relief. Therefore it is crucial to include psychological components of mental health and the treatment of the affected persons as a part of disaster management. The nodal department has only one record of the psycho- social care training conducted in the last 5 years which implies that more training needs to be organised in relation to this issue. Women are more vulnerable and susceptible to disasters and take longer time to recuperate physically and mentally than men. This also calls for more training on gender issues. More training on child care and other weaker sections of the society should also be undertaken. On the other hand, the Directorate of Health and Medical Education under the Department of Health and Family Welfare has conducted and attended several trainings and conventions regarding the psychological aspects of disasters and disaster victims.

A critical factor in reducing vulnerability to disasters is proper enactment of law related to it. The Disaster Management Act was enacted in December 2005. Some of the states have also enacted their own Acts. Others are in the process of doing so including at the local level. Proper legislation on Disaster Management and public safety should be considered an essential part of disaster risk reduction yet it is largely overlooked in a state like Mizoram. The implementation of laws by the elected representatives differs from district to district. 10 % of the respondents from Champhai district have passed laws in connection with guidelines for safety in case of disasters. 20 % of the respondents of both Lunglei and Saiha have asserted that legislation on disaster management has been passed in their respective district. 28 % of the respondents of Aizawl, 30 % in Mamit, 40 % in Kolasib, 53.33% in Lawngtlai and 80 % in Serchhip have stated that laws have been passed by the elected representatives to be followed by the people for their safety in case of disasters. A uniform legislation on disaster prevention is needed in the state, which should be viewed by the public as part of the solution.

The Disaster Management and Rehabilitation Department faces a problem of manpower in many aspects and this is one of the activities where there is a setback of meeting the goals due to lack of manpower. During the Disaster Risk Reduction Week, the government officials, NGOs, Village Council members, masons and teachers are trained on their respective roles. This requires a whole lot of time as training has to be given to three different groups of sections who are firstly the department officials, then the NGO members and thirdly the schools representatives. Since the training consumes a lot of time, the disaster risk reduction is therefore

observed on different weeks in each districts. This greatly affects the carrying out of disaster management activities in all the districts.

The biggest difficulty faced by the Fire and Emergency Services Department is the shortage of man power and trained personnel in the department. Presently the department engages numerous firemen with little training on a temporary basis to fill the surge of emergency duties in the stations. Since the nature of their duty requires constant vigilance and responding to all emergency calls, the lack of trained personnel could impede their efficient functioning. At present there are 16 leading fireman and 101 firemen stationed in 11 fire stations across the state which is very small in proportion to the area covered by their services.

Time is critical in rescue situations. Although the Fire and Emergency Services Department take action on emergency calls immediately, the narrow roads and the congested traffic prohibits them from reaching the destination on time. In the current scenario, due to the lack of smart traffic management, the fire engines' arrivals at the incident location are mostly delayed leading to innumerable loss of property and even lives. One solution for this is the elimination of using pavements for storing parked cars. Surface streets should be kept free to accommodate traffic. Encroachment of buildings on road levels should also be strictly prohibited. The existing traffic regulations are also not strict enough. Public transport should be encouraged which can be enhanced with provision of free transport fares by the government. Bus services should be improved. Carpooling reduces unnecessary travel and can bring down the level of traffic congestion. Non- resident co-workers can go to the same place at the same time.

The efficiency of the Fire and Emergency Service depends on the sufficiency of water during emergencies. The present status of water sources for Fire stations is not sufficient as most of the water sources like streams and rivers are too far away from the stations. Although the PHE Department of the Government of Mizoram has constructed 40 fire hydrants in Aizawl and in Lunglei, Champhai and Siaha for refilling facility, there is still opportunity for raising of the level of water to be used during emergencies. The disadvantageous locations of the Fire stations also cause delay on reaching the sites on time. The construction of community owned water reservoirs could lessen the problem of inadequate supply and storage of water during emergencies. Rain water will be harvested to make sure that the reservoir does not run empty at all times.

