

**WORKING OF AIZAWL DISTRICT DISASTER MANAGEMENT
AUTHORITY**

By

Roman Chandra Boro

Department of Public Administration

Submitted

In partial fulfilment of the requirement of the Degree of Master of Philosophy

in the Department of Public Administration, Mizoram University, Aizawl

(School of Social Sciences)
MIZORAM UNIVERSITY
TANHRIL, MIZORAM
2020

Prof. Lalrintluanga
Professor and Supervisor

DEPARTMENT OF PUBLIC ADMINISTRATION
MIZORAM UNIVERSITY
(A CENTRAL UNIVERSITY)
TANHRIL, AIZAWL, 796004

CERTIFICATE

Certified that Mr. Roman Chandra Boro, a student of M.Phil. Programme in the Department of Public Administration, Mizoram University has prepared the present Dissertation titled 'Working of Aizawl District Disaster Management Authority' this is an original work of the research scholar which has not been previously submitted to any other University for any purpose.

(LALRINTLUANGA)
Supervisor
Professor of Public Administration
Department of Public Administration
Mizoram University

DECLARATION
Mizoram University
January, 2020

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

This is being submitted to the Mizoram University for the degree of Master of Philosophy in Public Administration.

(ROMAN CHANDRA BORO)

(PROF. SRINIBAS PATHI)
Professor & Head of Department

(PROF. LALRINTLUANGA)
Professor & Supervisor

ACKNOWLEDGEMENTS

This research would not have been possible without all the people who have supported and guided me during the process of study. I am highly indebted and grateful to my guide Professor. Lalrintluana, Department of Public Administration who was a constant source of inspiration and encouragement to me throughout the time. I am thankful for the strong interest evinced by him in dealing with the problems I faced during the process of my research work. Without his support and guidance this research work would not have been possible.

I am also thankful to the staffs of Disaster Management and Rehabilitation, MIRSAC and DDMA without their help it would not have been possible to conduct this research study.

I thank all the respondents who gave their valuable time and information sharing during my study. I thank my Father and Mother, who has always stood behind me and encouraged me to pursue my work.

No words will suffice to express my indebtedness to my friends for supporting me throughout this research work and always, I thank them for being there for me.

Above all I thank the almighty for his grace, favor, faithfulness and protection.

(ROMAN CHANDRA BORO)

TABLE OF CONTENTS

		Page. No
	<i>Declaration</i>	i
	<i>Certificate</i>	ii
	<i>Acknowledgement</i>	iii
	<i>Table of Contents</i>	iv
	<i>Abbreviations</i>	v
	<i>List of Figure, Table and Charts</i>	vi
Chapters		
I	Introduction	1-28
II	District Disaster Management Authority -A Conceptual Study	29-40
III	Organizational Structure and the Working of ADDMA	41 -57
IV	Analysis and Findings	58-67
V	Conclusion	68- 72
	Bibliography	73- 77
	<i>Appendices</i>	
	<i>Bio-Data</i>	

LIST OF ABBREVIATIONS

ADDMA	Aizawl District Disaster Management Authority
BIS	Bureau of Indian Standards
DAC	Department of Agriculture and Cooperation
DDMA	District Disaster Management Authority
DDMP	District Disaster Management Plan
DEOC	District Emergency Operation Centre
ESF	Emergency Support Function
IDNDR	International Decade for Natural Disaster Reduction
IRS	Incident Response System
LDMC	Local Disaster Management Committee
MIRSAC	Mizoram Remote Sensing Application Centre
MHIP	Mizo Hmeicche Insuihkhawn Pawl
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
SAR	Search and Rescue
SDMP	State Disaster Management Plan
SDRF	State Disaster Response Force
UNISDR	United Nation International Strategy for Disaster Reduction
VDMC	Village Disaster Management Committee
YMA	Young Mizo Association

LIST OF FIGURES, TABLES AND CHARTS

Figure

Sl. No	Figures	Title	Page No
1	1:1	Disaster Management Cycle	4
2	1:2	Aizawl District Map	7
3	1:3	Landslide Vulnerability Map of Aizawl District	10
4	1:4	Earthquake Vulnerability Map of Aizawl District	11
5	1.5	Wind and Cyclone Vulnerability Map of Aizawl District	13
6	2:1	Institutional Structure of Disaster Management in India	33
7	2:2	Flow of information in disaster management framework	34
8	2:3	Legal Institutional Framework- DM Act,2005	37
9	2:4	Disaster Management Structure in India	38
10	2:5	Present institutional Arrangement for Disaster Management in India	40
11	3:1	District Disaster Management Authority Composition	42
12	3:2	Incident Response System Structure	53
13	3:3	ADDMA Application	57

Table

Sl. No	Tables	Title	Page No
1	1:1	History of Disaster in Aizawl District	14-15
2	2:1	Nodal Ministries in India for various Disasters	35
3	4:1	Allocation of SDRF Fund	64
4	4:2	Mock Drills	65-66
5	4:3	Capacity Building Programme	67

Chart

Sl. No	Charts	Title	Page No
1	4:1	Fund Allocation	63
2	4:2	Fund Utilisation	64

CHAPTER –I

INTRODUCTION

1.1 Introduction to Disaster

In the recent decades, the world has witnessed increasing number of disaster events that have caused the death of millions of people and have damaged properties worth thousands of dollars. When disasters strike, they neither see boundaries nor ethnicity, colour, creed, class or caste. Disasters have a universal nature, one that of massive magnitude and destruction. Disasters have killed thousands of people and have crippled the economies of developing countries such as Nepal, Bangladesh, Pakistan, Philippines and India, developed countries like the United States and China have also suffered to the forces of nature. Earthquakes, hurricanes, floods, volcanoes, tsunamis, forest fires, avalanches, and many other natural events have resulted in devastating consequences in across many regions of the world. However, the scope of disasters is not limited to natural disasters alone; the anthropogenic factors also plays significant role in exacerbating disasters. Rise in developmental activities such as the construction of dams, bridges, roads etc. without adequate impact assessment have also resulted in increasing number of disasters.

Disaster as defined by UNISDR (2016: 13)¹ is ‘A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting

¹ UNISDR was created as part of the UN Secretariat in the year 1999 to ensure the implementation of the International Strategy for Disaster Reduction.

with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

In India, the High-Powered Committee's ²(HPC) interim report in 2000 have identified thirty-one (31) disasters and put them under five broad headings:

- Water and Climate related disasters such as Cyclones, Floods, Hailstorm, Droughts, Sea-Erosion, Cloud Burst, Tornados and Hurricanes and Thunder and Lightning.
- Geological origin related disasters such as earthquakes, mudflows, landslides, dam failures
- Biological disasters such as epidemics, cattle epidemics, pest attacks, and food poisoning.
- Chemical and Industrial and Nuclear related disasters
- Accident related disasters such as forest fires, building collapse, bomb blasts, festival related disasters etc.

In the country the momentum of discussion on disaster management gained only after the Bhuj Earthquake, Gujrat, 2001 and the Indian Ocean Tsunami of 2004. The Disaster Management Act³, 2005 was introduced for the effective management of disaster in the country. As per the DM Act (2005:02), 'Disaster means a catastrophe, mishap, calamity, or grave occurrence in any area, arising from natural or man-made

² The HPC was created in the year 2000 with Shri J.C. Pant, former secretary to the Government of India, Department of Agriculture, to prepare a comprehensive plan for national, state and district level in order to review the preparedness and mitigation measures of natural disasters and to look into the structural organizations.

³ The Disaster Management Act was passed in the year 2005. Under this Act, The National Disaster Management Authority was established, whose Chairperson is the Prime Minister of India. The Act mandates for setting up State Disaster Management Authorities and District Disaster Management Authorities.

causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area’.

Disaster Management aims at providing immediate relief to disaster-affected people and helps or support them recover from the effects caused by disasters. Importantly it is to focus on undertaking preventive measures, adopting mitigation strategies and supporting the communities to cope in an event of any disaster.

UNISDR⁴ (2016:14) defines Disaster Management as ‘The organization, planning and application of measures preparing for, responding to and recovering from disasters.

The Disaster Management Act, (2005:02) defines ‘disaster management’ as a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for;

- Prevention of danger or threat of any disaster;
- Mitigation or reduction of risk of any disaster or its severity or consequences
- Capacity building
- Preparedness to deal with any disaster
- Prompt response to any threatening disaster situation or disaster
- Assessing the severity or magnitude of effects of any disaster;

⁴ Terminology on Disaster Risk Reduction Accessed at :
<https://www.unisdr.org/we/inform/terminology>

- Evacuation, rescue and relief
- Rehabilitation and reconstruction

Figure 1:1 Disaster Management Cycle



Source: <https://ndma.gov.in/en/disaster-management-cycle.html>

In the country most of the disaster situations are managed at the State and the District levels. The centre plays a supporting role and aids when the consequences of a disaster exceed the district and state capacities. The centre mobilizes support in terms of providing emergency teams, support personnel, specialized equipment and operating facilities depending on the scale of the disaster and the need of the State and District.

The affected State and Districts are provided with active assistance only after the declaration of a national-level disaster. The national response mechanism is prepared and any impending disasters of State or District disaster is monitored in order to provide immediate assistance whenever required. In order to ensure collective efforts are carried out by the central and state government, a proper institutional arrangement has been established with the introduction of the Statue, The Disaster Management Act,2005 to enhance the function of disaster management activities.

1.2 Introduction to Aizawl

In the land of enchanting and alluring Arakan mountain ranges lies the beautiful city of Aizawl. It is the capital of the state of Mizoram, and is one of the eight districts of Mizoram State in North-Eastern part of India. The District shares border with Champhai District to the East, Kolasib District to the North, Mamit District to the West, Serchhip District to the South. The total geographical area of the district is 3576.31 sq.km, which comprises varied geographical features like agricultural plains, hilly terrains and forests. The total forest cover of the district is 273158 hectares and is about 1132 meter above sea level⁵. The city is located north of the Tropic of Cancer in the northern part

⁵ Government of India (2011), *Industrial Profile of Aizawl District*, Ministry of MSME

of Mizoram and is situated on ridge 1132 metres (3715 ft) above sea level, with the Tlawng river valley to its west and the Tuirial river valley to its east⁶. The district is in longitudes 920.30'-930.00' East and latitudes 230.30'-240.00' North.

1.2.1 Administrative set-up

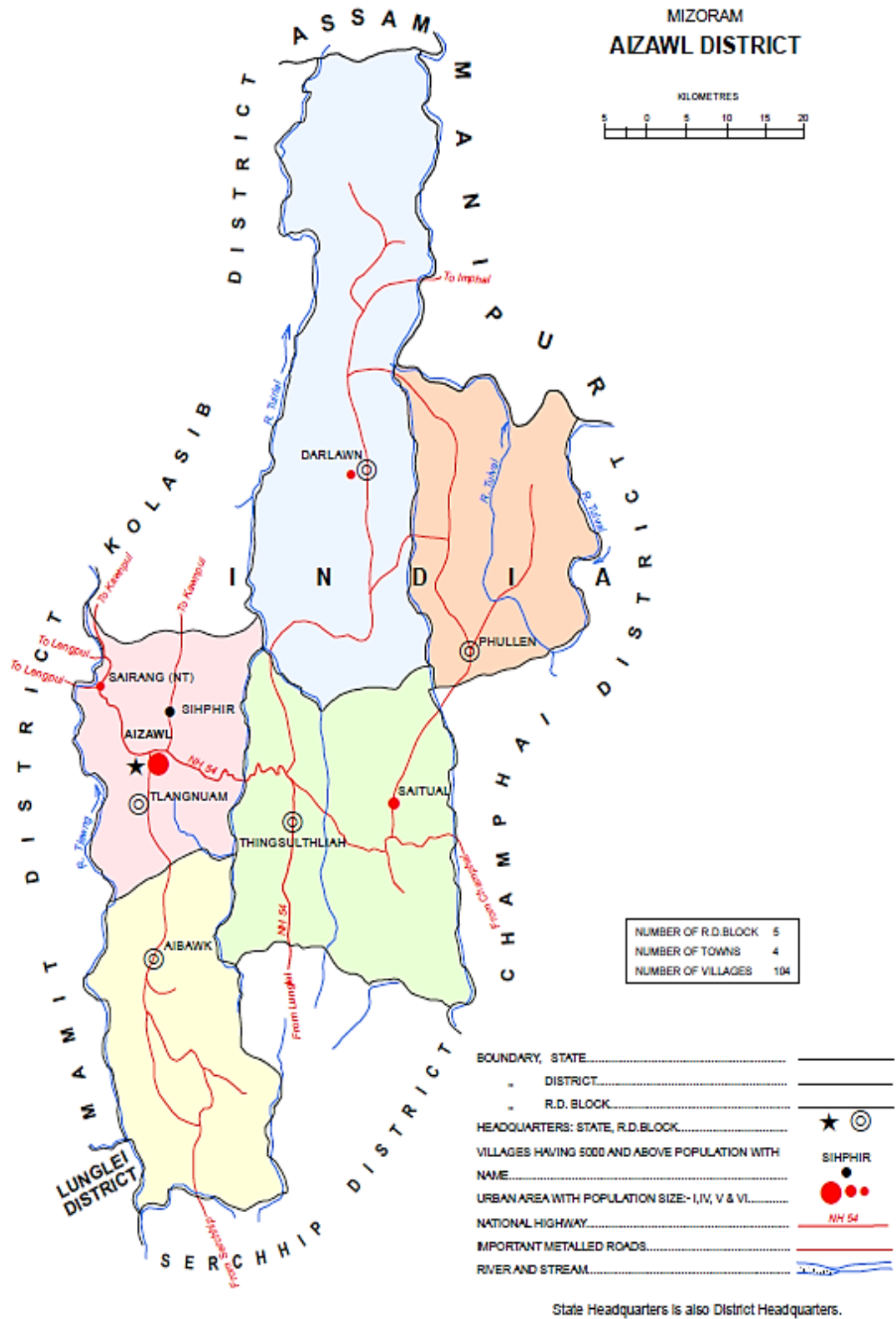
Aizawl is one of the eight districts of Mizoram. It comprises of three (3) Sub-divisions i.e. Aizawl Sadar, Saitual and Sakawrdai. There are eleven (11) Revenue Circles (Thesils) Sakawrdai, Darlawn, Durtlang, Bawngkawn, Vaivakawn, Dawrpui, Tlangnuam, Aibawk, Thingsulthlai, Sitaul and Phullen. In terms of development, the district is divided into five Rural Development Block i.e. Aibawk, Darlawn, Tlangnuam, Thingsulthlah and Phullen. At, the Block Level there are ninety -one (91) numbers of Village Council. Aizawl town is the administrative headquarter of the district⁷.

As per the Census of India, 2011 there is a total of 104 villages in the district. Out of which 94 are inhabited and 10 are uninhabited villages. There is a total number of 4 (four) statutory towns in the district. The total number of household normal households stands at 82,298, institutional household at 219 and 7(seven) houseless households.

⁶ Government of Mizoram (2017), *Aizawl District Disaster Management Plan*, Department of Disaster Management and Rehabilitation, p.i

⁷ *Ibid*

Figure 1:2 Aizawl District Map



Source: District Census Handbook, 2011

1.2.2 Demographic Details

As, per Census of India ,2011, Aizawl has a total population of 400,309 out of which 85,555 live in rural areas and 314,754 live in urban areas. The total number of male populations stands at 199,270 out of which 43,780 live in rural areas and 155,490 live in urban areas. The total number of female populations is 201,039 out of which 41,775 live in rural areas and 159,490 live in the urban area. The total density of population (persons per sq.km) is 112. The total sex ratio (Number of females per 1000 males) is 1009, out of which 954 in rural and 1,024 in an urban area. The total number of literates is 340,595 out of which 169,547 are male and 171,048 are females. The total percentage of literates is 97.89, of which 98.11 are male and 97.67 are females.

1.3 Vulnerability Profile of Aizawl

Aizawl has a unique geographical and physical conditions which exposes it to various natural disasters. The region is prone, due to a number of factors both natural and human-induced, including adverse geo-climatic conditions, environmental degradation, topographic features, urbanization and flawed development practices, etc. The statistical analysis shows that, the state has faced Earthquake, Landslide, Cyclone, Cloudburst and Biological (Bamboo Flowering) etc. There have been major disasters in 1992, South Hlimen, 1995, Cloud burst and Landslide, 2013 Laipuitlang Landslide, 2016 Landslide.

