CHAPTER - 1

DISTRICT PROFILE

Name of District : Saitual

Saitual District is one of the eleven districts of Mizoram. It became operational from the 3rd of June, 2019.

I. TOPOGRAPHICAL LOCATION

Latitude	-	*23.68° E*
Longitude	-	*92.95° E*

Saitual District is characterized by anti-clinal strike ridges with steep slopes, narrow intervening synclinal valleys, dissected ridges with deep gorges, spurs and keels. Faulting in many areas has produced steep fault scarps. The lowest areas are found along the river on the northern part of North Khawlek which is located on the northern side of the district and the highest peak known as Lengteng reaches a height of 2141 meters and is situated on the eastern side of the district. The eastern part generally has higher hill ranges.

II. GEOGRAPHICAL AREA

The total geographical area of Saitual District is 1757 km^2 which is 8.33% of the total geographical area of Mizoram.

III. ADMINISTRATIVE DIVISIONS

No. of administrative sub-divisions : 1) Saitual Sub-Division
2) Ngopa Sub-Division

No. of rural development blocks : 1) Phullen RD Block
2) Ngopa R.D. Block

List of villages

1. Changzawl
2. Chiahpui
3. Hliappui
4. Hrianghmun
5. Kawlbem
6. Khawkawn
7. Lamzawl
8. Mimbung
9. NE Khawdungsei
10. Ngopa
11. Pawlrang
12. Saichal

*13.*Teikhang
*14.*Buhban
*15.*Daido
*16.*Dilkhan
*17.*Keifang Leitan
*18.*Keifang Venghlun
*19.*Keifang Venglai
*20.*Khanpui
*21.*Khawlian
*22.*Lailak
*23.*Lamherh
*24.*Lenchim
*25.*Luangpawn
*26.*Maite
*27.*Mualpheng
*28.*NE Tlangnuam
*29.*N. Khawlek
*30.*N. Lugpher
*31.*Phuaibuang
*32.*Phullen
*33.*Ruallung
*34.*Rulchawm
*35.*Saitual-I
*36.*Saitual-II
*37.*Saitual-III
*38.*Sihfa
*39.*Suangpuilawn
*40.*Tawizo
*41.*Thanglailung
*42.*Tualbung
*43.*Vanbawng
*44.*Zawngin

IV. DEMOGRAPHY

	SAITUAL DISTRICT	**MIZORAM**
1) Population (Males)	25,607	5,52,339
2) Population (Females)	24,968	5,38,675
3) Total Population of the District	50575	10,91,014
(4.63% of state population)		

V. ALTITUDES

The topography of Saitual district can be described as irregular. While many places like Sialkal range area have high altitudes, several areas fall under low altitudes area. The eastern part of the district is characterized by moderately high altitude and the eastern part of the district is comparatively higher in elevation than the rest of the district, while the northern part is uniformly characterized by low elevation.

VI. CLIMATE

The district enjoys a moderate climate owing to its tropical location. The climate in the District spans from humid tropical to humid subtropical. It is neither very hot nor too cold throughout the year. The temperature varies between a maximum of 30^{o}C to a minimum of 14^{o}C throughout the year. The southwest monsoon has a direct influence on the district. As a result, the district receives a

sufficient quantity of rainfall, resulting in a humid tropical climate with short winters and lengthy summers.

Season: Based on the variation in temperature, rainfall, humidity and other general weather conditions, four different types of seasons are observed for the district.

(a) *The Cold Season or Winter season (Thlasik):*

Period	:	December to February

The season starts from November and lasts till February. The temperature is comparatively lower (11°C – 23°C), but not too low to make human habitation difficult. The diurnal temperature varies from 8°C to 24°C during this season. The season receives very less rainfall and whatever amount rainfall received is originated from north east, generally known as retreating monsoon. The season is very pleasant with clear blue sky in the absence of cloud covering. Morning mists are common upon the valleys during the season; which give an enchanting view resembling a wide stretches of ice-sheets.

(b) *Spring (Thal):*

Period	:	March to May

The season begins from March and lasts till first part of May; and merges with rainy season. The temperature has risen up to a range of 19°C to 29°C being aggravated by rainless days. The early part of this season is characterized by bright sunshine and clear sky with little or no cloud till it is disrupted by the coming of pre-monsoon showers. Maximum diurnal temperature sometimes reaches as high as 32° centigrade. Due to little or no cloud covering, maximum insolation is received during this period and this is the hottest season in Mizoram.