Presently the Directorate of Geology and Mineral Resources does not have any District Offices and all works are carried out from the Directorate, Aizawl. Their problem of mobility makes it impossible for them to conduct house site investigations (Geotechnical investigations) in other districts. This greatly hinders the effort of creating a disaster resilient state. The Landslide investigations also have received a setback because of the Department's mobility problem. Landslide that occurs outside of Aizawl district cannot be investigated and studied as the department is incapacitated by the inadequacy of funds. In such dire situations when the problems are beyond their reach, functions sometimes have to be devolved to the academicians of the Department of Geology, Lunglei Government College to take up the matter. Moreover, the last vacant Geologist post under the government was filled up 19 years ago ie, 2000. This has caused an acute shortage of geologists in the state,

a state where geologists should be accorded the highest priority as landslides and land sinking is rampant.

Suggestions for Improvement

The task of Disaster Management cannot be carried out by a single organisation. The Disaster Management and Rehabilitation Department should involve more agencies and organisations by collaborating with them in rescue and relief work. Since disaster management involves pre-disaster and post-disaster plans, there is no specific limit to the amount of man power required. Therefore an influential organisation with a large membership such as the Mizo Zirlai Pawl should be devolved more responsibilities and functions. Disaster management requires team work which will foster better cooperation and higher performance in disastrous situations. It is necessary for the parent department to reach out to other organisations to have a forefront for efficient disaster management in the state.

To overcome the lack of participation of the Mizo Zirlai Pawl in disaster management, the Department of Disaster Management and Rehabilitation should foster collaboration with them. In the present scenario, the government fails to see the potential of the Mizo Zirlai Pawl and their input goes duly unappreciated. The government needs to impart about the shared purpose of disaster development. The government should involve the Mizo Zirlai Pawl in the planning process so that it can maintain a close liaison with them during emergency situations. Also, tasks and responsibilities should be devolved to the organisation so that the members can be active in achieving the disaster management goals. The big difference on the involvement of the Mizo Zirlai Pawl with the nodal department and with other

organisations reflects the failure of the nodal department to motivate others. The Mizo Zirlai Pawl which has such impact on the state machinery has no more than a few post disaster relief operations carried out till date. The area of the operation of the Mizo Zirlai Pawl extends to all the students of Mizo descent. Unless roles and responsibilities are allocated to them by the nodal department, maximum utilization of the organisation's best resources can never be furnished.

Response and recovery activities are mainly directed to post disaster alleviations in terms of physical and economical help but it is evident that the survivors are affected mentally. The psychological needs of survivors have been neglected by the nodal government. Training on psychosocial care for disaster victims or their family has been conducted by the department only once in the last 5 years. Moreover, there is no record of training for women and children who are the most vulnerable in disaster situations. Most of these children and women suffer from Post-Traumatic Stress Disorder (PTSD), anxiety disorder, fear, traumas and behavioural change. The psychological care of these victims have to be properly planned and managed because if timely action is not taken, it could lead to a bigger tragedy. The department has also conducted only one mock drill/ training for the specially abled and blind school. This makes them vulnerable to social risks higher than other sections of the society. Therefore it is an important task of the department to work on providing mental and emotional support for disaster victims and also to impart more trainings and drills for the blind and the specially abled students.

Shortage of man power is pervasive in all the government departments involved in disaster management. This hinders the work of each department in

accomplishing their objectives. The Fire and Emergency Services Department is one such department which faces the problem of shortage of personnel. Recruitment of permanent fireman with proper training is necessary to replace the temporary fireman without proper training. The government needs to recruit fireman on a permanent basis to effectively function as public services. Moreover, the last vacant Geologist post under the government was filled up 19 years ago ie, 2000. This has caused an acute shortage of geologists in the State, to a point where academicians have to be engaged to perform fieldworks involving landslide investigation and house site assessments which is a deviation from their profession. In a land where landslides and land sinking are rampant, creation of posts for geologists is a necessity. The Disaster Risk Reduction Week which is to be observed vehemently has received setbacks because of the acute shortage of trainers in the Department of Disaster Management and Rehabilitation. The Disaster Reduction Week requires trainers to travel to each district to conduct an intense training of all the department officials, NGO members and School representatives in all districts. Due to insufficient trainers to be dispersed in each district, the Disaster Risk Reduction Week cannot be observed effectively and efficiently. Therefore it is required of the state government to create posts for qualified and experienced personnel to fill the vacuum in each department.