The district is vulnerable to various natural hazards such as landslide, earthquake, wind & cyclone and flood. Various geological and geophysical settings, climatic, meteorological and hydrological condition of the area increases the occurrence of these natural hazards. Anthropogenic processes such as developmental

activities i.e., construction of buildings, roads and other infrastructures also influence the natural forces to manifest as hazards. Aizawl district is characterized by hilly terrain, steep slope and high relief with complex structural dispositions, and is geologically immature. Therefore, it is prone to all types of natural disasters such as landslides, earthquake, flood or cyclone

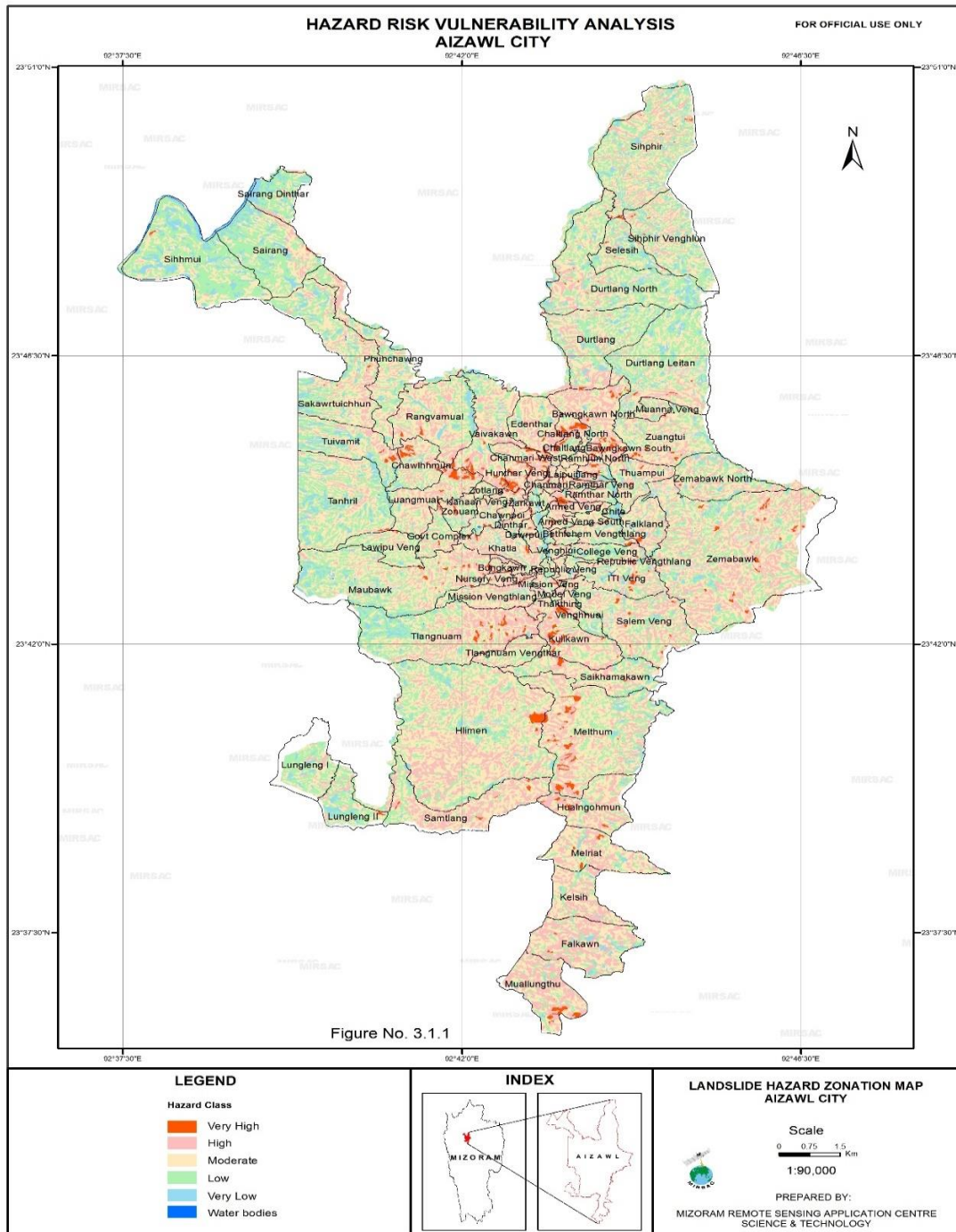
UNISDR (2014:24) defines Vulnerability as ‘the conditions determined by physical, social, economic and environmental processes which increases the susceptibility of an individual, a community, assets or systems to the impact of hazards.

a. Flood: In Mizoram, as a whole, floods occur in river valleys, when the flow exceeds the capacity of the river channel, particularly at bends or meanders. Compared to other hazards like Landslides and Cyclones, the damage caused by floods within the district is the least. In Aizawl district, Sairang village is the only village lying in close proximity to the river and hence drowning often happens due to unplanned activities close by the river. This happens especially during the monsoon period. In general, most significant damages occur only to the crops and erosion of cropland lying in the fluvial flood plains of Tlawng, Tuirial, Tuivawl and Tuivai rivers.

b. Landslide: Aizawl district is characterized by the presence of several lineaments, both major and minor faults oriented in different directions, and steep slopes. The lithology is mainly represented by soft sedimentary rocks, such as shale, silty shale, sandstone and their admixture in varying proportions. Besides, loose and unconsolidated sediments form a dominant composition on the exposed surface, particularly in built-up areas. This, together with the aforesaid factors makes it

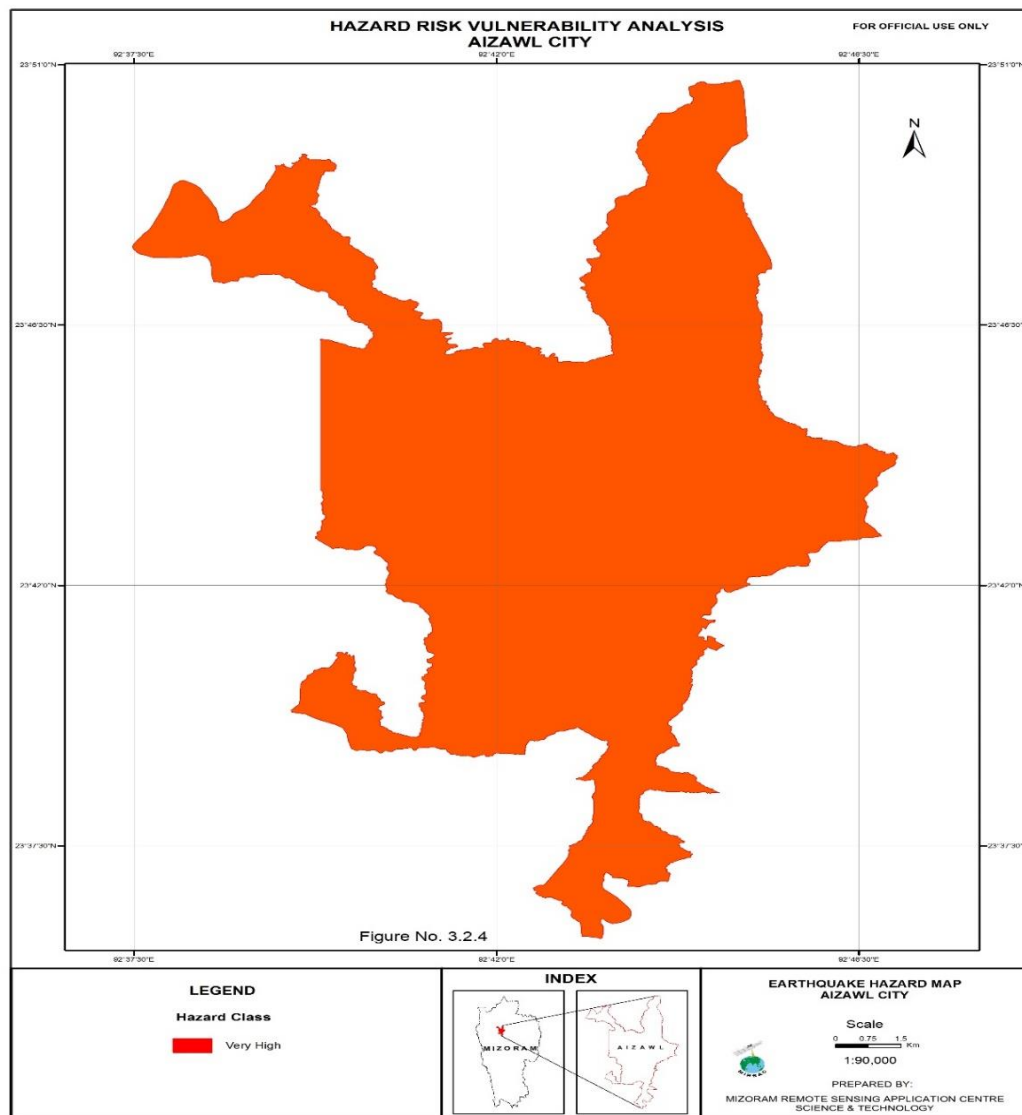
susceptible to landslides. Water bodies cover an area of 14.29 sq. km which is 0.40% of the total district area which also makes it susceptible to the landslide.

Figure 1:3 Landslide Vulnerability Map of Aizawl District



c. **Earthquake:** North-east India, including Mizoram, is seismically one of the six most active regions of the world. The region has been placed in Zone V, the highest level of seismic hazard potential, according to the Seismic Zonation Map of India prepared by Bureau of Indian Standards (BIS) in 2002. Till now, there has not been any record of significant tremors of high intensity within Mizoram. Earthquakes of low intensity, on the other hand, have been felt from time to time.

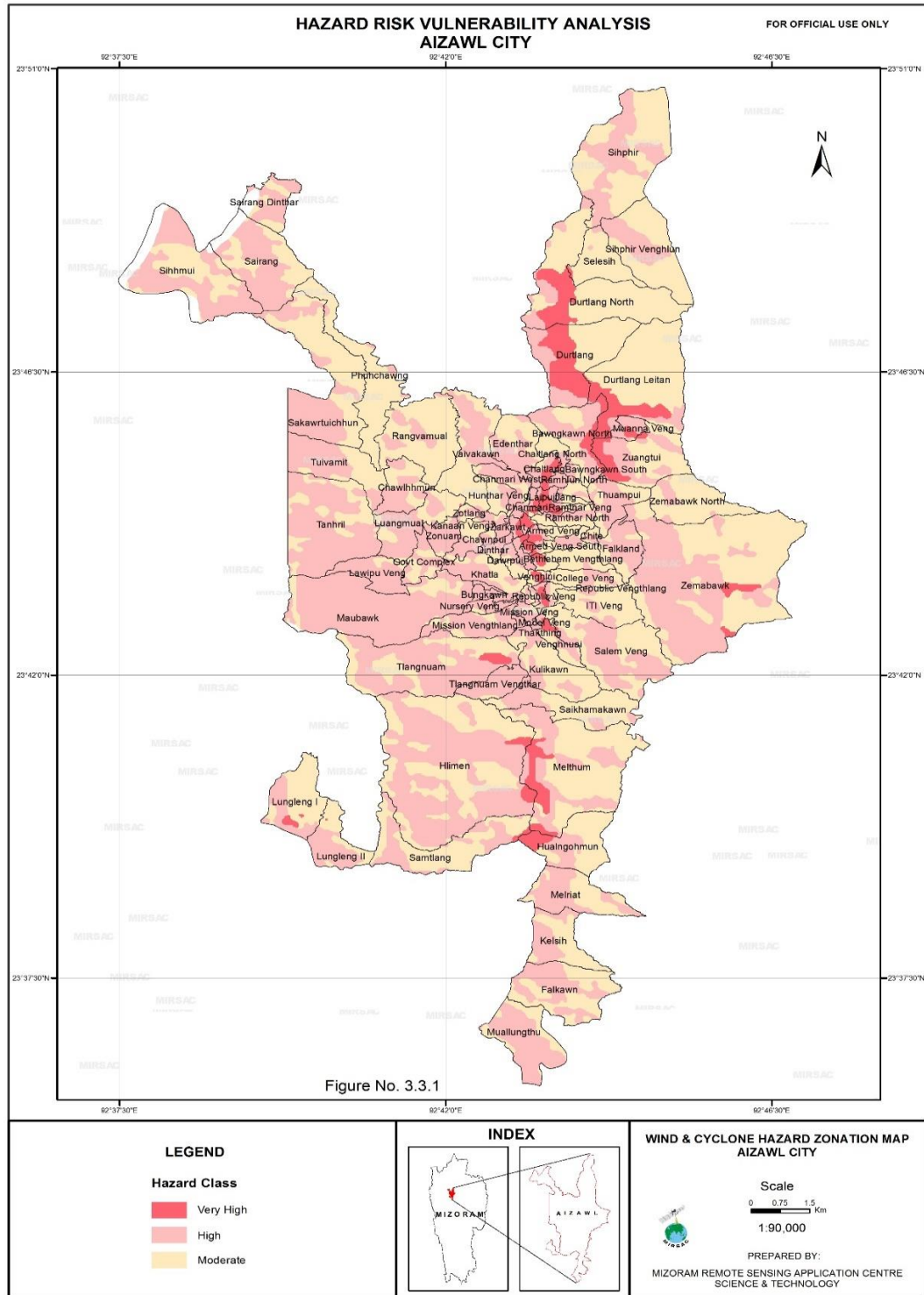
Figure 1:4 Earthquake Vulnerability Map of Aizawl District



There has been a phenomenal increase in the population density and development programmes, particularly in Aizawl city, and gradual progress in other towns within the district. Aizawl city has witnessed a mushroom growth of unplanned multi-storied buildings in a haphazard manner in recent years. The same pattern is likely to happen in future to townships in other parts of the district, where building codes and bye-laws are not strictly enforced. This has resulted in increased vulnerability of the human population and physical structures to earthquakes. Thus, it becomes essential to assess the status of seismicity in the district, at least to some extent.

d. Wind and cyclone: Incidence of the cyclone (Thlichhia) has been recorded since 1876 in Mizoram. Past records on the occurrence of the cyclone that was known to cause disruption to normal life and property during 2010 - 2011 showed that 167 villages were affected in the district. The affected villages during the past years (2008 - 2009) from the same source recorded as much as 186. Further, during 2004-2005 heavy rain with cyclonic- hailstorm caused reported damage to a large number of houses particularly roofing portion. Horticulture and agriculture crops were also seriously affected by this incident. Data collected by MIRSAC during 2004 and the consequent reports indicated that 15 villages in Aizawl district were highly vulnerable to the cyclone. The list of vulnerable location prone to the cyclone is highlighted in the map below;

Figure 1:5 Wind and Cyclone Vulnerability Map of Aizawl District



Source: Mizoram Remote Sensing Application Centre

Table 1:1 History of Disasters in Aizawl District

Type Of Disaster	Year	No. of Villages Affected	Houses Damaged	Animals Perished	Human Casualty	
					Lives Lost	Injury
LANDSLIDE	2012-2013	Not Specified	85	4	3	0
	2013-2014	165	86	Nil	19	11
	2014-2015	165	88	1	2	Nil
	2015-2016	13	73	1	1	Nil
	2016-2017	43	161	4	11	1
FIRE	2012-2013	Not Specified	85	3	3	Nil
	2013-2014	165	90	Nil	2	2
	2014-2015	Not Specified	61	2	4	Nil
	2015-2016	18	29	Nil	1	1
	2016-2017	26	24	2300	Nil	Nil
CYCLONES	2012-2013	Not Specified	231	Nil	Nil	Nil
	2013-2014	165	92	Nil	Nil	Nil
	2014-2015	Not Specified	106	Nil	Nil	Nil

	2015-2016	16	171	1	Nil	Nil
	2016-2017	32	7	Nil	Nil	Nil
EARTHQUAKE M-6.9, Mawlaik, Myanmar	2012-2016	No Incident				
	2016-2017	165	1	Nil	Nil	Nil
FLOOD/ FLASH FLOOD	2012-2016	No Incident				
	2016-2017	2	1	Nil	6	Nil
HAIL STORM	2012-2016	No Incident				
	2016-2017	11	212	Nil	Nil	Nil
LIGHTNING STRIKE	2012-2016	No Incident				
	2016-2017	2	1	Nil	3	Nil

Source: DM&R Branch, D. C's Office, Aizawl

1.4 Statement of the Research Problem

The subject of institutional arrangement and its functioning at the district level has been selected due to its significance in minimizing the impact of disasters. In the year 1990, permanent setup was institutionalised and a Disaster management cell was

established under the Ministry of Agriculture. At the time all the disaster management activities were directed towards providing reliefs after the occurrence of disasters. After facing the series of disaster, such as Latur earthquake (1993), Malpa landslide (1994), Odisha Super Cyclone (1999), the government has been prompted to review the existing institutional arrangement. The High-Powered Committee (HPC) was constituted in 1999 and submitted the Report in 2001, which the Government of India considered in enacting the Disaster Management Act, 2005. The act provided a new framework of disaster management which led to a shift in the approach from relief- centric to a more proactive level. Thirteen years have passed since the enactment of DM Act in 2005 and in 8 districts of Mizoram District Disaster Management Authorities are established. In Mizoram, DDMA is established under the guideline of DM Act, 2005 which provide the framework of institutional arrangement for unified command, control and coordination of disaster management activities.