(c) *Summer/ Monsoon (Nipui/ Fur)*

Period	:	Second half of May to October

This is the longest season and hold out for nearly six months from second part of May till late October. The season starts with violent storms which swept the state from south west through Bay of Bengal, marking the beginning of monsoon rains. Rainfall is heavy during May to September, and about 40 per cent of the annual rainfall is received during July and August. The heavy outpours which start normally in the morning are sometimes associated with hailstorms and thunder.

This is the season when cyclonic rains are often felt. The temperature remains high, but it kept down to a considerable extent by the usual rains.

(d) *Autumn (Favang):*

Period	:	The second half of October to November

The season of autumn comes in the months of October and November. The hot and humid weather starts disappearing and leaves start falling off the trees in this season, so it is also known as the fall season. The sky becomes clearer as compared to the monsoon season. This season is moderately cold and is the transition from summer to winter and is the most pleasant and enjoyable time of the year. The days become shorter than nights and the nights are foggy, colder. Rainfall is occasional in this season.

VII. TEMPERATURE

Maximum	**:**	***About 35 ^{0}C in the Month of April-May***
Minimum	**:**	***About 5 ^{0}C in the Month of December-January***

The salient thermo-characteristics of Saitual district is that temperature does not fluctuate much throughout the year. April to September is the warmest period of the year. The temperature starts to decline sharply from November and drops to its minimum in December and January.

VIII. GEOLOGY

One of the most important parameters for landslide hazard zonation is lithology (Sharma et al., 2011). Mizoram's geology consisted of large flysch facies rocks with monotonous shale and sandstone strata (La Touche, 1891). Saitual District is located within the Bhuban sub-group of the Surma Group of Tertiary age (GSI, 2011), which is classified into Lower, Middle, and Upper formations. The District contains Middle Bhuban, which is primarily composed of argillaceous rock. The district has been divided into four litho-units based only on the exposed rock types. Shale, siltstone unit, shale-sandstone unit, sandstone-shale unit, and crumpled shale unit are the names of these units. Shale and siltstone lithological units are more prone to landslides than hard and compact sandstone-shale complexes. Among the rock types in the area, crumpled shale are the most susceptible to landslides. Weightage values are assigned for analysis in accordance with this.

IX. RAINFALL

Average annual Rainfall	:	About 2500 mm

The entire state of Mizoram is under the direct influence of the southwest Monsoon. Hence, Saitual District also receives adequate amount of rainfall during the monsoon season. In Saitual District, June, July and August are the rainiest months while December, January and February are the driest months in a year.

X. ROADS

Saitual district has good road connectivity. The whole length and breadth of the district is connected by various road networks. The National Highway-06, starting from Seling to Zokhawthar passes through the district in east-west direction. The National Highway 102B also runs along the north eastern ridges of the district in north-south direction connecting the National Highway-06 with Churachandpur, Manipur. District roads and inter-village roads connect all the villages within the District. Besides, a good number of agricultural/horticultural link roads have been constructed for transportation of agricultural and horticultural products from the interior parts of the district.

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CHAPTER - 2

EVOLUTION OF
DISTRICT DISASTER MANAGEMENT PLAN

In pursuance of the mandate enshrined in the Disaster Management Act, 2005 which was subsequently endorsed to each district by the State Government, District Disaster Management Plan, 2022 is hereby prepared for Saitual District.

I. Aims and objectives of DDMP

- To engage in activities that may help in minimizing damages caused by disasters especially in rural areas.
- To make endeavors towards creating awareness among the people about disasters and its consequences, and to prepare them in advance to face such situations and to ensure their participation in the disaster mitigation plans.
- Existing institutional arrangements, inter-departmental linkages, role of NGOs, voluntary agencies and local communities so as to understand their capabilities to mitigate specific disasters which will also facilitate effective coordination in their activities in times of need.
- To act as an agency for the execution of disaster management schemes of the Government and the NGOs.
- To undertake studies on a regular basis to procure Disaster Management Information – Data base and to engage in the task of risk assessment and vulnerability analysis both for the state and districts.
- To evolve information reporting and monitoring tools for preparedness, immediate response and damage assessment, keeping in view the socioeconomic conditions of urban and rural areas.
- To undertake studies with a view to facilitating the preparation of a comprehensive 'Disaster Management Plan' both for the state and the districts within the state so as to help the Government in providing uniform directives from the state government to the district administration and to establish standardized response to any disaster situation.
- To evolve mechanism for saving children specially those who are the victims of floods, droughts, earthquake and similar other disasters in rural and urban areas.
- To establish educational & training institutions for educating communities in the areas of "Disaster Management".
- To ensure proper co-ordination amongst District Level, Sub-Division Level, Block level and Village Level Disaster Management Committee.
- To give important information and advice at the time of rescue, relief, and rehabilitation of affected families during the calamities through Block Level and Village Level Disaster Management Committee.