Disaster management is basically a team based activity. A cohesive working relationship is needed between the Disaster Management and Rehabilitation Department and the other stakeholders involved such as the Fire and Emergency Services Department, Public Health Engineering Department, the Transport Department, the Power and Electricity Department, , the Public Works Department,

the Geology and Mineral Resources Department, the Urban Development and Poverty Alleviation Department, the Health sector, the YMA and the Police units in times of emergencies.. Without coordination, the best of the expertise personnel become dysfunctional. Conflict of opinion and authority on events of disasters could transpire. However, integrated efforts should be taken to achieve a common goal for the common good. The problem of inadequate water supply, medical help and relief, traffic congestion, insufficient equipments, structural safety, unruly crowd gathering, power cuts, and security can be effectively resolved only if the stakeholders put together a united front at the time of facing disasters.

To avoid shortage of water during emergencies, a proper reservoir or water tank should be built at every place where fire stations exist. The refilling of water for fire tenders is usually done from the PHE water tanks or the nearest streams and rivers which takes several minutes or hours. So the construction of reservoir in the fire station vicinity is crucial for time and cost cutting. The reservoirs may be filled up by harvesting rain water or manual filling or as per required.

Effective measures should be re-implemented to generate awareness, knowledge and education on Disaster Management to the people of Mizoram. The study has shown that the majority of the people are unaware of Mizoram lying within the Seismic zone V. If the public is not aware of such relevant information, then building the capacity to prepare and respond to the extremities of disastrous events is not a possibility. Interviews with several firemen has also revealed that as a result of the influence of western culture, the number 911 is more popular among the people than the state's police, fire and emergency numbers. They further reveal that the

response from the public is very slow in incidents of fire disasters as it has become compulsive for people to first put up the circumstances on social media and then call the Fire services, which by the time an ample lot of time has already been lost. This can also be said to be the result of the influence of social media and the trending practice of citizen's journalism. Therefore the state government and the NGOs should initiate stronger efforts for educating the citizens on their roles and duties and the importance of disaster management.

Structural engineering is the most effective tool of structural mitigation. Structural mitigation entails reduction of loss of lives and property for which standard building guidelines and regulations have been implemented. The enactment of the Building Regulations is the sole apparatus for the prevention of disasters for the AMC. The study has revealed that the rate of compliance of the people to building regulations and guidelines is very low. Apart from the ignorance of the people, the rules are not complied with because the decisions of the authorities are not binding on the owners of the buildings. It is necessary to create stricter rules that will have the power to punish offenders. Section 29, Chapter II of the Aizawl Municipality Council Building Regulations specifically states the inclusion of fire exits in newly constructed buildings. Any building with three stories including ground floor should have at least one fire escape other than the main stairs. The reservation of room space for building a fire escape is a concept new to the Mizos and is received reluctantly. There are hardly any three storied buildings in Aizawl which has a fire escape. The mission of mitigation efforts is deeply thwarted by the disobedience of the public in upholding the building codes and guidelines.

Conclusion

The study concludes that in places where awareness on disaster management is uniformly generated, uniform reception cannot be guaranteed. Community is the first responder in any emergency situations in the community. Yet, they are resistant to act. They see and are aware of the situations but they have no intention to act. They shy away when it is time to take any concrete step on important issues. They do not cooperate in undergoing training and carrying out mock drills regularly. These categories of people depend on the local leaders to take up responsibilities and handle situations by themselves. They remain generally unaware of impending hazards and hardly contribute towards managing disasters. The study reveals that 14.74% of the community possesses the feeling of not requiring the support, 6.32% lack awareness and 78.95% have no idea of the events taking place in the community. On the other hand, there is another group of people, a group consisting of a few people who have been exposed to the awareness and are motivated to act. They make efforts to increase their knowledge of disasters so that they can prepare to cope with disastrous situations. In Mizoram, the prospect of incorporating the different aspects of Disaster Management may be slow. Yet sensitivity towards disasters and its proper management is gradually developing. Mizoram lying within Seismic Zone V and its unfeasible geographical terrain should induce the government functionaries, the community leaders and the citizens to critically examine any disaster situation in the state. Disaster management is everyone's responsibility. The state of Mizoram in anticipating future disasters has initiated efforts and measures in different directions to handle disasters. A holistic preparation to a disaster resilient state can be achieved by encouraging greater awareness and

networking to the community through strengthening and capacity-building, and improving government policies and programmes.