The process of disaster management activities at district level and local level is minimal, and the mandate of DM Act at district level is acknowledged in form of preparation of disaster management plan which is not fully tested due to fewer meetings, lack of coordination with other line departments, mitigation projects, delayed fund and lack of technical human resources. The research will explore the functioning of institutional arrangement at the district level in Aizawl after the enactment of DM Act 2005. The research focuses on the functioning of the current institutional arrangement at the district level and how it formulates the objective of adopting new institutional arrangement guidelines.

1.5 Review of Literature

There is a number of Government documents and articles in relation to District Disaster Management Authority, however, the books, articles and documents relating to ADDMA and its working in reference to DM Act 2005 are few in number. The literature review has been undertaken in correspondence with the available Government documents, books and articles which are found to be directly or indirectly relevant to the study.

Comptroller and Auditor General of India (2013) '*Performance Audit of Disaster Preparedness in India*' (Report No: 5) asserts that with the increase in disaster all across continents, disaster risk reduction is emerging as a prominent theme in disaster management. The occurrences of the disasters are not possible to eliminate, with due care and proper preparation, the risk and damage from disasters can be reduced considerably which need a proper policy and institutional framework. A Report suggests that a proper hierarchy of policy, legal framework and institutional arrangement will create a base of effective functioning on disaster management at national, state and district level.

The Asian Disaster Preparedness Centre. (2005). '*A Primer: Disaster Risk Management in Asia*' report put forth that the existence of policies, legal frameworks and institutional framework are significant for the effective disaster management and institutionalising risk reductions. The three elements demonstrate the commitment, action and the progressive outlook of the national government in employing them, and their formation towards disaster risk management. The report state that in India, the policy and plans towards disaster management was formulated after a series of

disasters, Orissa Super Cyclone, 1998 expedited the formation of High-Powered Committee in bringing institutional reform. The policies are integral to institutionalising disaster risk reduction as they help to incorporate risk reduction into everyday life, government strategies and customs. They have the benefits of building lasting capacity and lasting constituencies for risk reduction.

S, Mattingly. (2002) in '*Policy, Legal and Institutional Arrangements*' highlights that the legal arrangement consists of a framework of laws, executive orders, regulations, acts and other legal instruments, establishes basic guidelines for governmental and non-governmental actions related to disaster management. The legal arrangements guide in establishing the institutional framework by defining authorities, responsibilities and roles of officials and organisations. Integration of disaster management into routine government operations provides a mechanism to ensure that any effort to reduce disaster risks becomes a sustaining part of government activities in an institutional arrangement. The author defines institutional arrangement as "composition of organizations and institutions, governmental and non -governmental, with a recognized role to play in hazards and risk management, and the mechanisms for coordination among organizations and institutions.

Asian Disaster Preparedness Centre. (2005). '*A Primer: Disaster Risk Management in Asia*' defines Institutional Framework as "the relationships and locations of the organisations and institutions related with responsibilities of disaster management". The Report suggests that institutional framework recognizes the reporting structure among organisations and institutions, and establishes a mechanism for coordination and the implementation of duties. It supports establishing a single

coordinating entity at each government level and shows the relationships among those levels and with non-government sectors and stakeholders.

Department of Agriculture and Cooperation. (2001) '*High Powered Committee on Disaster Management*' report states that the series of disaster in India during the 1990s gave impetus to establish an institutional arrangement for disaster management. In 1999 the Government of India appointed the High-Powered Committee under the Chairmanship of Mr J.C. Pant to review the existing mechanism, suggests appropriate institutional reforms and a system of disaster management through the preparation of disaster management plans at the national, state and district levels. The committee formulated a model plan to reduce and strengthen the institutional mechanism at all levels to minimise the impact of a disaster. The committee served as the base while formulating of Disaster Management Act, 2005. Before the DM Act, the Cabinet set up a committee in the aftermath of a disaster and the Secretary of the Ministry Agriculture was responsible for effective implementation of disaster management programmes by the recommendation of the committee. The Department of Agriculture and Cooperation (DAC) served as the nodal agency for disaster management and the Relief Commissioner was the nodal officer who handled all the disaster management activities. During 2002, the disaster management division shifted the Ministry of Agriculture to the Ministry of Home Affairs led to development of a new structure of disaster management at the national, state and district level.

Government of India. (2005). '*Disaster Management in India*' report emphasizes that Institutional Arrangement is a collective action which comprises of sharing the resources, knowledge and technology by the government, non-government

and stakeholders in the country. The institutional arrangement provides for a clear mandate role, a line of command and coordination, within political units.

J.P, Alex. (2006) in his article '*Disaster Management: Towards a Legal Framework*' emphasizes that the existence of the institution generates a climate of confidence in the minds of people/community in managing disasters. The concept of disaster management is dependent on the institutional arrangement which provides the supporting role in reducing the impact of the disaster in the community. He further insinuates that the role of disaster management is to oversee and enforce rights associated with rescuing, providing relief and rehabilitation of the disaster victims

E. L. Quarantelli. (1988) in his article '*Disaster Crisis Management: A Summary of Research Findings*' states that to mitigate disasters it would require strong policy and institutional provisions of the government. The progress or success of disaster management activities largely depends on the systematic formulation of policy strategies, legal provisions, institutions and its roles and responsibilities in dealing with disasters. There are certain activities of disaster management such as communication process, the exercise of authority and the development of coordination can help in coping with disaster situation.

Department of Law and Justice. (2005) '*Disaster Management Act*' (No.53of 2005) envisages for the establishments of District Disaster Management Authority which will be responsible for organizing human resources, funding, equipment and supplies, leadership effectiveness, coordination among various line departments, and will act as bridge between various stakeholders to deal with disaster management functions and activities at district level.

Domingo, S.N. (2017) in article ‘Institutional Issues on Disaster Risk Reduction and Management’ highlights the importance of institutional dimension and its negligence historically in the discourse of disaster risk management. He further stresses that institutional failure is the root cause for susceptibility to disasters exposes the country’s governance structure. Further it enables the implementation and enforcement of policies in reducing vulnerability to disaster.

Britton, N.R (2007) in his article ‘*Getting the foundation right for the disaster management legislation for the Philippines*’ states that for the effective and efficient disaster legislation policy, legal and institutional arrangements form the foundation for any society’s approach to disaster management. The author further stresses that policies are based on information reviews that are drawn on to establish an appropriate course of action, whereas legislation identifies explicit decisions about the particular policy, its conduct and legitimization of the associated actions. The institutional arrangements identify specific agencies and their relationships for carrying out the missions and the duties associated with the policy.

Caroline Brassard, David W Giles, and Arnold M Howitt (2015) in *Natural Disaster management in the Asia-Pacific* draws example of Philippines as case study highlighting that all the regional countries in Asia-Pacific have become stronger in their capacity to respond to disasters with developing legal and regulatory frameworks, institutional structures to deal with disaster risks. Although the country remains open to accepting international aid targeted to specific gaps in their capacities. The author highlights further case studies of Maldives during the Indian Ocean Tsunami 2004 the existence of institutional capacities, or lack of them, contributed to the way this disaster

was managed. It was further stated that the lack of adequate institutional mechanisms for early warning, inadequate awareness, and coordination, time-consuming administrative procedures, coupled with excessive caution, contributed to undermining the efficiency of the disaster management and response during the tsunami.

Jack Pinkowski, in *Disaster Management Handbook* (2008) discusses the factors augmenting vulnerability which include policy failures, weak emergency management institutions, environmental degradation, and cultural attitudes. Furthermore, it has been highlighted that increased vulnerability is due to weak emergency management institutions. The author draws an example of Hurricane Katrina where the city of New Orleans possessed an emergency operation plan however planning process was incomplete. During the flood, the media provided images of individuals stranded in their homes or on rooftops of buildings, and yet, there was a parking lot full of flooded school buses. The buses could have been used to evacuate citizens before the storm had hit New Orleans, but officials failed to coordinate with drivers and provide information to citizens on where they should seek shelter. The oversight of New Orleans illustrates the paper plan syndrome, where one has a very well-written emergency operations plan because of a state or the federal mandate but does not take the time to ensure operability, and as a result, disastrous consequences occur. The author covers the experience of various natural disasters in the United States including hurricanes, floods, and wildfires and the practical challenges of responding to disasters.

Itoko Suzuki and Yuko Kaneko (2013) *Japan's Disaster Governance, How was the 3.11 Crisis Managed* discusses the importance of comprehensive institutional

arrangements such as central government, local governments, public corporations, relevant private companies, and non-governmental organizations is necessary for effective disaster management. The authors draw experience of the Great Japan Earthquake 2011 where strong institutional arrangements in place with wide-area disaster training, speedy expansion of rescue operations were possible by the Self Defense Force. The author further states that Japan revised the Self-Defense Forces Act, by taking the lessons of experiences at the time of the Great Hanshin-Awaji Earthquake of 1995, provided necessary institutional arrangements such as permitting SDF officials to direct emergency official burdens and stipulating the authority of the Defense Minister to order disaster dispatch to the Self-Defense Forces, to conduct prompt and appropriate emergency response operations. For the reconstruction, institutional and financial arrangements have been set up so that disaster-affected communities can move forward to re-build safe and normal life in the afflicted areas by taking advantage of the newly established mechanisms.

Michelle Ann Miller and Mike Douglass (2016 in *Disaster Governance in Urbanising Asia*) states that most Asian cities are poorly equipped to manage the effects of natural disasters, climate change, contaminated or unstable land, and health pandemics. Many will need massive investments in infrastructure, public services, institutional capacity, and environmental programmes if basic security, health, safety, and overall conditions are to improve for the majority of urban residents. The author highlights that although risk management and reduction are mentioned in governmental development policies, plans, and strategies it is not treated as a truly multisectoral concern, and the institutional and legislative arrangements for disaster risk reduction

are weakly connected to the development sectors. The author further highlights that weak governance institutions impair efforts for a successful recovery.

W. Nick Carter(2008) in *Disaster Management: A Disaster Manager's Handbook* discusses that in development activities strong institutions can play a vital role in various aspects of mitigation such as promoting public awareness programs, training at community levels, and monitoring hazards and vulnerabilities.

Indrajit Pal and Rajib Shaw(2018) in *Disaster Risk Governance and Cross-cutting Issues* discuss the significance of risk governance which involves the “translation” of the substance and core principles of governance to the context of risk and risk-related decision-making. The author emphasis on the necessity of strong democratic institutions, sound institutional arrangements, coordination and cooperation mechanisms for disaster risk reduction and climate change adaptation are critical to good governance. The author further states that risk governance not only encompass a multifaceted, multi-actor risk process but also calls for the consideration of contextual factors such as institutional arrangements.

Houng Ha, R Lalitha, S Fernando, Amir Mahmood (2015) *Strategic Disaster Risk Management in Asia* discusses the issues in managing disasters and draws example from various disasters across Asian countries. The author discusses that disaster management in its wider context also includes preventive measures, preparedness, response, to remove the institutional weakness in managing disaster effectively and efficiently and to support comprehensive disaster management. In the book the authors emphasize the need for the development of a realistic approach in reducing the impact of disasters. It can be achieved by formulating new policies and new institutional

arrangements that supports in undertaking effective actions and execution of such policies and arrangements. The policies and arrangements also encompass various activities with regard to risk identification, disaster prevention, and mitigation, risk transfer, emergency preparedness and response, post-disaster rehabilitation and reconstruction. During a disaster, the biggest challenge for the government is to restore normalcy by acting fast in search and rescue, evacuation operation in collaboration with other institutions. However, during this entire process, institutions are susceptible to external forces that may divert the goal of the entire relief operation.

The author also highlights that humanitarian aid is vulnerable to corruption in countries where there are low levels of transparency and accountability. To tackle corruption during a disaster, the institution plays an important role, and failure of the institution during the crisis phase dramatically increases disaster risk and corruption. For meaningful disaster response, an attempt should be made not only for institutional strengthening and capacity building of human resources but also for upgrading the existing resources and facilities available with the various agencies involved in disaster management.

1.6 Scope of the Study

The study delves into understanding the Institutional Arrangement of Aizawl District Disaster Management Authority (ADDMA). The main focus of the study is to fathom the genesis, organisational structure, functions and activities of the Institution with reference to the Disaster Management Act 2005. Detailed analysis of the organisation on different parameters on the utilization of funds, activities undertaken

related to mitigation and preparedness, availability of human resources is studied to examine the wider context in which of Aizawl District Disaster Management Authority (ADDMA) operates.

Moreover, the focus is on studying the existing institutional arrangements relevant for addressing mitigation and preparedness activities in Aizawl District. It also emphasizes on exploring the issues which hinder the efficient working of the organisation in the implementation of the framework provided in DM Act 2005.

1.7 Objectives of the Research

- To study the main provisions of the Disaster Management Act 2005 at District Level
- To study the organisational structure of Aizawl District Disaster Management Authority.
- To study the Working of Aizawl District Disaster Management Authority and their linkages with other institutions.
- To study the effectiveness of new institutional arrangement regarding the proactive approach of disaster management.

1.8 Research Questions

- What are the main provisions of the Disaster Management Act 2005?
- What are the organisational structures of Aizawl District Disaster Management Authority?
- What are the problems faced by the Aizawl District Disaster Management Authority in implementation of the Disaster Management Act 2005?

- What are the possible measures to be undertaken to improve the working of Aizawl District Disaster Management Authority in the alignment of Disaster Management Act 2005?

1.9 Research Methodology

The methodology of the research is a mixed-method which employs both the aspect of qualitative and quantitative method. The study area of the research is Aizawl which is the capital and one of the eight districts of Mizoram State. The study collected information from primary and secondary sources. The primary sources consist of interviews in the form of semi-structured questionnaires. The secondary sources consist of documents related with the institutional arrangement of disaster management of State and National authorities, National Institute of Disaster Management (NIDM) National Disaster Management Authority (NDMA) reports, State Disaster Management Plan (SDMP), District Disaster Management Plan (DDMP), journal, articles, survey report, books, web-news and articles.

The data is analysed by employing codes categorized around the discovered phenomena to simplify the set of qualitative data and converting them into quantifiable one. The emerging qualitative theme supported to validate the findings of the study.

1.10 Chapterization

The whole study is divided into five Chapters. The first chapter comprises of an introductory chapter which gives a brief description of the study area. It also includes the vulnerability profile and the hazard zone of the district. It also brought out Review

of literature, Objectives of the study, Scope of the study, Research Questions and Chapter-wise.

The second chapter provides details on the concept of “Institutional Arrangement” and definitions of the notion given by different thinkers and authorities on the subject. It also contains an operational application of the concept of Institutional Arrangement at different levels i.e., national, state and the district. Moreover, the chapter provides details of the emergence of institutional arrangement in India along with the present structure.

In the third chapter, an attempt has been made to study the organisational structure of the Aizawl District Disaster Management Authority (ADDMA) and its role in responding and mitigating of disasters in Aizawl. It has also taken up the study of the powers and functions and how these functions are performed by the ADDMA. It has also studied the working of the ADDMA and a number of activities taken up by it for the disaster risk reduction.

The fourth chapter has identified and looked into the main problems faced by the ADDMA for disaster management. It has also studied various parameters of DM Act,2005 and its implementation by the ADDMA.

The final chapter is the concluding Chapter which has brought the summary and major findings of this research. It has also made some relevant suggestions in undertaking of certain procedure for mitigating disaster in Aizawl District.

CHAPTER – II

INSTITUTIONAL ARRANGEMENT (DISTRICT DISASTER MANAGEMENT AUTHORITY) – A CONCEPTUAL STUDY

2.1 Introduction

Disaster situation in the country is managed at State and District levels, the national authority plays a supporting role and provides assistance whenever the consequences of a disaster exceed the district and state capacities. The national authority mobilizes support in terms of providing emergency teams, personnel, specialized types of equipment and operating facilities depending on the scale of the disaster and the need of the State and District. However, active assistance to the affected State/District would be provided only after the declaration of a national-level disaster. The national response mechanism is prepared for any impending State or District disaster, and monitors regularly in order to provide immediate assistance whenever required.

The Disaster Management Act, 2005 (DM Act, 2005) lays down institutional and coordination mechanisms for effective disaster management (DM) at the national, state, and district levels. The Act, directs the establishment of District Disaster Management Authorities (DDMAs) by the District Collectors and co-chaired by elected representatives of the local authorities of the respective districts. These institutional arrangements have been set up to facilitate the paradigm shift from the hitherto relief-centric approach to a more proactive, holistic and integrated approach of strengthening disaster preparedness, mitigation and emergency response in the country.