- Risk & vulnerability assessment and to set response mechanism and strategies.
- Establishment of emergency response policies, organizational arrangements and operational plan to be followed after disaster.

II. Authority of DDMP

As per the provision contained in section 31 of DM Act, 2005, District Disaster Management Plan is prepared by District Disaster Management Authority. Further, as mandated by the Act, the Plan will be reviewed and updated annually by the District Authority.

III. Stakeholders and their responsibilities

At the District level, District Disaster Management Authority, with the Deputy Commissioner designated as Responsible Officer (RO) and other line departments at the District headquarters are responsible to deal with all phases of disaster management within district.

Other technical institutions, community at large, local self-governments, NGOs, etc are also stakeholders of the District DM Plan. Saitual District has a number of CBOs (Community Based Organisations). These organizations would provide invaluable support to the DM process for ensuring effective response to any eventualities.

IV. Duties of the Deputy Commissioner, Saitual

- To facilitate and coordinate with local Government bodies to ensure that pre and post disaster management activities in the district are carried out.
- To assist community training, awareness programmes and the installation of emergency facilities with the support of local administration, non-governmental organizations and the private sector.
- To take appropriate actions to smoothen the response and relief activities to minimize the adverse impact of disaster.
- To move State Government for declaration of disaster.

V. How to use DDMP framework

i. Section 31 of DM Act 2005 makes it mandatory for every district to prepare a disaster management plan, for the protection of life and property from the effects of hazardous events within the district

ii. In significant emergencies or disasters, District Magistrate or the chairperson of DDMA will have the powers of overall supervision direction and control.

iii. The district EOC has to be activated as and when needed. When activated, operations will be supported by senior officers from line departments and central government agencies; private sector and volunteer organizations may

be used to provide information, data and resources to cope with the situation.

iv. The DDMA may recommend for action under Sec 30 of DM Act.

v. The DM or his designee will coordinate and control resources of the District

vi. Emergency public information will be disseminated by all available media outlets through the designated media and information officer.

vii. Prior planning and training of personnel are prerequisites to effective emergency operations and must be considered as integral parts of disaster preparations.

viii. Coordination with surrounding districts is essential, when an event occurs, that impacts beyond district boundaries. Procedure should be established and exercised for inter district collaboration.

ix. Departments, agencies and organizations assigned either primary or supporting responsibilities in this document must develop implementation documents in order to support this plan.

x. When local resources prove to be inadequate during emergency operations, request for assistance will be made to the State or higher levels of government and other agencies in accordance with set rules and procedures.

xi. District authority will use normal channel for requesting assistance and/or resources, i.e., through the District Emergency Operations Center (DEOC) to the State EOC. If state resources have been exhausted, the state will arrange to provide the needed resources through central assistance.

xii. The District EOC will coordinate with the State EOC, Agencies of the Govt. of India like IMD/ CWC to maintain up to date information concerning potential flooding, cyclones etc. As appropriate, such information will be provided to the citizens of the affected areas in the district.

xiii. Upon receipt of potential problems in these areas, DEOC/designated officials will appropriately issue alert and notify action to be taken by the residents

xiv. Disaster occurrence could result in disruption of government functions and, therefore, all levels of local government and their departments should develop and maintain procedures to ensure continuity of Government action.

VI. Approval Mechanism of DDMP

DM Plan is prepared by DDMA and subsequently submitted to SDMA for its approval. After getting the Plan approved by SDMA, the Plan has an official stature and can be referred to and utilized whenever necessary.

VII. Setup of DDMA

Sl. No.	***Designation***	***Position***
1	*Deputy Commissioner*	*Chairman*
2	*Project Director, DRDA*	*Co-chairperson*
3	*Addl. DC*	*CEO*
4	*Superintendent of Police*	*Member*
5	*Chief Medical Officer*	*Member*
6	*Executive Engineer, PWD*	*Member*
7	*Executive Engineer, PHED*	*Member*
8	*Special nominees/invitees, if any*	

VIII. Plan review and update

DM Plan is reviewed an updated annually by the District Disaster Management Authority (DDMA). The updating will be usually taken place at the end of calendar year. However, in the wake of adopting a new format designed by NDMA for DM Plan in 2016, there has been a slight change with regard to the periodicity of Plan review and update. As such, the present Plan is to be updated at the start of the current fiscal year.

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CHAPTER - 3

DEFINITION OF DISASTER

Disaster has been mankind's recurring though inconvenient companion since time immemorial. It is a serious disruption of the normal functioning of society, causing widespread human, material or environmental losses which often exceed the ability of the affected society to cope using its own resources. Natural Disasters continue to strike unabated and without warning and are perceived to be on the increase in their magnitude, complexity, frequency and economic impact. These hazards pose threat to people, structures and economic assets, and assume disastrous proportions when they occur in areas of dense human habitations.

The United Nations defines disaster as 'the occurrence of sudden or major misfortune which disrupts the basic fabric and normal functioning of a society (community). It is an event or a series of events which gives rise to casualties or damage or loss of property, infrastructure, essential services or means of livelihood on a scale that is beyond the normal capacity of affected communities to cope unaided'

*According to Disaster Management Act-2005, "**disaster** means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made cause, 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 it of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area."*

I. INDIAN CLASSIFICATION

In August 1999, Government of India established a High Powered Committee with the mandate of preparing national, state (including union territories) and district level disaster management plan. It has identified 30 odd types of disasters both natural and non-natural and has grouped them into 5 broad categories as follows:

A. Water and Climate related disasters:

i) Floods and Drainage Management
ii) Cyclones
iii) Tornadoes
iv) Hailstorms
v) Cloud Burst
vi) Thunder and Lightning
vii) Snow Avalanches
viii) Heat-wave and Cold-wave
ix) Sea erosion
x) Drought

B. Geological related disaster:

i) Earthquake

ii) Landslides and Mudflows

iii) Dam bursts

iv) Mine Fire

C. Chemical, Industrial and Nuclear related disaster:

i) Chemical and Industrial disaster

ii) Nuclear disaster

D. Accident related disasters:

i) Urban fire

ii) Village fire

iii) Forest fire

iv) Electrical disaster fire

v) Serial bomb blast

vi) Oil spill

vii) Festival related disaster

viii) Air, Road and Rail accidents

ix) Boat capsizing

x) Mine flooding

xi) Major building collapse

E. Biological related disasters:

i) Biological disaster and Epidemics

ii) Pest attacks

iii) Cattle Epidemics

iv) Food Poisoning

II. DISASTER TERMINOLOGY

Disaster has the following main features:-

* **Unpredictability**- Some disasters are unpredictable while some are predictable.

* **Unfamiliarity** - Some disasters are unfamiliar while some are familiar.

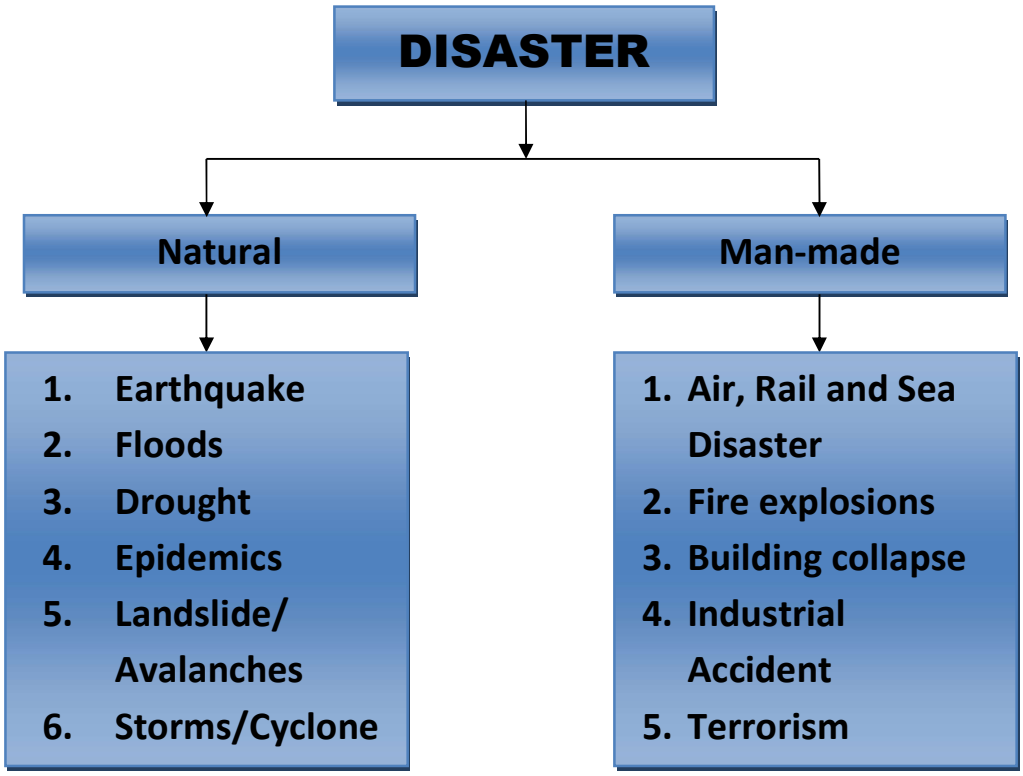
* **Speed** - Some disasters are of high/quick in speed while some are slow.