2.2 Conceptual Meaning of Institutional Arrangement

An institutional arrangement refers to a set of rules or agreements governing the activities of a specific group of people pursuing a certain objective. (Eaton, Meijernik, G and Bijman Jos,.2008:10). Institutional arrangements are the rules that “potentially linguistic entities that refer to prescriptions commonly known and used by a set of participants to order repetitive, interdependent relationships" (E. Ostrom 1986: 22).

However, there are certain rules under which the institutional arrangement operates. These operational rules define who can participate in which situations; what the participants may, must, or must not do; and how they will be rewarded or punished. Operational rules facilitate coordination if the participants share a common knowledge of these rules and are willing to follow them. In a world of rapidly expanding knowledge and changing circumstances, rules have to be able to create enough predictability among individuals yet permit enough flexibility to deal with various contingencies (V. Ostrom 1989).

The operational rules establish constraints that, if properly designed and followed, facilitate cooperation among participants into a collective-action arrangement. In considering the institutional environment, a distinction is often made between formal and informal institutions. Formal institutions are “embodied in constitutions, laws, the structure of state decision (the number of veto players and their mode of selection) and regulations enforced by judges, courts, police, bureaucracy, and the like” whereas informal institutions are “norms of conduct, perhaps historical traditions or religious precepts” enforced by custom or habit. (Keefer and Shirley, 2000; cited in Williamson, 2002).

Institutional arrangements may be top-down, bottom-up or lateral (collaborative). Top-down arrangements generally refer to a decision-making process that starts at the constitutional-choice level (national) and goes through the collective-choice level (regional/national) to the operational level (local). (Boateng,2006).

Ostrom (1999) states that Institutional arrangement is the collective rules, norms and shared strategies that define or guide stakeholder behaviour. They may be formally described in the form of a law, policy or procedure, or they may emerge informally as norms, standard operating practices or habits. Institutional arrangements can also facilitate cooperation among divergent stakeholders, define subsequent roles and responsibilities for action and act as a catalyst for implementation, including by channelling resources effectively.

There are certain significant aspects in disaster risk management such as, policy and institutional provisions of the government. The progression of disaster management activities largely relies on the systematic formulation of policy strategies, legal provisions, institutions and its roles and responsibilities in dealing with disasters. (Quarantelli, 1988; Wisner et al., 2004; UNISDR, 2009). The actions and arrangements are divided into four phases of a disaster management cycle, which includes preparedness, response, relief/recovery and mitigation (Noji, 2005; Godschalk, 1991; Mileti, 1999).

Neal (1997) focuses on the role of different actors, institutions, individuals and communities and their engagement within different phases of a disaster. Unsound disaster management policy and practices can increase disaster risk and disaster losses. (Hasan, Akhte, Ahmed, & Kabir, 2013).

Ahmed, Moroto, Sakamoto, Haruna, Akiko (2016) stressed on the need for institutional strengthening for disaster risk management. Obeta (2014) has noted that in the absence of well-articulated and organized institutional structure, there arises a major obstacle to co-ordinate response activities during a disaster. Scattered responsibilities among different disaster management institutions highlights the lack of an effective institutional structure for disaster management and mitigation.

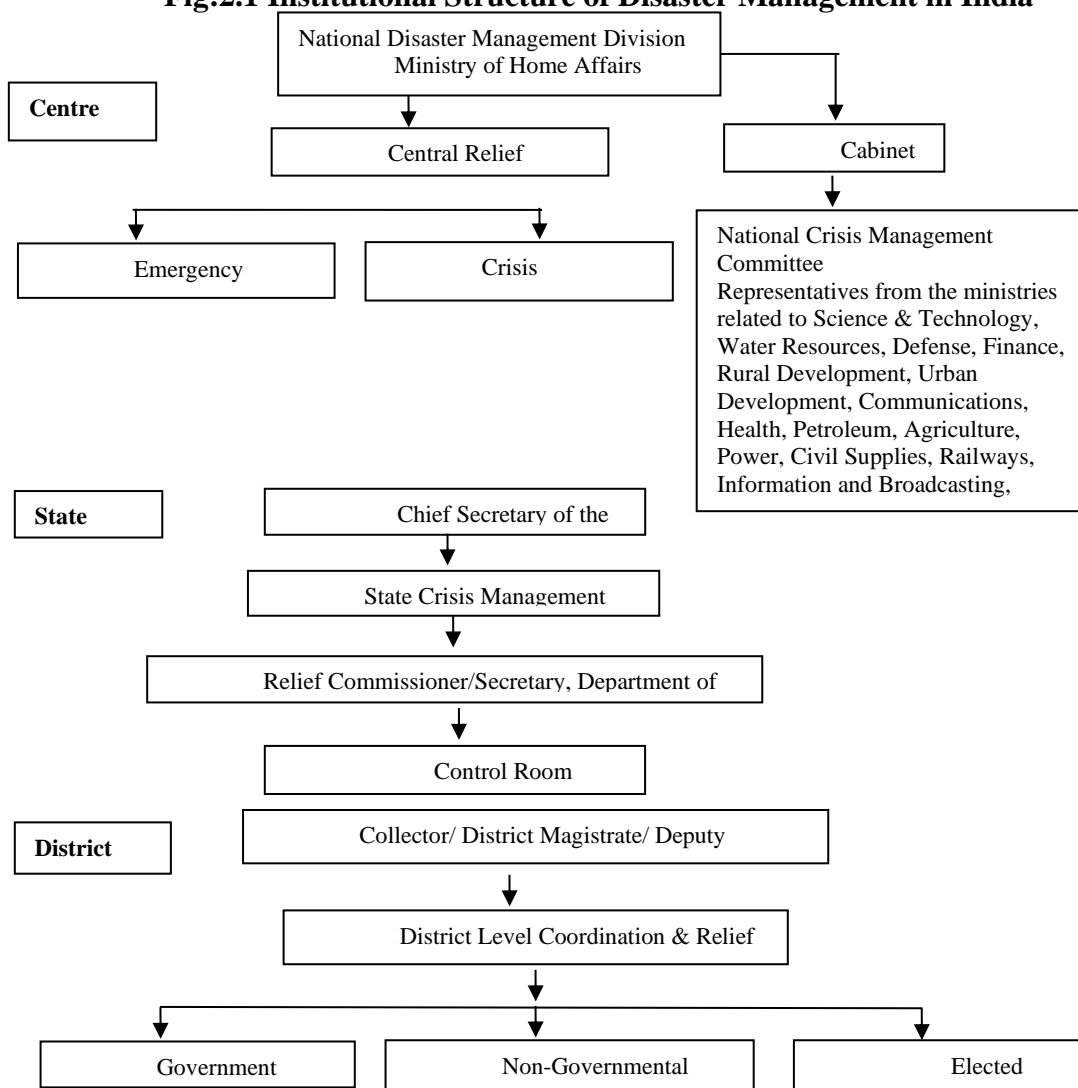
2.3 Evolution of Institutional Arrangement for Disaster Management in India

The origin of institutional arrangement for disaster management in the country can be traced to the British Colonial period following the series of famines occurred in 1900, 1905, 1907 & 1943 and the Bihar-Nepal earthquake of 1937. In response to various disasters, the administration set up relief departments for the disaster victims. The entire approach to a disaster was reactive and the arrangement is functional only during post-disaster scenarios. The policy was relief-oriented and activities included designing the relief codes and initiating food for work programmes. Disaster Management in the country has evolved from being activity-based reactive set up to a pro-active institutionalized structure. Moreover, it also emerged from from a single faculty domain to a multi-stakeholder setup; and from a relief-based approach to a multi-dimensional pro-active holistic approach for reducing risks.

The permanent and institutionalized setup began in the country started during 1990s with establishment of a disaster management cell under the Ministry of Agriculture, following the declaration of the decade of 1990 as the 'International Decade for Natural Disaster Reduction' (IDNDR) by the UN General Assembly. The series of disasters such as Latur Earthquake (1993), Malpa Landslide (1994), Orissa

Super Cyclone (1999) and Bhuj Earthquake (2001) provided impetus towards shift in policy from an approach of relief through financial aid to a holistic one for addressing disaster management, and led to evolution of hierarchical structure for disaster management in India.⁸

Fig:2.1 Institutional Structure of Disaster Management in India



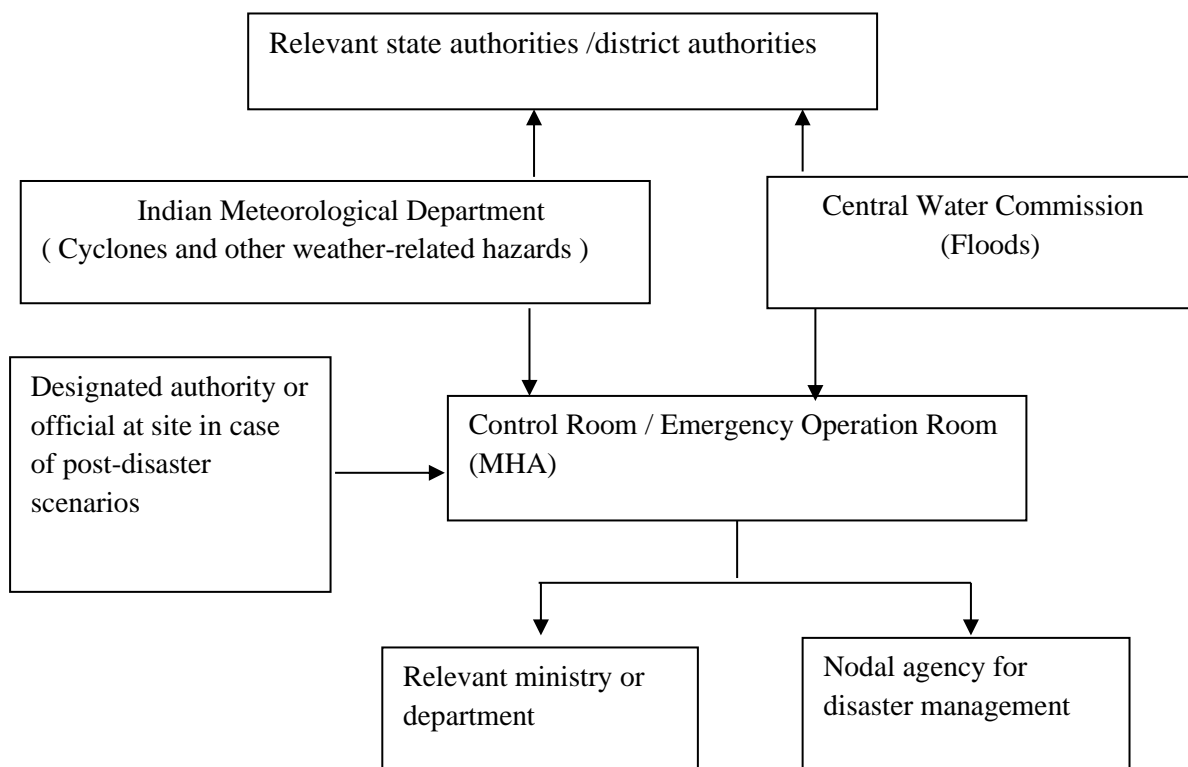
Source: Ministry of Home Affairs, Government of India

The major shift from relief and response in disaster management in the country started to address the issues of early warning systems, forecasting and monitoring setup

⁸ vide Cabinet Secretariat's Notification No. DOC.CD-108/2002 dated 27/02/2002

for various weather-related hazards. The need for systematic structure for flow of information, in the form of warnings, alerts and updates about the oncoming hazard emerged within framework of disaster management. A multi-stakeholder high powered group was set up by involving representatives from different ministries and departments.⁹

Figure 2:2 Flow of Information in the disaster management framework



Source: Ministry of Home Affairs, Government of India

The High-Powered Committee Report on Disaster Management led to the establishment of a separate institutional structure for addressing disasters and

⁹ Government of India, Ministry of Home Affairs, Disaster Management in India, 2011

enactment of a suitable law for institutionalizing disaster management in the country, and convergence between these ministries and the disaster management framework have emerged.

Table 2:1 Nodal Ministries in India for various disasters

Sl. No	Nodal Ministry	Disaster Type
1	Ministry of Home Affairs	All disaster except drought
2	Ministry of Agriculture	Drought
3	Ministry of Health and Family Welfare	Biological Disaster
4	Ministry of Civil Aviation	Air Accidents
5	Ministry of Railways	Railway Accidents
6	Ministry of Environment and Forests	Chemical Disasters
7	Department of Atomic Energy	Nuclear Disasters

Source: *Ministry of Home Affairs, Government of India*

The High-Powered Committee Report on disaster management suggested a separate institutional structure for addressing disasters and enactment of laws institutionalising disaster management in India. The 10th Five Year Plan (2007-2007) emphasised on intervening disaster beyond financial relief. The plan focused on integrating disaster management with the development process. The Disaster Management Report pressed for sustainable development and consideration of disaster mitigation needs. The series of development led to the institutionalization of the disaster management framework in India. The Disaster Management Bill was presented in the Parliament in 2004, while it was adopted in August 2005.

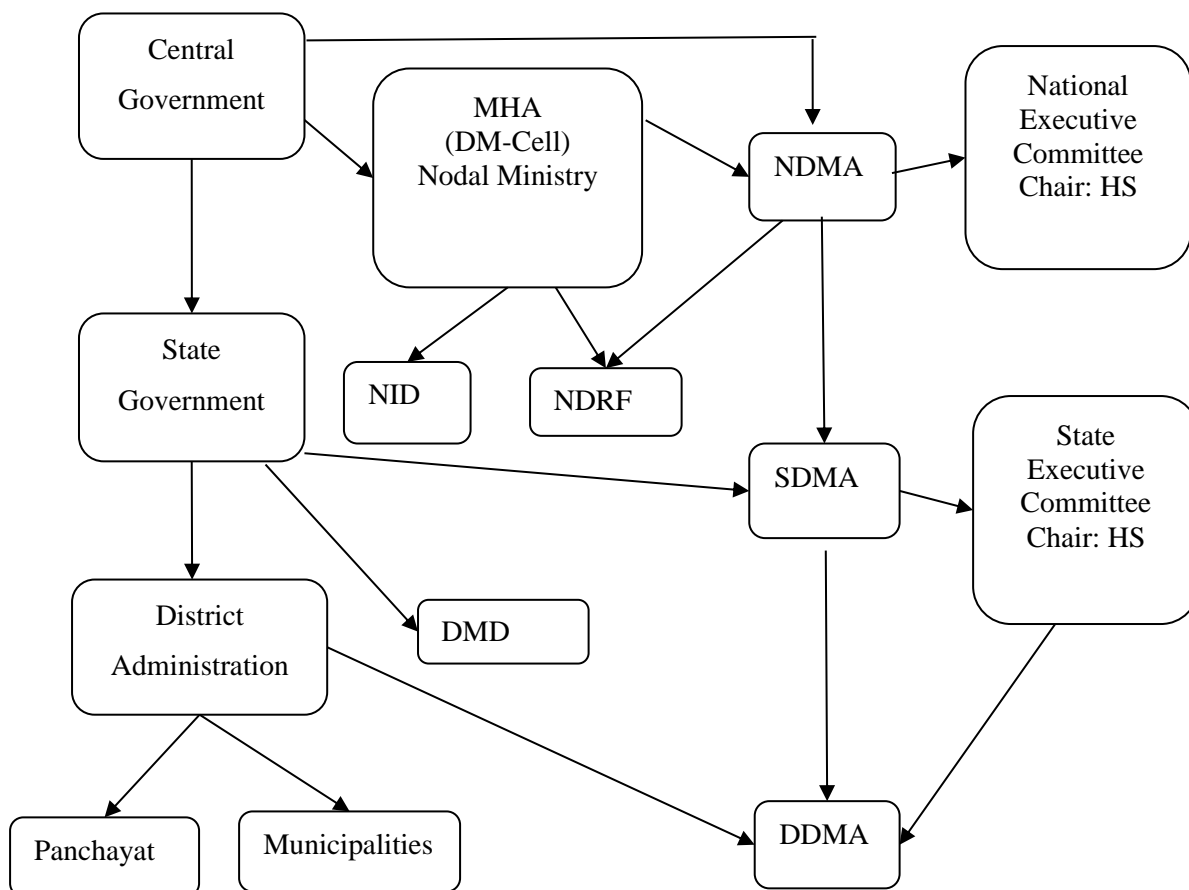
Disaster Management Act, 2005

As per the Act, Disaster Management is identified as “continuous and integrated process of planning, organizing, coordinating and implementing measures required for preventing disasters, mitigating the risk, capacity building, increasing the preparedness levels, response actions, disaster assessments, evacuation, rescue and relief and rehabilitation”.