* **Uncertainty** - Some disasters are uncertain while some are certain.

* **Threat** - Disaster pose threat to human beings.

III. TYPES OF DISASTER

Disaster can be broadly divided into two types, viz., Natural and Man-made



IV. DISASTER MANAGEMENT

National Disaster Management Act 2005 says **"disaster management"** means a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient for -

i) Prevention of danger or threat of any disaster;
ii) Mitigation or reduction of risk of any disaster or its severity or consequences;
iii) Capacity-building.
iv) Preparedness to deal with any disaster;
v) Prompt response to any threatening disaster situation or disaster;
vi) Assessing the severity or magnitude of effects of any disaster;
vii) Evacuation, rescue and relief;
viii) Rehabilitation and reconstruction.

It is the range of activities designed to mitigate the effects of disaster and emergency situations and to provide a framework for helping people at risk to avoid and recover from the impact of the disaster. Managing disasters includes steps to be taken prior to, during and after the disaster and involve preparedness, mitigation, response and recovery.

Thus, Disaster Management (DM) f($D_1D_2D_3...D_9$)

Where; D_1 - Pre-disaster preparedness
D_2 - Warning
D_3 - Impact phase
D_4 - Rescue
D_5 - Relief
D_6 - Rehabilitation
D_7 - Reconstruction
D_8 - Vulnerability Reduction & Long term planning
D_9 - Other independent variables

V. RISK

Risk is a measure of the expected losses due to a hazard event of a particular magnitude occurring in a given area over a specific time period. Risk is a function of the probability of particular occurrences and the losses each would cause.

The level of risk depend upon

* F - Frequency
* D - Type of Disaster
* P - Probability of occurrence of the disaster
* L - Level of disaster (intensity)
*VV - Value of Vulnerable elements.

VI. HAZARD

Hazards are defined as "Phenomena that pose a threat to people, structures or economic assets and which may cause a disaster. They could be either man made or naturally occurring in our environment".

The extent of Damage from a disaster depends on:-

i) The impact, intensity and characteristics of the phenomenon.
ii) How people, environment and infrastructures are affected by the phenomenon.

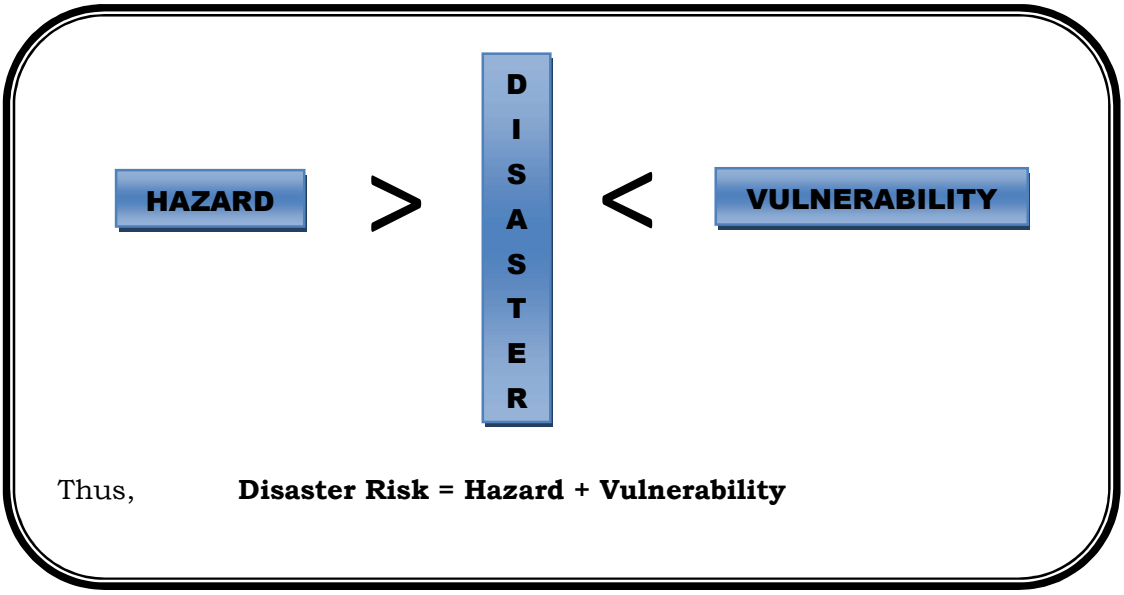
VII. VULNERABILITY

It is defined as "the extent to which a community, structure, service and geographic area is likely to be damaged a disrupted by the impact of particular hazard, on account of their nature, construction and proximity to hazardous terrain or a disaster prone area".

Types of Vulnerability:-

a) **Physical Vulnerability**: It relates to the physical location of people and elements at risk; buildings, infrastructure etc. and their proximity to the hazard.

b) **Socio-Economic Vulnerability**: This relates to the degree to which a population is affected by the calamity in relation to the prevailing Social and Economic conditions. The impact of a disaster is determined by the event, its effects on people and their environment, as well as the consequential effect on human activities within a given society.



VIII. RELIEF

It refers to a period immediately following the occurrence of a disaster when steps are taken to meet the needs of survivors with respect to shelter, water, food and medical care.

IX. REHABILITATION

It includes activities that are undertaken to support the victims return to normal life and re-integration into regular community functions.

X. MITIGATION

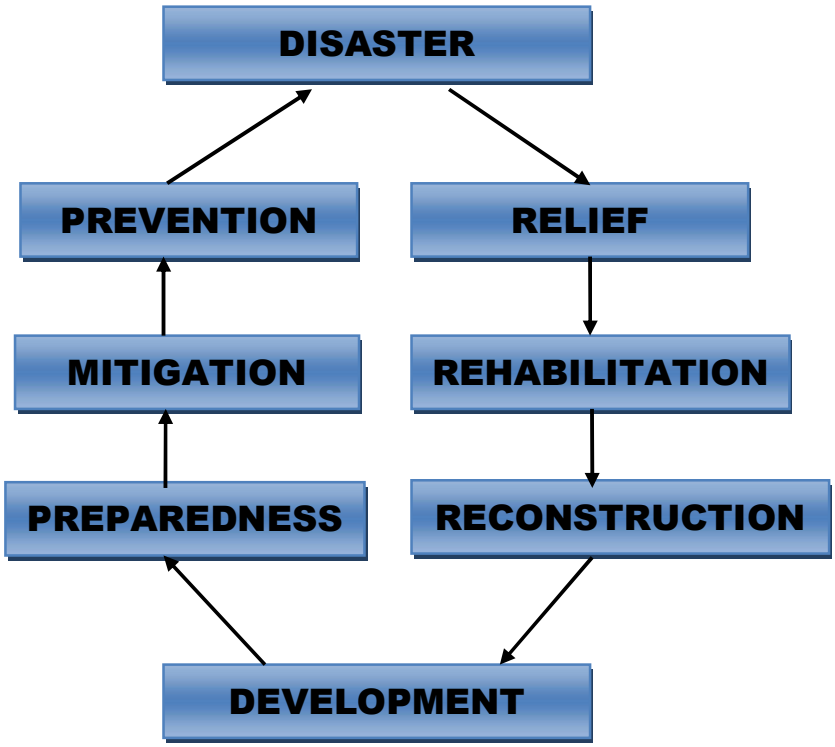
It is a collective term used to encompass all activities undertaken in anticipation of the occurrence of a potentially disastrous event, including preparedness and long term risk reduction measures.

It involves measures to reduce the effects of disaster causing phenomena. It includes scientific analysis or risk assessment, social, economic, legal and technical processes in development of suggestive measures and administrative and political processes in application of these measures.

Mitigation is often not given the same priority as preparedness or recovery. This is because there is a tendency to view disasters and development in terms of "trade-offs" with needed resources being diverted from development towards disaster mitigation.