The Act provides for setting up of a National Disaster Management Authority (NDMA) under the Chairmanship of the Prime Minister, State Disaster Management Authorities (SDMAs) under the Chairmanship of the Chief Ministers, District Disaster Management Authorities (DDMAs) under the Chairmanship of Collectors/District Magistrates/Deputy Commissioners. The Act further provides for the constitution of different Executive Committee at national and state levels. Under its aegis, the National Institute of Disaster Management (NIDM) for capacity building and National Disaster Response Force (NDRF) for response purpose have been set up. It also mandates the concerned Ministries and Departments to draw up their own plans in accordance with the National Plan. The Act further contains the provisions for financial mechanisms such as the creation of funds for the response, National Disaster Mitigation Fund and similar funds at the state and district levels for the purpose of disaster management. The Act also further provides specific roles to local bodies in disaster management. The DM Act, 2005 also envisages specific roles to be played by the local bodies in disaster management.

The legal institutional framework was developed based on the provision of the Act across the country, in a vertical and horizontal hierarchical structure for operationalization of the response mechanism in the country.

Figure 2:3 Legal Institutional Framework – Disaster Management Act, 2005



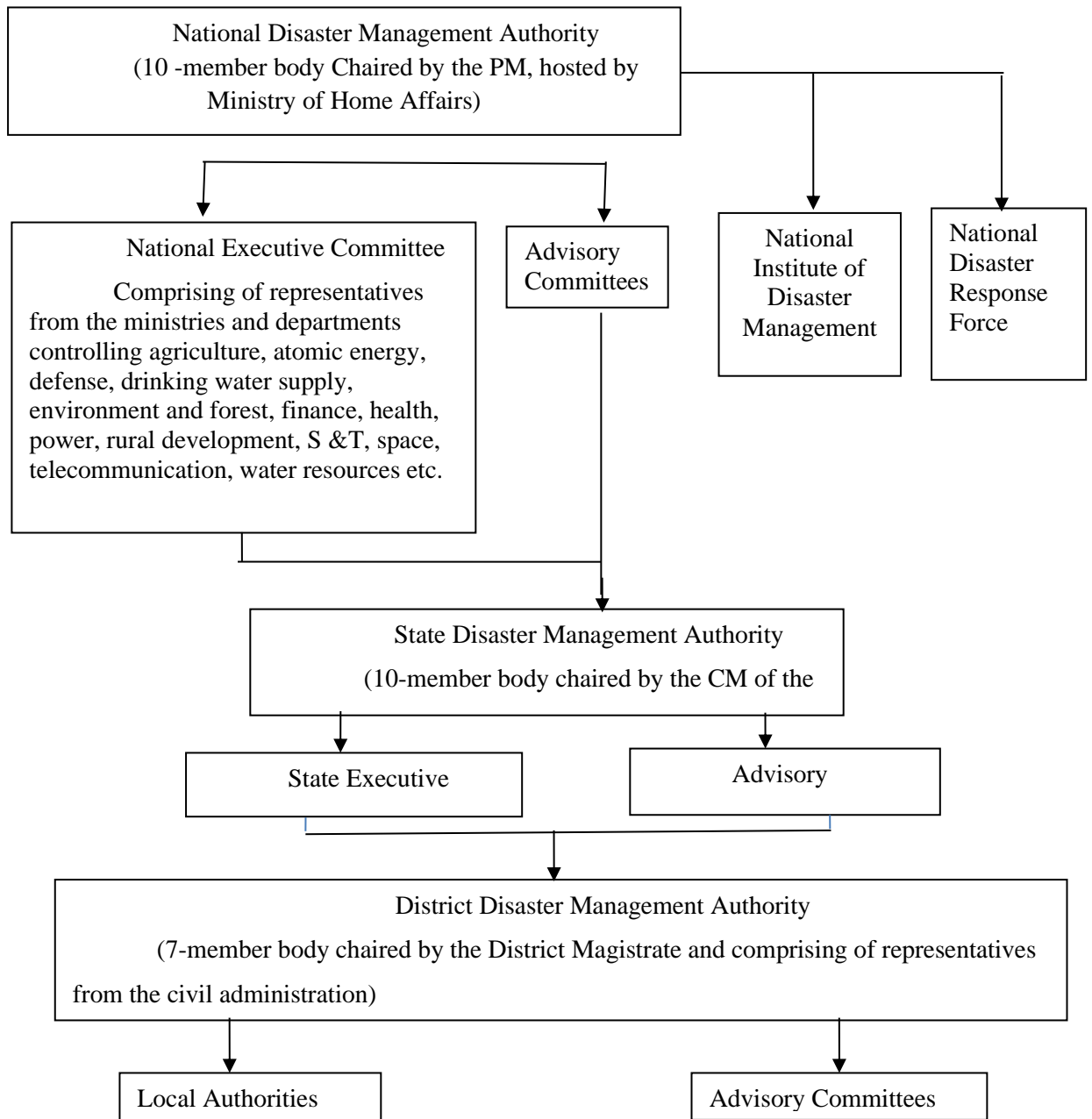
Source: Ministry of Home Affairs, Government of India

Disaster Management Structure in India

In the DM Act, 2005 of hierarchal structure, the National Disaster Management Authority is the apex authority for the formulation of policy and guidelines for all the disaster management work in the country. The state authorities lay down the guidelines for the state and the district in their respective jurisdictions. Further, the district

authorities direct the civil administration, departments and the local authorities. The State Executive Committees is responsible for the execution of the tasks, envisaged by the authorities.

Figure 2.4 Disaster Management Structure in India



Source: *Disaster Management Bill, Government of India*

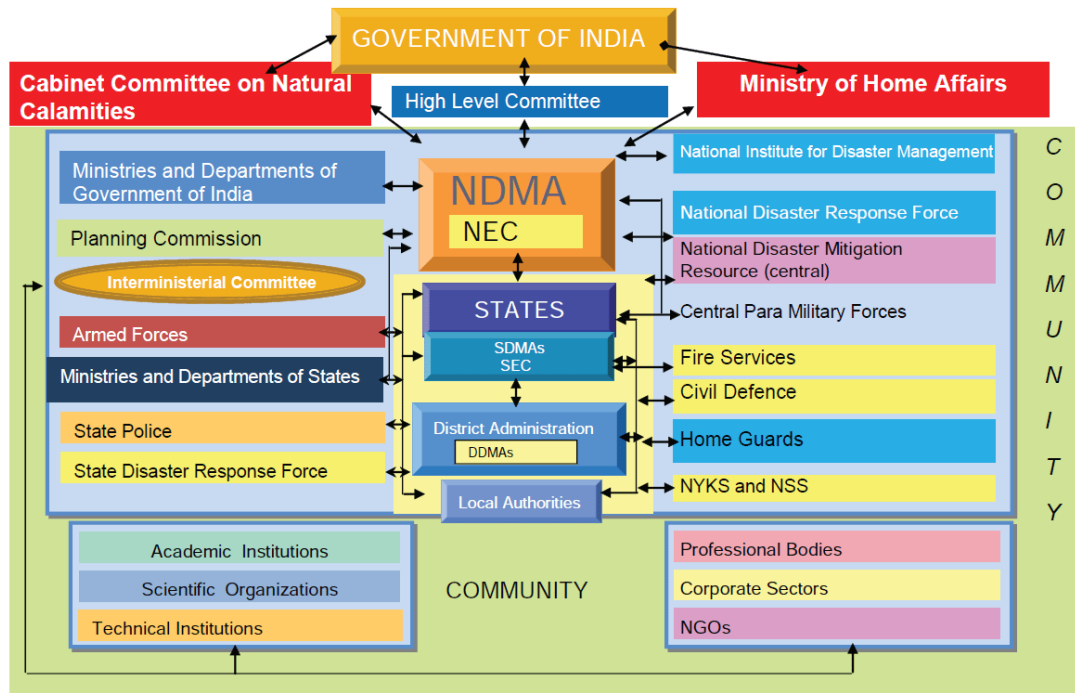
Present Institutional Arrangement for Disaster Management in India

The present institutional structure for disaster management in the country is in a state of transition. Following the implementation of the Act, the set-up is evolving along with the continuation of the previous structure. There is a parallel existence of both the structures.

The National Disaster Management Authority has been established at the centre, and the SDMA at the state and district authorities at the district level are gradually being formalized. Besides, the National Crisis Management Committee, part of the earlier setup, also functions at the Centre. The identified nodal ministries, for different disaster types, functions under the overall guidance of the Ministry of Home Affairs (nodal ministry for disaster management). The framework helps in making creating interoperability within different levels.

The evolving transition functions within the hierarchical structure at four levels – centre, state, district and local. In the entire process, the each of structures existed prior to the implementation of the Act and other post-implementation of the Act, which created strong institutionalized structures at the centre, state, district and local levels. Each of the preceding levels guides the activities and decision making at the next level in the hierarchy. Moreover, it is a multi-stakeholder setup, i.e., the structure draws involvement of various relevant ministries, government departments and administrative bodies.

Figure 2:5 Present Institutional Arrangement for Disaster Management in India



Source: Ministry of Home Affairs, Government of India

CHAPTER -III
ORGANISATIONAL STRUCTURE AND WORKING OF AIZAWL
DISTRICT DISASTER MANAGEMENT AUTHORITY

3.1 Introduction

In recognition of the significance of Disaster Management as a national priority on 23 December 2005, the Government of India passed the Disaster Management Act, which envisaged the establishment of National Disaster Management Authority (NDMA), headed by the Prime Minister of India, and State Disaster Management Authorities (SDMAs) headed by respective Chief Ministers of the State, and emergence of District Disaster Management Authority (DDMA) headed by the District Magistrate to chair and guide towards a holistic and integrated approach to Disaster Management in the country.

3.2 Organisational Structure of the ADDMA

Aizawl is the capital of Mizoram and is susceptible to both natural and man-made disasters. The Government of Mizoram recognized the imperative of a proactive, comprehensive approach for disaster management to reduce the detrimental effects of disasters on overall social and economic development of the State. After passing of DM Act in 2005, the Aizawl District Disaster Management Authority was constituted on 6th June 2006.¹⁰ As per the provision under Section 25 of the Disaster Management Act, 2005 of India the members are elected in the DDMA with certain powers and functions:

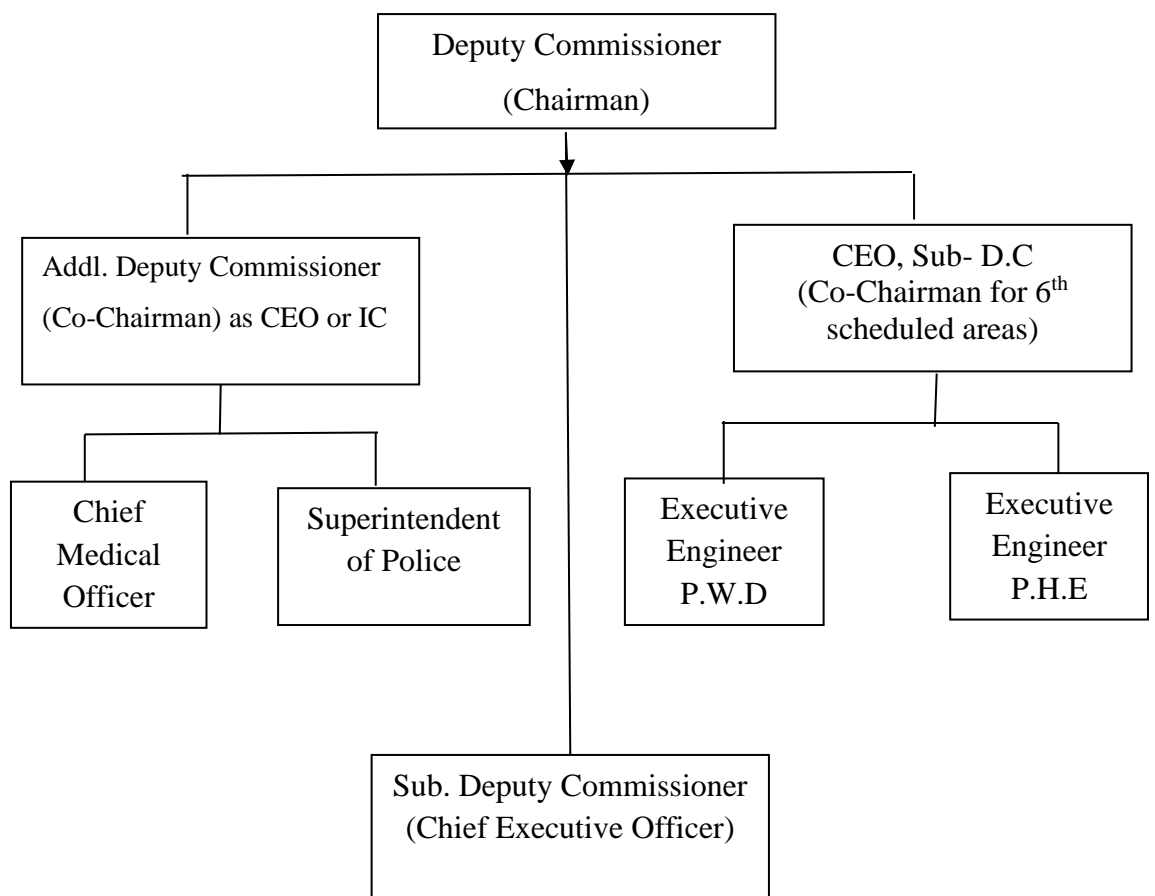
¹⁰ Government of Mizoram, *Notification* No. B 13011/17/2006-REH Dated 6/6/2006

The members of the DDMA are:

1. Chairperson : Deputy Commissioner (Ex-Officio)
2. Co-Chairperson : Project Director, DRDA
3. Members
 - 1) Superintendent of Police.
 - 2) Chief Medical Officer.
 - 3) Executive Engineer, PWD (Govt. nominated)
 - 4) Executive Engineer, PHE (Govt. Nominated)

Chief Executive Officer - : Additional Deputy Commissioner
(i/c DM&R) Cum-Secretary

Figure 3:1 District Disaster Management Authority



Source: *Crisis Management Plan of Mizoram*

Deputy Commissioner:

The Deputy Commissioner is the chairman of DDMA and he/she is responsible for all planning, coordination and supervision of the Disaster Management activities in the district. The DC is also the incident commander during the disaster and he/she facilitates all the department in the district for preparation of disaster management plan and also maintains database information corresponding to various disasters.

Elected Representative (Co-Chairperson)

The co-chairman of the DDMA is Elective representative of the district who provides suggestion pertaining to disaster management and ensures that the various stakeholders and line departments are carrying out their respective roles and responsibilities properly.

Superintendent of Police

The Superintendent of Police is the member of DDMA who assists the DC in developing disaster management plan and updating the DM plan of the police departments. The SP directs timely undertaking of mock drills in the police department and provide necessary human resource to DDMA during an emergency situation. The SP of police coordinates during the emergency situation and maintains law and order.

Project Director of DRDA

The Project Director of DRDA is the member of DDMA who assists the DC in the preparation of disaster management plan and updating the Disaster Management plan of the district. The Project Director of DRDA is responsible for providing sufficient human resource towards preparation of community-based disaster

management plan and training the disaster management team. The Project Director coordinates with the DC during the emergency and provide necessary support.

Chief District Medical Officer

The Chief District Medical Officer is a member of DDMA and provides support to DC in preparation of disaster management plan and also updating/ preparing the disaster management plan of the health department. The Chief District Medical Officer is responsible for providing staff for the training of the DM team on basic First Aid and equipment's available in the hospitals, clinics, dispensaries etc. at the district level. The Chief District Medical Officer is responsible for ensuring regular mock drills are conducted periodically in hospitals.

Executive Engineer of PWD

The Superintendent Engineer of PWD is the member of DDMA, assisting DC for making a disaster management plan and also preparing/ updating the disaster management plan of the PWD. The Superintendent Engineer of PWD is responsible for conducting mock drills in the department periodically and assisting such drills at district level. The Executive Engineer also ensures trained manpower and equipment's are available in the office at the district level.

Disaster Management Coordinators /District Organisers

The DMC/DO is the key person of DDMA, who assists the chairman of DDMA in preparation of District Disaster Management Plan. The DMC /DO is responsible for maintaining coordination with the emergency response centre and to organise mock drills in various line department under the supervision of Deputy Commissioner and Additional District Magistrate.