XI. DISASTER MANAGEMENT CYCLE

The Disaster Management Cycle consists of the following broad stages:



i) **The Disaster Event**:

This refers to the real time event of the hazard occurring and effecting elements at risk. The damage is directly proportional to duration of the event.

ii) **Response and Relief**:

This refers to the first stage after the calamity. Relief materials like food, clothing, medicines and other necessities are distributed to bring life to normalcy.

iii) **Recovery (Rehabilitation and Reconstruction)**:

It is used to describe the activities that encompass the three overlapping phases of emergency relief, rehabilitations and reconstructions.

iv) **Development**:

It is an ongoing activity for an evolving economy. Long-term prevention/disaster reduction measures like construction of embankments against flooding, increasing plantation for reducing the occurrence of landslide etc. are some of the activities that can be taken up as a part of development plans.

v) **Prevention and Mitigation**:

Reduction of risk in disasters involves activities, which either reduces or modify the scale and intensity of the threat faced or by improving the elements at risk. Mitigation too aims at reducing the physical, economical and social vulnerability to threats and the underlying cause for this vulnerability.

vi) **Preparedness**:

The process embraces measures that enable governments, community and individuals to respond rapidly to disaster situation to cope with them effectively. Preparedness includes the formulation of viable emergency plans, the development of warning systems, the maintenance of inventories and the training of personnel. It may also embrace Search & Rescue measures as well as evacuation plans for areas that may be 'at risk' for a recurring disaster. All preparedness plans needs to be supported by appropriate rules and regulations with clear allocation of responsibilities and budgetary provisions.

XII. OBJECTIVES & PRIORITIES OF DISASTER MANAGEMENT

Disaster management can be divided into pre and post disaster contexts. This sequence embraces pre and post disaster actions that are concerned with the six stages of:

1) Inception of Disaster planning
2) Risk Assessment
3) Defining levels of acceptable risk
4) Preparedness & Mitigation planning
5) Testing the plan
6) Feedback from lesson plan

Each grows out of the stage before it and leads to further action. Together the sequence can build – up a planning and implementation system which can become a powerful risk reduction tool. If disaster planning is restricted to only preparedness plan, then the full benefits of disaster planning sequence for disaster management.

XIII. PRINCIPLES OF SAITUAL DISTRICT DISASTER/EMERGENCY MANAGEMENT PLAN

The basic planning principles adopted in the development of this District Emergency Management Plan are:-

i) Plan must be clear and practical: Plan must be developed in the language known to the people in clear and precise words stating exactly the procedures to be followed in case of emergency. Goals should be stated for all phases of the anticipated event, preparedness relief, and rehabilitation and recovery. Formalities to be followed for gaining access to resources for the management of the disaster at hand should be for all purposes kept to the minimum.

ii) Good Management Information System (MIS): A comprehensive collection of facts and data is a pre-requisite for the development of an effective Disaster Management Plan. Contingency plan must also include arrangements for collecting, analyzing, storing and disseminating of information. As such, one of the functions of the District Emergency Control Room (DECR) or District Emergency Operation Centre (DEOC) has been identified as information management.

iii) Maximum Utilization of available resources: This can be done by maintaining proper resource inventory system which should cover the basic needs of the people apart from machineries and conveyance.

iv) Training and Regular Practice: For any plan to be effective the agencies involved should train and practice regularly (Mock Drill) so that weaknesses in the plan can be detected and rectified.

v) Critical Evaluation: Critical Evaluation of the effectiveness of any disaster management plan should form a part of any such plan.

vi) Plan must be well organized assigning specific responsibilities and accountabilities to the different agencies - government or otherwise. The District Emergency Operation Centre (DEOC) established should: (1) Give timely warning to the people (2) Initiate and supervise activities done at different levels (3) All important information about the District should be available with the District EOC.

vii) Incorporation of Departmental Sub-Plans: The main plan should be supported by department plans which are more specific

for the concerned organization and makes the response easier in the times of emergency. The departmental sub plans are incorporated to this main plan.

viii) Plan must be flexible: Plan must be formulated so as to adapt itself to changing situations and varying intensity and magnitude of any disaster. Flexibility of Plan makes it viable and relevant in all aspects of emergency management

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CHAPTER - 4

NATURAL HAZARD PROFILE

Natural hazards such as landslides, earthquakes, wind, and cyclones are also occurring in Saitual District. Natural hazards are triggered by a variety of geological and geophysical settings, as well as the district's climatic, meteorological, and hydrological conditions. Aside from these, natural hazards are caused by manmade processes such as routine jhum farming and developmental operations, such as the construction of buildings, roads, and other facilities.

I. LANDSLIDE

The most common natural danger that Saitual district has to deal with is landslides. Every year, a number of landslides are reported in different parts of the district. These cause a slew of issues for the general population, including loss of life and property, disruption of communication networks, and a financial load on society. Landslides are more common during the rainy/monsoon season because heavy and persistent rain softens the soil structure, especially in areas with a high degree of slope.