Power & Functions of ADDMA

Subject to the provisions under the Disaster Management Act of 2005 and in conformity with the guidelines laid down by the National and the State Authority, the District Authority shall act as the planner, coordinator and implementing body for disaster management activities in the District and shall also be responsible for the following;

- 1) Preparation of the District Disaster Management Plan and the Response Plan
- 2) Coordinate and monitor the implementation of National and State Policy, National, State and District Plan.
- 3) Ensuring identification of areas in the vulnerable locations in the district and undertaking measures for the prevention and mitigation of disasters in the district level and the local authorities.
- 4) To ensure that the guidelines for the prevention of disasters, mitigation, preparedness and response measures as laid down by the National and State Authority are followed by all the district level state government departments and the local authorities.
- 5) To provide directions to various district and local level authorities to take undertake measures towards prevention or mitigation of disasters.
- 6) To monitor the implementation of disaster management plan prepared by the district and local level authorities.
- 7) To lay down guidelines to be followed by the district level departments for the integration of measures for prevention of disaster and mitigation in their development plans and projects and provide necessary technical assistance to monitor the implementation of measures.

- 8) To review the capabilities for responding to any disaster in the district and give directions to the concerned departments or authorities at the district level for their up-gradation accordingly.
- 9) To review the preparedness measures and give directions to the district level or concerned authorities wherever necessary for bringing the preparedness measures to the levels required for responding effectively.
- 10) To organise and coordinate specialized training programme for different levels of officers, employees and voluntary rescue workers in the district level.
- 11) To facilitate community awareness and training programmes for the prevention or mitigation of disasters with the support of local authorities, non-governmental organisations and government organizations.
- 12) To establish, maintain, review and upgrade the early warning system and dissemination of proper information to the public.
- 13) To prepare, review and update the district level response plan and guidelines.
- 14) To co-ordinate response to any threatening disaster situation.
- 15) To ensure that the district level departments and local authorities prepare their response plans in accordance with the district response plan.
- 16) To lay down guidelines and provide directions to the concerned authorities within the jurisdiction of the district to undertake measures to respond effectively during disaster.
- 17) To advise, assist and coordinate with the district level departments, statutory bodies and other governmental or non-governmental organizations engaged in disaster management activities in the district.

- 18) To liaise and provide guidance to the local authorities in the district to ensure that measures for the prevention, mitigation from disasters in the district are carried out promptly and effectively.
- 19) To provide necessary technical support and advice to the local authorities in the district for carrying out their functions effectively.
- 20) To review the developmental plans prepared by the district level and local authorities with a view to ensure inclusion of provisions for prevention of disaster.
- 21) To examine the construction activities in the District and ensuring the standards for the prevention of disaster or mitigation laid down are followed, and direct the concerned authority to take such actions wherever necessary to secure compliance of such standards.
- 22) To identify critical facilities which could be in the event of disaster be used as relief centres and make arrangements for water supply and sanitation in such buildings and places.
- 23) To establish and ensure stock of relief and rescue materials or preparedness to make such materials available at a short notice.
- 24) To provide information to the state government relating to different aspects of disaster management.
- 25) To encourage the involvement of NGOs and voluntary social welfare institutions operating at the grass-root level in the district for disaster management
- 26) To ensure that communication systems are in order, and disaster management drills are carried out periodically.

- 27) To perform any other functions as the state level authority may assign to it or as deems significant for disaster management in the district.

Emergency Support Functions

The Emergency Support Functions (ESFs) is the association of governmental and certain private sector capabilities into an organizational structure to provide support, adequate resources, program implementation, and services to secure lives, protect properties and the environment, to restore essential services and critical infrastructure, and help victims and communities return to normalcy following a disaster.

The Emergency Support Functions (ESFs) are resources and capabilities formed into functional areas required during a response. The ESFs serve as the primary operational-level mechanism to deliver assistance in functional areas. It is led by a single department whereas, coordination is a team effort of several departments providing resources based on a given support function. The ESF is a mechanism that consolidates multiple agencies that perform similar functions into a single, cohesive unit towards the better management of emergency response functions. In the immediate aftermath of a major disaster requiring central government assistance to States/UTs, the MHA will activate the ESF Plan to identify requirements and mobilize and deploy resources to the affected area to assist the State in its response actions.

In Aizawl District's, the disaster response resources are organized into fourteen (14) Emergency Support Functions (ESFs). Each of the ESF is comprised of numerous public and private agencies/organizations that manage and coordinate specific

categories of assistance common to all disaster or emergency events. A primary or lead agency/organization has been designated for each Emergency Support Function to ensure the better coordination and delivery of goods and services to the disaster area.

District Disaster Management Advisory Committee (DDMAC):

Supplementing the DDMA, there is a District Disaster Management Committee (DDMAC) to monitor and gear up the preparedness of the district administration as well as different district level functionaries in regard to disaster management in an effective and efficient manner. It comprises of a larger group than that of the DDMA where the follow-up actions of the decisions of DDMA can be undertaken as deemed necessary. The Committee functions as a District Working Group and comprise of following members;

Chairperson	:	Deputy Commissioner, Aizawl
Co-Chairperson	:	Addl. Deputy Commissioner (E)
Member Secretary	:	Asst. Commissioner/ SDO (Sadar) (Nodal Officer), DM&R, D.C's Office.
Assistant Secretary	:	Branch Officer, DM&R, D.C's Office.

Members:

1. Director, G&MR.
2. Nodal Officer, PHE
3. Nodal Officers, PWD (Road, Building etc)
4. Nodal Officer, P&E
5. Treasurer, CYMA or his representative

Besides the elected members the Chairperson can invite other officers and members to attend the meeting/committee of the DDMAC as per the need of time or as a special invitee. The major functions of this Committee are as follows:

1. To monitor the activities of Sub-division Disaster Management Committee.
2. To ensure follow-up actions by concerned stakeholders of the decisions taken by the DDMA
3. To facilitate preparation of Disaster Management Plan and necessary updating in different departments/schools/hospitals
4. To lobby for policy formulation of disaster management activities
5. The committee will work towards fostering a link between the DDMA and its agencies involved in the disaster management activities
6. To initiate and monitor mock drills at various levels as per the direction of DDMA.
7. To control and supervise the functioning of SDMC.

State Disaster Response Force (SDRF):

The Mizoram State Disaster Management Authority through the Home Department has formed eight (8) State Disaster Response Force (SDRF) units. Each of the units have a strength of 100 personnel with a total strength of 800 personnel. The teams are located at Aizawl, Lunglei, Mamit, Khawzawl, Kawnpui and Lawngtlai. The necessary equipment's is procured for use of the SDRF and regular training is also imparted to the members of SDRF in close coordination with the NDRF.

There are four (4) units of SDRF is established with a strength of 1 (one) company each in 4 Battalions of the Mizoram Police Armed Forces and the Indian Reserved Police

Force. The main duty is to conduct Search & Rescue Operation in collapsed structure, Evacuation, Medical First Aid etc at the disaster site. Presently there are 3 (three) headquarters have been established for Aizawl District. Serchhip district do not have any headquarter the SDRF stationed in the adjacent Aizawl district will responds to disaster in disaster situation.

The SDRFs- comprise of 1st Battalion. Mizoram Armed Police, 3rd Battalion. Mizoram Armed Police and 5th Indian Reserve Battalion. Are included in the Aizawl IRS/T under Operation Section: Task Force. The DC/ RO have the commanding authority to activate and its deployment.

National Disaster Response Force (NDRF):

There is a team of thirty (30) personnel headed by an inspector is stationed at PTC, Lungverh with headquarter in Guwahati. The team members in collaboration with SDRF carry out training for SDRF, local volunteers, college students and adventure clubs.

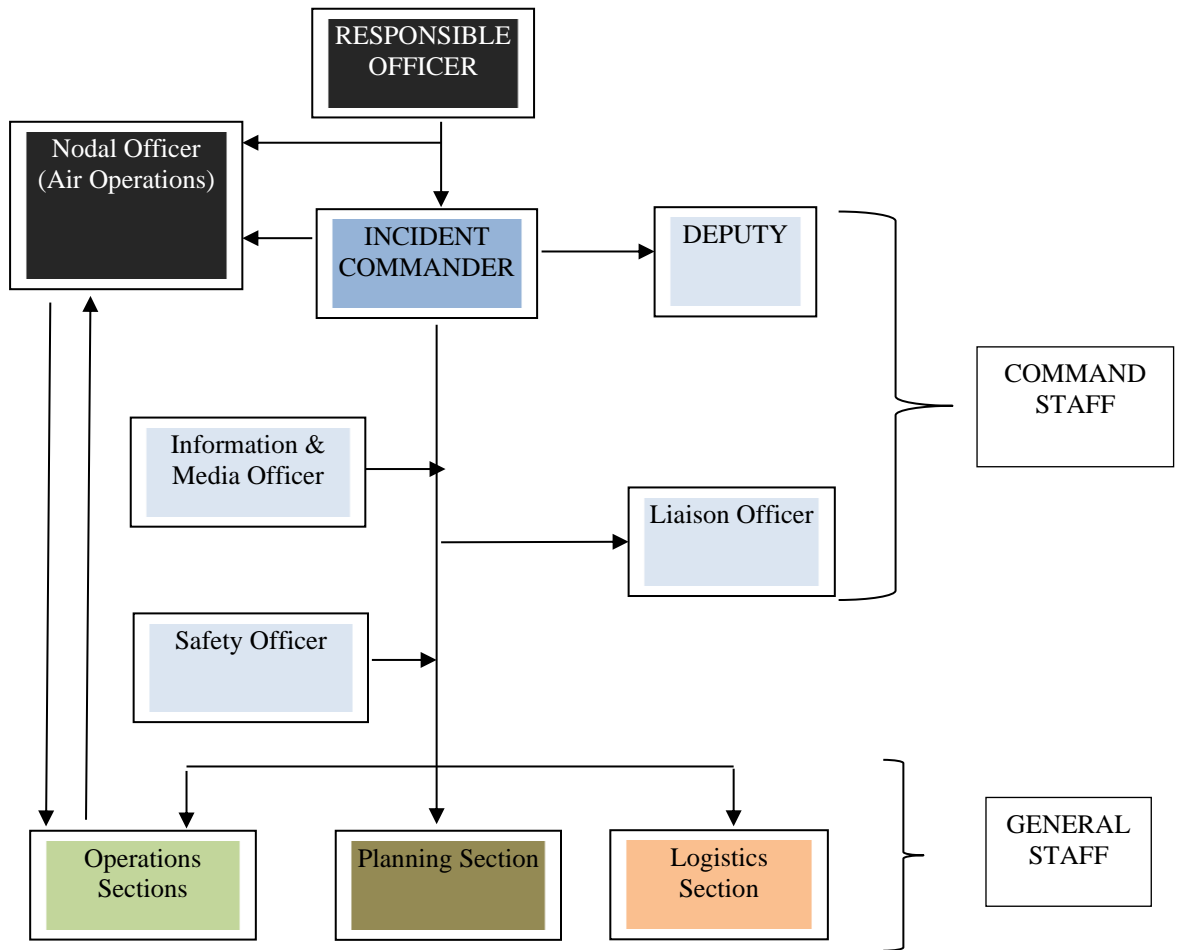
Sports & Youth Services:

The Sports & Youth Adventure club comprises of youths who are trained in basic search and rescue operation (SAR) and basic First Aid. The adventure clubs from different localities within the district are monitored and provided training by the Sports and Youth Services.

IRS in the District

The Incident Response System (IRS) in the district incorporates all the tasks that may be performed during disaster situations irrespective of their level of complexity. It provides for a composite team with various sections to attend to all the possible response requirements in an advent of disaster. It provides a standard approach in management of the disaster site ranging from small- and large-scale disaster event. The IRS is one of the model tools for command, control and coordination of a response mechanism. It provides a means to coordinate the efforts of individual agencies and to streamline towards the common goal of stabilizing the incident and protecting the life, property and the environment. The IRS organization functions through Incident Response Teams (IRTs) in the field level. In accordance with the administrative structure and DM Act 2005, the Responsible Officers (ROs) have been designated at the State and District level as overall in charge of the incident response management. The Incident Commander (IC) manages the incident through IRTs. Whereas, the IRT is a team comprising of all positions of IRS organization headed by Incident Commander. The IRTs is established at all levels of State and District level. On receipt of early warning pertaining to any disaster situations it will be activated by the Responsible Officer. The Nodal Officer has been designated for proper coordination between the District, State and National level in activating air support any disaster response. The Responsible Officer and Nodal Officer, the IRS includes two major components- a) Command staff and b) General Staff, as shown below:

Figure 3:1 Incident Response System Structure



Source: Ministry of Home Affairs, Government of India

District Emergency Operation Centre

In an event of disaster communication services are the first to be affected. The Emergency Operation Centre plays an important role in emergency operation by activating and establishing multi-mode and multi-channel communication system during pre-post emergency situations. The EOC coordinates the flow of information with respect to activities associated with relief and response operations.

The Emergency Operation Centre during normal times maintains a systematic database of the available resources, important phone numbers, name and addresses of

important government and non-government officials, international bodies and NGOs. In time of crisis the EOC functions as a centre for decision-making and supports in the flow of information horizontally and vertically to the various concerned department to undertake relief operations. In general, an EOC is a physical location where various line departments/stakeholder come together during an emergency to coordinate response, recovery and resources. The DEOC perform the following functions mentioned below;

- 1) The district control room would serve as the core centre for the disaster management;
- 2) To monitor, coordinate and implement the actions for disaster management
- 3) To activate emergency support function in the event of a disaster and coordinate the actions of various line departments and agencies
- 4) To ensuring all early warning, communication system and instruments are in functional conditions
- 5) To receive information on a routine basis from the district departments on the vulnerable areas of the district
- 6) To receive and maintain reports on the preparedness of the district level departments and the resources available at their disposal to arrange and meet their requirements
- 7) To maintain a web-based inventory of all the available resources through the India Disaster Resource Network (IDRN)
- 8) To monitor preparedness measures and training activities
- 9) To maintain a database of trained personnel and volunteers and their contact details to ascertain their availability during emergency situations

10) To liaise with on-site operation centre, State EOC and other concerned emergency services

The District Emergency Operation Centre (DEOC) in Aizawl is located at the district headquarters. The Deputy Commissioner of Aizawl District is empowered to appoint Officer-in-Charge of DEOC. In the event of a disaster, the Quick Response Team is on standby and ready for the response. The DEOC emergency telephone number is made toll free for all subscribers within Aizawl District. This DEOC coordinates all disasters related activities in the district starting from preparedness, rehabilitation and reconstruction. The DEOC serves as the bridge between the ADDMA, DDMC, IRS/T, Zonal Officers, LDMC, VLDMC and the other relevant departments in the district and the State Emergency Operation Centre (SEOC). Considering the significant responsibility of the district EOC the equipment provided to it shall not be used other than disaster management.

Aizawl DDMA Application for Public

The mobile based application was developed by Mr. Kannan Gopinathan, Deputy Commissioner, of Aizawl District in 2016. The Aizawl DDMA application is developed with the intention of assisting and supporting the district residents in times of disaster situations. It is an application for effective interface related to disaster between the citizens and the district authorities. The important features of the application are;

- 1) Timely Disaster Alert: The application sends timely disaster-related notifications to help and prepare communities. The user can revert to the notifications to inform authorities of any updates.
- 2) Emergency Alarm: The application raises alarm in cases of urgent disaster-related emergencies. Through a special notification, the alarm is remotely triggered by the ADDMA and is responded accordingly.
- 3) Rescue Me Request: The application enables to raise alarm to notify authorities as well as the emergency contact number of the user in case of difficulty and requires rescue.
- 4) Locating Zonal Officer: The application allows the user to locate zonal officer based on Global Positioning System location or by the locality name.
- 5) Submission of Disaster Concern: The application allows the user to report any concern to ADDMA. The zonal officer takes cognizance of the concern with appropriate actions.
- 6) Emergency Operations Centre: The application allows the user to call the DEOC 24/7 directly using the 'Call DEOC 'option.
- 7) Do's and Don'ts: The application allows the user to learn about various Do's and Don'ts which can help in the prevention and mitigation of disaster.

Figure 3:2 ADDMA Application

ADDMA APP FEATURES

AIZAWL DDMA APP Features:

- 1. Timely notifications:**
Sends you timely disaster related notifications to help you plan & prepare. You can reply to the notifications to inform us about any updates too.
- 2. Emergency Alarms:**
Raises alarm in cases of urgent disaster related emergencies. Through a special notification this alarm will be remotely triggered by the ADDMA.
- 3. Rescue Me Request:**
Enables you to raise alarm by a single touch and notify authorities as well as your emergency contacts in case you are in difficulty and requires rescue.
- 4. Locates Zonal Officer**
Aizawl is divided into 17 zones. Locate your Zonal Officer based on your GPS location or your locality name.
- 5. Submit any disaster concerns**
Use 'Report a Concern' option to report a concern to ADDMA. You can take a picture and upload too. Your concerned Zonal Officer will be notified & we will monitor action taken through disasterservices.mizoram.gov.in. You can track & update the concerns reported through the app by using 'My Concerns' option.
- 6. Learn about ADDMA**
Use 'Know your ADDMA' option to learn about ADDMA, officers manning various positions and their contact numbers. Do not worry about transfers, it is dynamically linked and will always be up-to-date. Also get contact details of your Village Level & Local level disaster management committees.
- 7. Do's & Don'ts**
Learn about various Do's and Don'ts so that it can help in prevention and mitigation of disasters. Do's and Don'ts notifications will also be regularly sent to remind of simple but important steps that can be done at home and offices.

- 8. Be a volunteer with us.**
While registering, mention whether you would like to volunteer with us. We will enroll you for our trainings & will contact you in case of emergencies near your location

AIZAWL DDMA APP TANGKAINA TE

1. Lo inbutsaih theih nan chhiatrupna thlang chungchang a rawn hriatir ang che.
2. I awmna hmun bialtu Zonal Officer i be pawp theih. Amah a lo insawn emaw, a chawh lai pawh nise harsatna a awm lo vang.
3. GPS emaw, internet emaw i nei lo anih pawhin i awmna hmun chhu i i awmna hmun bialtu Zonal Officer i be pawp thei ang.
4. 'Report a Concern' atang hian chhiatrupna thlang chungchang chu ADDMA ah thlen ang che.
5. I awmna hmun azrin leimin leh thil dang avanga kawng ping te chu ADDMA ah i thlen thei ang.
6. Aizawl District Disaster Management Authority chungchang hriat theihna.
7. Mamawhtute tanpu turin volunteer ah inpe la. Training turin kan lo ziaht lut che ang a, i awmna hnavaia rikum thilang kan rawn be pawp dawn che nia.
8. 'Rescue Me' ti h i hmeh chuan i awmna hmun chu thuneluten an hre thei ang a; DEOC ah phone a kal ngah! bawk ang.
9. 'Call DEOC' tih atang hian engtik hunah pawh District Emergency Operations Center i be tiang thei.
10. DEOC a inziaklut turin a hmangtu chanchin kimchang ziahluh a ngai'.

Source: Aizawl District Disaster Management Authority

CHAPTER- IV
AIZAWL DISTRICT DISASTER MANAGEMENT AUTHORITY –
ANALYSIS AND FINDINGS

Introduction

The earlier chapter discusses on the Institutional arrangement and its functions for managing disasters in the district. In accordance with the DM Act, 2005 under section-25, Aizawl District Disaster Management Authority is constituted with the basic aim to assess, plan and implement the vital aspect of disaster management such as mitigation, preparedness, prevention and response. The institutional arrangement at district level is established, however some of the aspects of institutional arrangement have not been fulfilled by the ADDMA. Furthermore, having an institutional mechanism will not suffice in mitigating risks, whilst there are certain activities which are to be undertaken in anticipation of any disaster situations.

The aspect is covered under the comparative analysis of the district which provide the insight on the functioning of the institutional arrangement in ADDMA.

1. Analysis of Meetings held by the ADDMA

Meeting are the important part of an institution which provide a better understanding of the complex problem and issue facing within the organisation. It provides insight into the common agreement or disagreement among the members of an institution to solve the problem and issues. Meeting provides the agenda for particular thematic sector or department to plan and resolve accordingly by the members. The meeting of the District Disaster Management Authority is a very important part of

disaster management activities. The ADDMA must hold periodical meetings of institutional arrangement and with associated line departments in the district, which is a very significant aspect of undertaking disaster management planning and activities.

In accordance with the Section 27 of DM Act 2005, the District Authority conducts meetings twice a year and as per requirement. The ADDMA have been conducting meetings along with the stakeholders such as the Young Mizo Association, MHIP. Timely meetings with the other line departments of the Government Departments is also conducted and agenda is fixed for the particular meetings. It has been found that it is not regularly held, mostly, the agenda of the meetings is associated with Disaster Management Plan, Mock Drills and undertaking Training Programme. The proper strength of personnel in the meeting is unavailable due to lack of documentation of attendance sheet. However, having an adequate number of meetings will not correspond to the achievement of the objectives, it has to be translated into actions or activities for disaster management.

2. Analysis of the functioning of DDMA

The Aizawl Disaster Management Authority has various functions ranging from reviewing and updating of District Disaster Management Plan, preparation of Hazard Risk and Vulnerability Assessment, Early Warning System.

In accordance with the Section 30 (1) The District Authority act as the district planning, coordinating and implementing body for disaster management and undertakes measures for the purposes of disaster management in the district as per the guidelines laid down by the National and State Authority.

The section 30(2i) in the DM Act 2005 sought for preparation disaster management plan which includes the response plan in the district level. The DDMA in Aizawl prepared the Disaster Management Plan as per this section but the plan is not approved by the DM & R Department. The Disaster Management Plan is a very important part of disaster management as it addresses the management and preparedness measures to mitigate the effects of the disaster in the district. However, due to the overburdened of work among the concerned authorities' adequate attention is not given to approve the disaster management plan on time.

The section 31(3a) in the DM Act 2005 directs the district to identify vulnerable areas, whereas the ADDMA have developed HRVA analysis of the district. The NIDM guidelines states that HRVA analysis is the most important part of the disaster management plan and the planning for disaster management. However, at present, the HRVA for the year 2018 is still pending as the ADDMA lacks the specialized technical staff to conduct the risk assessment. The ADDMA is dependent on MIRSAC for support in conducting HRVA which delays the entire process in documenting or collating database related to vulnerable areas in the district.

In section 32 (c) of DM Act 2005 states for regular review and updating of the disaster management plan of the district. The DDMA in Aizawl is not able to review or update the plan as it requires prior approval from the Directorate of Disaster Management and Rehabilitation. The staff designated by the state government is not adequate to overlook disaster management activities.

According to section 30 (2 xiv) the DDMA is responsible for establishing, maintaining, reviewing and upgrading the mechanism of early warnings system in the district. The early warning systems are very critical to avoid or reduce the impact of

hazards as flood, flash floods, fires etc. The significance of an effective early warning system lies in the recognition of its benefits by the members of the general public. The ADDMA receives warning from nodal agencies i.e., Indian Meteorological Department and other government agencies associated with disaster management. The ADDMA have Early Warning Mobile application which serves as one of the important early information to the district institution from the first responders or the public. However, there is a need for awareness among the communities about the Information Communication and Technology Tool about the usage and applicability, which is limited to a certain population in the district.

In section 30 (2xxvii) of DM Act 2005 the ADDMA is responsible for encouraging the involvement of non-governmental organizations and voluntary social-welfare institutions working at the grassroots level in the district for disaster management. The ADDMA works closely with the grassroot and community institutions and periodically undertakes meetings.

The Section 29 of DM Act 2005 directs the State Government to provide the institutional arrangement with officers, consultants and other employees as it considers necessary for carrying out the functions of district authority. From the interview with the officials, it has been found that there is only one ADDMA official, there is no specialised technical expert or consultant provided by the state government to ADDMA towards undertaking disaster management activities in the district. The sole ADDMA official is overburdened with a multitude of responsibilities as the personnel has to overlook all the administrative to disaster management activities.

3. Analysis of fund allocated and utilisation by the DDMA

In Section 38 (b) of DM Act 2005 states for funds allocation for prevention of disaster, mitigation, capacity-building and preparedness by the departments of the State in accordance with the provisions of the State and District Plan.

The effectiveness and success of the institution depend upon the financial and physical resources. The Financial resources support the institution to recruit consultants, human resources and staffs; whilst at the same time it also helps the institution to procure office equipment necessary to maintain day -to -day activities. Besides, the monetary grant helps in improving the stock records of items necessary to undertake disaster management activities such as tree cutter, life -jackets etc.

The ADDMA receives assistance from the National Disaster Response Fund and the State Disaster Response Fund. The State Disaster Response Fund is constituted under the section 48(1) (a) of the Disaster Management Act, (53 of 2005). The SDRF fund is to be utilized for meeting the expenditure for providing immediate relief to the victims of the cyclone, earthquake, fire, flood, hailstorm, landslide, cloud burst. The Central Government contributes 90 per cent of SDRF to the state of Mizoram. The Central contribution is disbursed annually twice in a year in two equal instalments to the State.

The National Disaster Response Fund which is constituted under Section 46 of the Disaster Management Act, 2005, supplements State Disaster Response Fund in cases when there are not available funds available in SDRF.

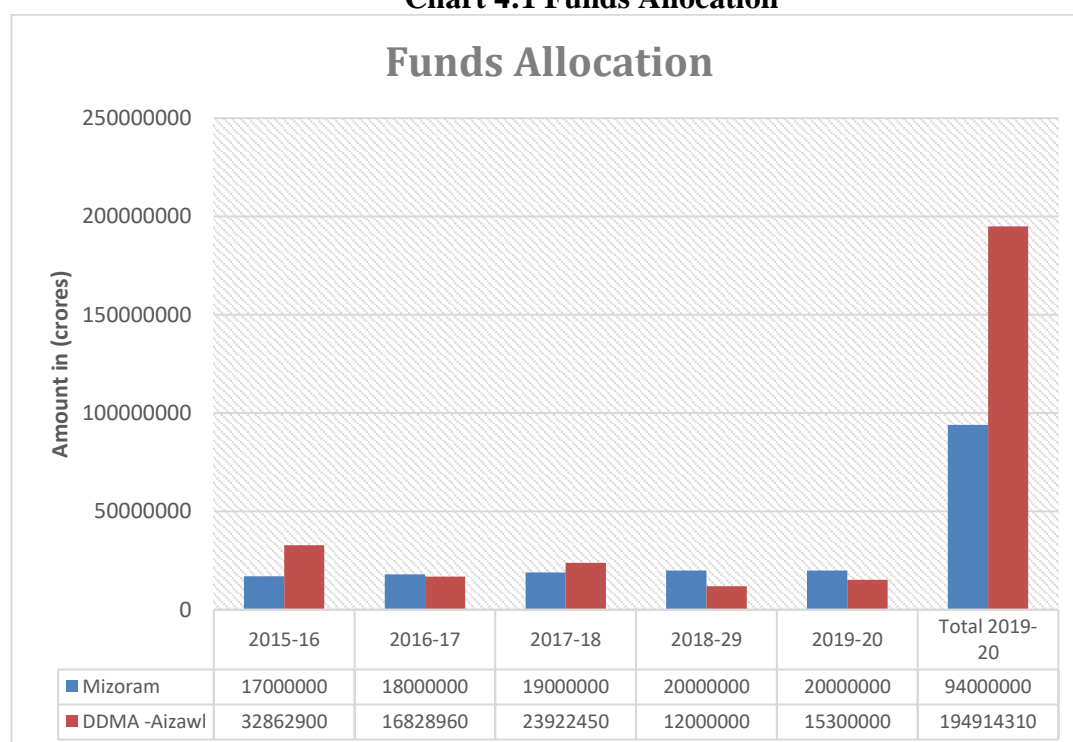
Table 4:1 Allocation of SDRF Funds (Including Central and State Share)

Details	2015-16	2016-17	2017-18	2018-19	2019-20	Total 2019-20
Mizoram	17 cr	18cr	19cr	20cr	20cr	94cr
DDMA- Aizawl	32862900	16828960	23922450	12000000	15300000 (till 22-8-19)	19.11 cr

Source: DM & R, Mizoram

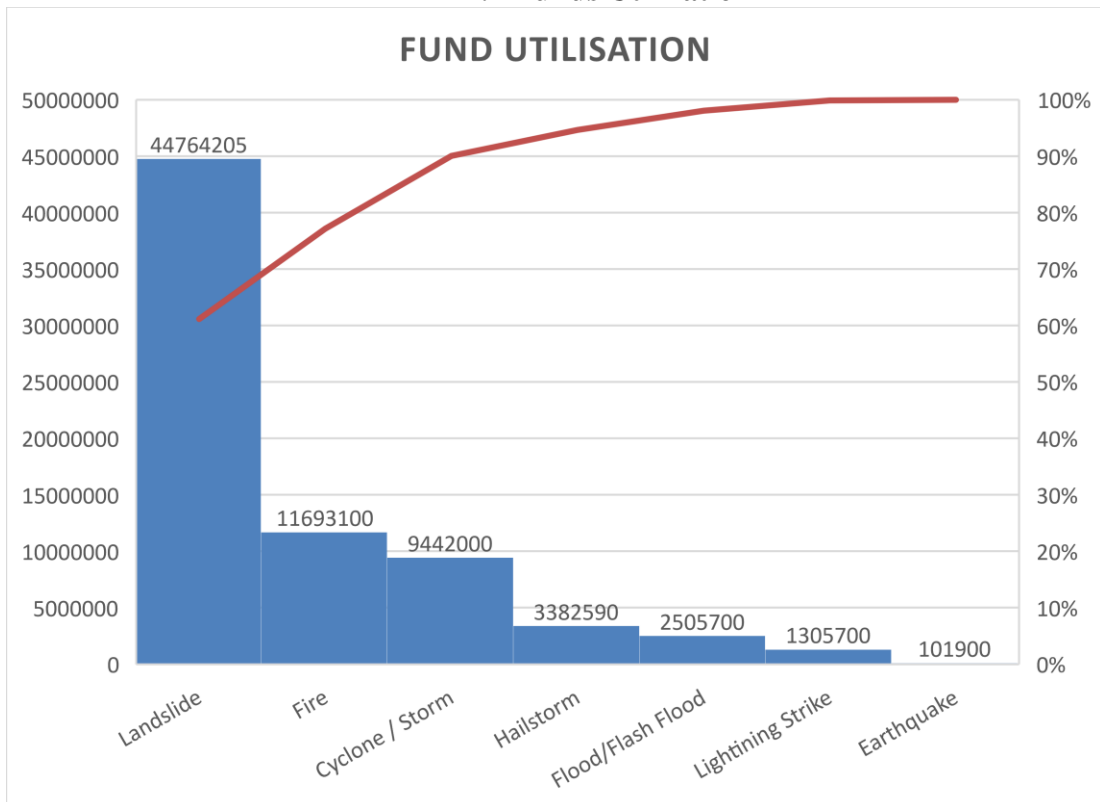
From the table above it is clear that the institution is receiving grants yearly from the Directorate of DM & R. However, according to the Disaster Management Coordinator (DMC), the fund is released but sometimes for undertaking disaster management activities the funds are to be sought with prior approval from the DM & R Department. Fund is released after scrutinizing if applicable for release or cancellation which is more likely to hamper the work of the ADDMA.

Chart 4:1 Funds Allocation



The Funds received by the ADDMA is used appropriately which includes administrative and operational costs or as per need. The balance sheet of the expenditure is shared to the DM & R on a monthly basis and if necessary, funds requisition is raised accordingly by the ADDMA. Over, the years Aizawl District Disaster Management Authority has utilised funds for financial assistance to the individuals affected by various disasters. Whilst, there is still a shortage of funds raised by the ADDMA in undertaking preparedness and mitigation activities.

4:2 Funds Utilization



The funds are utilized in the form of ex-gratia payment to the families of the deceased person and undertaking Search and Rescue operations, Relief Materials, financial assistance in case of livestock lost etc.

According to the Disaster Management Coordinator, the fund given by the Directorate of Disaster Management and Rehabilitation is not sufficient. Although, the

amount disbursed is utilized to maximum, there is still shortage of fund to carry out disaster management activities.

4. Mock Drills

A mock drill is a practice which trains an individual about the course of action to be undertaken taken in case of an emergency situation. Mock drills are one of the most important aspects of disaster mitigation, it helps the communities at risk in insinuating basic understanding of hazards and imparting knowledge of the basic do's and don'ts, training them basic life-saving skills including operating fire extinguisher. The purpose of conducting mock drills is to increase the coping capacity of the community and reduced the loss of life and property during a disaster situation. Mock drills help to test the disaster management plan, which is made by the state/ district authority and regular mock drills help the DDMA to identify gaps and rectify preparedness mechanism.

As per section 30 (xxviii) in the DM Act 2005, the DDMA conducted disaster management drills in the district periodically, but the frequency of mock drill is very minimal. The table below presents the details of mock drills conducted by the DDMA in Aizawl District in the last two years.

Table 4:2 Mock Drills

Date/ Year	Venue	Type of Drill
13-10-2017	D.C. office	Earthquake Mock Exercise
13-10-2017	D.C Staff Quarter	Earthquake Mock Exercise
26-4-2018	Civil Hospital, Aizawl	Earthquake Mock Exercise

26-4-2018	Millennium Centre	Earthquake Mock Exercise
10-5-2019	RKM Middle School, Zemabawk	School Safety Drill
17-5-2019	Synod HSS, Mission Vengthlang	School Safety Drill
24-5-2019	Govt Republic HSS	School Safety Drill
31-5-2019	Central HS, College Veng	School Safety Drill
16-5-2019	Saitual District Hospital	School Safety Drill
05-7-2019	SAD, New Secretariat Complex	Earthquake cum Fire Drill

It has been found that ADDMA conducts Mock Drills towards generating a culture of preparedness and quick response in Government offices, schools, hospitals, markets etc. The inputs and lessons learnt during the mock exercises have been utilised to upgrade and improve the Disaster Management Plan.

5. Training and Awareness programme conducted by ADDMA

Training and awareness are one of the significant components of disaster management. It imparts basic understanding and knowledge to the general public, civil society, volunteers, line department, schools' colleges, hospitals on disaster management which can save many lives during a disaster. It is imperative for a disaster management authority to periodically conduct the training and awareness programme so that the knowledge is retained to ensure that the disaster risk reduction becomes an integral part of the culture.

The section 30(2xiii) and 30(2(xii)) the DDMA of the district facilitate training and awareness programmes to the community, officers, employees and voluntary rescue workers, NGOs, for prevention of disaster. The table below presents details of the training programme conducted by the District Disaster Management Authority in the last two years. These training programme given to the various government, schools, and hospitals etc. From the interview with the officials of ADDMA, it has been found that there is no sufficient fund to conduct capacity building programme. The ADDMA for the capacity building programme is to receive five per cent of SDRF fund which is not adequate. Moreover, there is an overlapping of a capacity building programme which coincides with the training program of the DM &R, which certainly is due to lack of co-ordination in the institution.

Table 4: 2Capacity Building Programme

Sl. No	Date	Target Group	Topic
1	08-02-17	Local-level DM Committee	Disaster Risk Reduction
2	24-3-2018	DM Committee, Ramthar Veng	DM Introductory, Basic First Aid, Search and Rescue
3	10-5-2019	School Students and Staffs	DM Introductory, Village level DM Plan
4	05-09-2019	Civil Hospital DM Committee	DM Introductory, Do's and Don'ts, Fire Safety Awareness
5	06-09-2019	Youth Adventure Club, Pachhunga University College	DM Introductory, Search and Rescue
6	09-09-2019	NGO Leaders, Sairang	DM Introductory, SAR, Flood Management

CHAPTER V

CONCLUSION

The concluding chapter of the dissertation has been branched into two parts. The first part deals with a brief introduction to the notion of disaster, its various classifications and management. Furthermore, the focus has been given on discussing the evolution of Institutional Arrangements in India, its present structure and summary of all the chapters. The second part deals with the Analysis, Findings and Suggestions for institutionalising the article of DM Act,2005 in the DDMA.

Part -I

The first chapter deals with the introduction of disaster, its classification, management. It focuses on the notion of disaster across various countries including Mizoram and its impacts. Furthermore, it highlights the disaster management cycle and the classification of various disasters in India. Besides, the chapter also discusses the profile of the study area, which includes administrative, demographic details. It also provides details on the history of past disasters, vulnerability and hazard zonation details of the study area. It further introduces the scope of the study, objective of the study, research methodology. In light of the study, the chapter also discusses the existing literature for the greater understanding of the institutional arrangement in the DDMA of Aizawl district.

The second chapter introduces the concept of institutional arrangements. It highlights the evolution of the structure prior to India independence,1947 and post-independence. It discusses in-depth on the various events such as the Super Cyclone, Orissa 1994, Bhuj Earthquake, 2001 has led to the legislation of disaster management

bill in the country. The chapter also provides details of the hierarchical framework provided for the functioning of the institutional arrangement. Further, it discusses the present structure of the institutional arrangement at national, state and local levels.

The third chapter delves into the study of the organisational structure of the district disaster management institutional arrangement. It also discusses the power and functions of the office-bearers in light of the DM Act, 2005, and how the functions are performed by the ADDMA. It also studies the various activities the DDMA undertake during pre-disaster and post-disaster situations. Moreover, it also discusses the role of various emergency support functions and the flow of information which undertakes in Incident Command System in an event of a disaster.

Part – II

The present study is based on the collation of syllogism drawn from primary and secondary sources. To delve into the deeper understanding semi-structured interview was prepared and scheduled interview was conducted to seek information on the implementation of the article of the Disaster Management Act,2005. Priority was given in critically analyse and interpretation of the responses received from the officials of ADDMA to determine the pro-active role of the institutional structure in disaster management.

The study focuses on the Institutional Arrangement and working of the Aizawl District Disaster Management Authority. During the course of the study, it has been found that follows the constitution and collective-choice rules and operational rules which is defined in the DM Act 2005, but the DDMA has failed to implement the operational rules. The basic aim of DM Act 2005, is to shift the approach of disaster

management from relief centric to the more proactive regime. After the enactment of the act, the district disaster management authority was established in Aizawl for disaster management.

Whilst, the DM Act 2005 provides for the power, role and responsibility of the institution at national, state and district level related to the disaster management, but these role and responsibility are not fully implemented. The functioning of DM Act 2005 is limited to preparation of Disaster Management Plan, conducting mock drills and training programme in the district. However, much focus is not given in planning towards Disaster Risk Reduction at the district level and local level. The DDMA in Aizawl in preparation of the DM plan for the district are not able to conduct HRVC analysis without the help of MIRSAC, as the arrangement lacks the adequate technical human resource to undertake the process which sometimes delays the timely preparation of the DM Plan.

The DM Act 2005, established framework for funding where the state government provides financial resources to the district authority, however the DDMA face scarcity of human resources and the district have inadequate staff which hampers implementing operational rules in the District Disaster Management Authority. There is a delay in disbursement of funds from State and the department associated which reduces the effectiveness of the DDMA in undertaking disaster management activities.

The study also identified that the institutional arrangement incorporated the networks of organizations involved in planning, supporting and implementing disaster management programs and practices. These arrangements provide the linkages

between governmental and non-governmental entities, including the local community and business leaders. It strengthened the response capacity of the DDMA at the local level in an event of a disaster.

In crux, the lack of dovetailing, responsiveness and participation in disaster management activities has led to delayed formulation or updation of the DM Plan reducing the capacity of the vulnerable communities to cope during disasters. The institutional arrangement provides a framework to function within a suitable environment, however, it is imperative that the stakeholders and the persons in responsibility denote priority towards disaster risk reduction.

Suggestions

The Aizawl Disaster management since its establishment is undergoing challenges related to personnel, funds and autonomy. The following suggestions have been identified for the aforesaid challenges which require the immediate attention of the Government in implementing all aspects of DM Act,2005.

1. Human Resource

The DDMA official has a wide range of activities to perform for managing a disaster. However, the present number of staffs does not correspond to the responsibilities of one undertakes. There is a shortage of technical staff in the department which makes the department rely upon skilled personnel from another allied department. It is imperative to create posts for the efficient functioning of the ADDMA.

2. Funds

It is also suggested that funds are to be made available to the ADDMA regularly on time to undertake training programs, awareness programmes in the district. As, the DM Act, 2005 mandates for the disbursement of funds to the DDMA, it has been found that the relevant department sanction the funds in time. Lack of funds would hamper the functioning of the DDMA in addressing the disaster risk reduction activities in the district.

3. Autonomy

The DDMA is established with a framework which denotes certain operational autonomy. However, the way the entire functioning of the DDMA still relies upon other departments in undertaking disaster preparedness and capacity building activities. As the DDMA has to wait for the sanction of funds which led to the loss of valuable time in undertaking disaster management activities.

BIBLIOGRAPHY

Books

W. Nick Carter. (2008) *Disaster Management: A Disaster Manager's Handbook*, Asian Development Bank, Philippines

Caroline Brassard, David W Giles and Arnold M Howitt. (2015) *Natural Disaster Management in the Asia-Pacific*, Policy and Governance, Springer, Japan

Houng Ha, R Lalitha, S Fernando, Amir Mahmood (2015) *Strategic Disaster Risk Management in Asia*, Springer India

Jack Pienkowski. (2008) *Disaster Management Handbook*, Public Administration and Public Policy /138, CRC Press

Michelle Ann Miller and Mike Douglass. (2016) *Disaster Governance in Urbanising Asia*, Springer, Singapore

Ostrom, Vincent. (1987) *The Political Theory of a Compound Republic: Designing the American Experiment*. 2nd Lincoln; University of Nebraska Press- 1989. The Intellectual Crisis in American Public Administration. 2nd Ed. Tuscaloosa; The University of Alabama Press.

Indrajit Pal and Rajib Shaw. (2018) *Disaster Risk Governance and Cross Cutting Issues*, Springer

Itoko Suzuki and Yuko Kaneko (2013) *Japan's Disaster Governance: How was the 3.11 Crisis Managed*, Public Administration, Governance and Globalization, Springer, New York

Tang, Shui Yan. (1992) *Institutions and Collective Actions: Self Governance in Irrigation*, Institute of Contemporary Studies Press, San Francisco, California.

Wisner, B., Blaikie, P., Cannon, T., & Davis, I. (2004). *At risk: Natural hazards, peoples' vulnerabilities and disasters*. London: Routledge

Articles

Ahmed, Tofayel, Moroto, Haruna, Sakamoto, Maiko, Haruna, & Matsuyama Akiko (2016). Exploring implementation gaps between policy and practice for disaster management in Bangladesh. *Journal of Integrated Disaster Risk Management*, 6(2): 79-102

Alex, J. (2006) *Disaster Management: Towards A Legal Framework*, National University of Juridical Sciences, NUJS and UNDP

Boateng, I. (2006). *Institutional Frameworks in the Administration of Coastal and Marine Space in Africa; In, Administering Marine Spaces: International Issues*.

Britton, N.R. (2006) *Getting the Foundation right for the Disaster Management Legislation for the Philippines*, 2nd Conference on Earthquake Engineering, Manila

Accessed at:

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.537.8768&rep=rep1&type=pdf>

Chenkual, L, (2006) *Vulnerability of the State of Mizoram, India to various Natural Hazards*, IJISET, January, Vol-3, Issue-1

Domingo, S.N. (2017) *Institutional Issues on Disaster Risk Reduction and Management*, Philippine Institute for Development Studies (PIDS), December, Paper Series.2017-50

Eaton, Derek, Meijernik, Gerdien and Bijman Jos. (2008) *Understanding Institutional Arrangement: Fresh Fruit and Vegetable value chains in East Africa*, WAGENINGEN UR.

Frederiksberg: The International Federation of Surveyors (publication No. 36

Available at: http://www.fig.net/pub/figpub/pub36/chapters/chapter_7.pdf

Godschalk, D. R. (1991). *Disaster mitigation and hazard management*. In T.E. Drabek and G.J. Hoetmer (eds), *Emergency Management: Principles and Practice for Local Government*. Washington, DC: International City Management Association.

Hasan, Zaheed; Akhte, Sabihar, Ahmed, Shammi, & Kabir, Alamgir (2013). *Challenges of integrating disaster risk management and climate change adaptation policies at the national level: Bangladesh as a case*. Global Journal of Human Social Science Geography, Geo-Sciences, Environmental Disaster Management, 13 (4):54-65.

Keefer, P. and M. Shirley (2000). *Formal versus Informal Institutions in Economic Development. Institutions, Contracts, Organizations: Perspectives from New Institutional Economic*.

Mattingly, S. (2002). *Policy, Legal and Institutional Arrangements. Regional Workshop on Best Practices in Disaster Mitigation. Bali, Indonesia: Asian Disaster Preparedness Centre*

Mileti, D. S. (1999). *Disasters by Design: A Reassessment of Natural Hazards in the United States*. Washington, DC: Joseph Henry Press.

Neal, D.M. (1997) *Reconsidering the phases of disaster*, International Journal of Mass Emergencies and Disasters, 15(2) :239-264.

Noji, E.K. (2005), *Disasters: Introduction and state of the art*. Epidemiologic Reviews, 27 (1): 3-8.

Obeta, Michael Chukwuma (2014). *Institutional approach to flood disaster management in Nigeria: Need for a preparedness plan*. British Journal of Applied Science & Technology, 4(33): 4575-4590. www.sciencedomain.org

Ostrom, Elinor. (1986) *An Agenda for the Study of Institutions*. Public Choice 48: 3-25.
- 1988. "Institutional Arrangements and the Commons Dilemma." In *Rethinking Institutional Analysis and Development*, ed. Vincent Ostrom, David Feeny, and Hartmut Picht, 101-39. San Francisco: ICS Press.

Ostrom E. (1990) *Governing the Commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.

Quarantelli, E.L. (1988). *Disaster crisis management: A summary of research findings*. Journal of Management Studies, 25(4):373-385.

Quarantelli, E.L. (1988). *Disaster Crisis Management: A Summary of Research Findings*. Journal of Management Studies, 25(4), 373-385.

Williamson, O. E. (2002). *The Lens of Contract: Applications to Economic Development and Reform*. Forum Series on the Role of Institutions in Promoting Economic Growth. Washington, USAID & IRIS.

Government Documents

Comptroller and Auditor General of India, *Performance Audit of Disaster Preparedness in India (2013)*. Ministry of Home Affairs

Government of India, *Disaster Management Act (2005)*. Ministry of Law and Justice

Government of India. *Disaster Management in India (2005)*. Ministry of Home Affairs

Government of India, *High Power Committee on Disaster Management (2001)*.

Ministry of Agriculture

Government of India, *India Disaster Report (2011)*, National Institute of Disaster Management, NIDM

Government of India, *National Policy on Disaster Management (2009)*. Ministry of Home Affairs, National Disaster Management Authority, NDMA

Reports

Asian Disaster Preparedness Centre. (2005). *A Primer: Disaster Risk Management in Asia*

Questionnaire for Interview

- **Organizational**

1. When was the District Disaster Management Authority formed?
2. What is the institutional structure of District Disaster Management Authority (DDMA)?
3. How many members in the DDMA and any of these members belong to NGOs?
4. Has the DDMA set up the early warning system in the district?
5. How many NGO' work with DDMA in disaster management activities?

- **Functions and Activities**

1. What are the minutes and agenda of the previous meetings held in DDMA?
2. How many ADDMA meetings had been convened in the previous years and this year?

Year	No of Meetings	Participants
2018		
2017		
2016		
2015		

3. Has District Disaster Management Authority (DDMA) constituted any additional advisory committee(s)? If yes, what are the functions of the advisory committees?

4. Does District Disaster Management Authority (DDMA) prepare a disaster management plan including Disaster Response Plan for the district?
5. Has the District Disaster Management Authority (DDMA) reviewed and updated the District Disaster Management Plan and response plan annually?
6. What are the changes or suggestion made in the current disaster management plan?
7. Whether changes suggested are incorporated in the disaster management plan?
8. How does an early warning system work in the disaster situation?
9. Who are the main department in the DDMA which provide the dissemination of proper information to the public?
10. Have all government departments in the district prepare their own plan accordance with the district response plan?
11. Does the authority examine the construction work in any area in the district and identifies buildings and place which are very vulnerable to disaster?
12. Have the local authorities and other line department help for making the district plan for Disaster management?

- **Programmatic**

1. What is the various programme start by DDMA related to mitigation and preparedness?
2. How many specialized training programmes have been conducted by the DDMA for different levels of officers, employees and voluntary rescue workers in the district?

Year	No of training programme	Name of the department of participants
2018		
2017		
2016		
2015		

3. How many mock drills have been conducted by DDMA in a year?

Year	No of Mock Drills
2018	
2017	
2016	
2015	

- **Human Resource**

1. How many staff and officers work in DDMA?
2. Has the requisite staff been provided by the State Government is adequate?

- **Funds**

1. How much fund given has been given to ADDMA by the state government annually and how it has been utilized?

Particulars of the Candidate

Name of the Candidate	Roman Chandra Boro
Degree	M.Phil.
Department	Public Administration
Title of the Dissertation	Working of Aizawl District Disaster Management Authority
Date of Payment of Admission	
Commencement of 2 nd Semester	
1. Board of Studies	03.04.2019
2. School Board	11.04.2019
3. Registration No & Date	MZU/M.Phil./541 of 10.04.2019
4. Due date of Submission	10.12.2019
5. Extension (if any)	Nil

Bio-Data

Name Roman Chandra Boro
Father's Name Narayan Chandra Boro
Mother's Name Kamini Boro
Correspondence Address Rosary Hostel, Next to City Hospital,
Mission Veng, Aizawl

Educational Qualification

Sl. No	Exam Passed	University/College	Grade/Division
1	A.I.S.S. E	Sainik School Goalpara	2 nd Division
2	A.I.S.S.C. E	Army Public School	1 st Division
3	Graduation	Delhi University	3 rd Division
4	Masters	Tata Institute of Social Sciences	1 st Division
5	M.Phil.	Mizoram University	-