The Saitual District is known for its steep hills and numerous lineaments directed in various directions. Soft sedimentary rocks such as shale, silty shale, sandstone, and their mixing in varied amounts dominate the lithology. Furthermore, loose and unconsolidated sediments make up the majority of the exposed surface, especially in urban areas. This, together with the other elements, renders it prone to landslides.

The Mizoram Remote Sensing Application Centre (MIRSAC) has prepared landslide hazard zonation maps for both Saitual district and Saitual town. The maps are shown along with the corresponding area statistics in Tables.

The Landslide Hazard Zonation Map is classified into 'Very High', 'High', 'Moderate', 'Low' and 'Very Low' hazard zones. Various hazard classes are described below:

Very High Hazard Zone

This zone consists of steep slopes with unconsolidated materials which are located near faults and tectonically weak zones. Therefore, this zone is highly unstable and is at a constant threat from landslides. The very high hazard zone is more prevalent in the northern and central part of the town. This zone constitutes an area of about 0.57 sq. km and forms 4.65% of the total study area. Since the Very High Hazard Zone is considered highly susceptible to landslides, it is recommended that no human induced activity be undertaken in this zone. Such areas have to be entirely avoided for settlement or other developmental purposes.

High Hazard Zone

It covers the area of steep slopes which when disturbed are prone to landslides. It also includes areas where the probability of sliding debris is high due

to weathered rock and soil debris. Besides, this zone comprises areas where the dip of the rocks and slope of the area, which are usually very steep, (about 45 degrees or more) are in the same direction. Several lineaments, fractured zones and fault planes also traverse the high hazard zone. Areas which experience constant erosion by streams also fall under this class. It is commonly found to surround the Very High Hazard Zone. This zone occupies 6.43 sq. km which is 52.10% of the total area. Since, the High Hazard Zone is geologically unstable, allocation and execution of major housing structures and other projects within the vicinity of this zone should be discouraged. Besides, it is also recommended that proper canalization of the streams and improvement of the drainage system be undertaken along the streams where toe-erosional activities are maximum

Moderate Hazard Zone

This zone is generally considered stable as long as its present status is maintained. It comprises areas moderate slope angle and relatively compact and hard rocks. The Moderate Hazard Zone is well distributed within the study area and several parts of the human settlement also come under this zone. Seismic activity and continuous heavy rainfall may also reduce its stability. As such, it is important not to disturb the natural drainage, and at the same time, slope alteration should also be avoided as far as possible. It is recommended that human activity that can destabilize the slope and trigger landslides should not be undertaken within this zone. Although this zone comprises areas which are stable in the present condition, future land use activity has to be properly planned so as to maintain its present status. This zone covers 5.02 sq. km. which is 40.68 % of the town area.

Low Hazard Zone

This zone comprises of areas where the controlling factors are unlikely to have adverse pressure on the slope stability. The slope angles are generally low, about 30 degrees or below. Therefore, all the areas having gentle slope degrees with light vegetation or scrubland fall under this zone. As far as the risk factor is concerned, no evidence of instability is observed within this zone, and mass movement is not expected unless major site changes occur. Therefore, this zone is suitable for carrying out developmental schemes. It spreads over an area of about 0.31 sq. km. and occupies 2.52% of the total study area.

Very Low Hazard Zone

This zone generally includes areas with low slope angles with thick vegetation. As such, it is assumed to be free from present and future landslide hazard. The dip and slope angles of the rocks are fairly low. Although the lithology may comprise of soft rocks and overlying soil debris in some areas, the chance of slope failure is minimized by low slope angle. This zone extends over an area of about 0.01 sq. km. and forms 0.07 % of the total area.

Saitual District		
Hazard Zone	**Area (in sq. km.)**	**Area (in %)**
Very High Hazard Zone	107.84	6.14
High Hazard Zone	255.02	14.51
Moderate Hazard Zone	877.57	49.94
Low Hazard Zone	494.48	28.14
Very Low Hazard Zone	15.15	0.86
Water Body	7.28	0.41
Grand Total	1757.34	100.00

Table 1. Statistics of Landslide Hazard Zonation of Saitual District

Saitual Town		
Hazard Zone	**Area (in sq. km.)**	**Area (in %)**
Very High Hazard Zone	0.57	4.65
High Hazard Zone	6.43	52.10
Moderate Hazard Zone	5.02	40.68
Low Hazard Zone	0.31	2.52
Very Low Hazard Zone	0.01	0.07
Grand Total	5.15	100

Table 2. Statistics of Landslide Hazard Zonation of Saitual Town

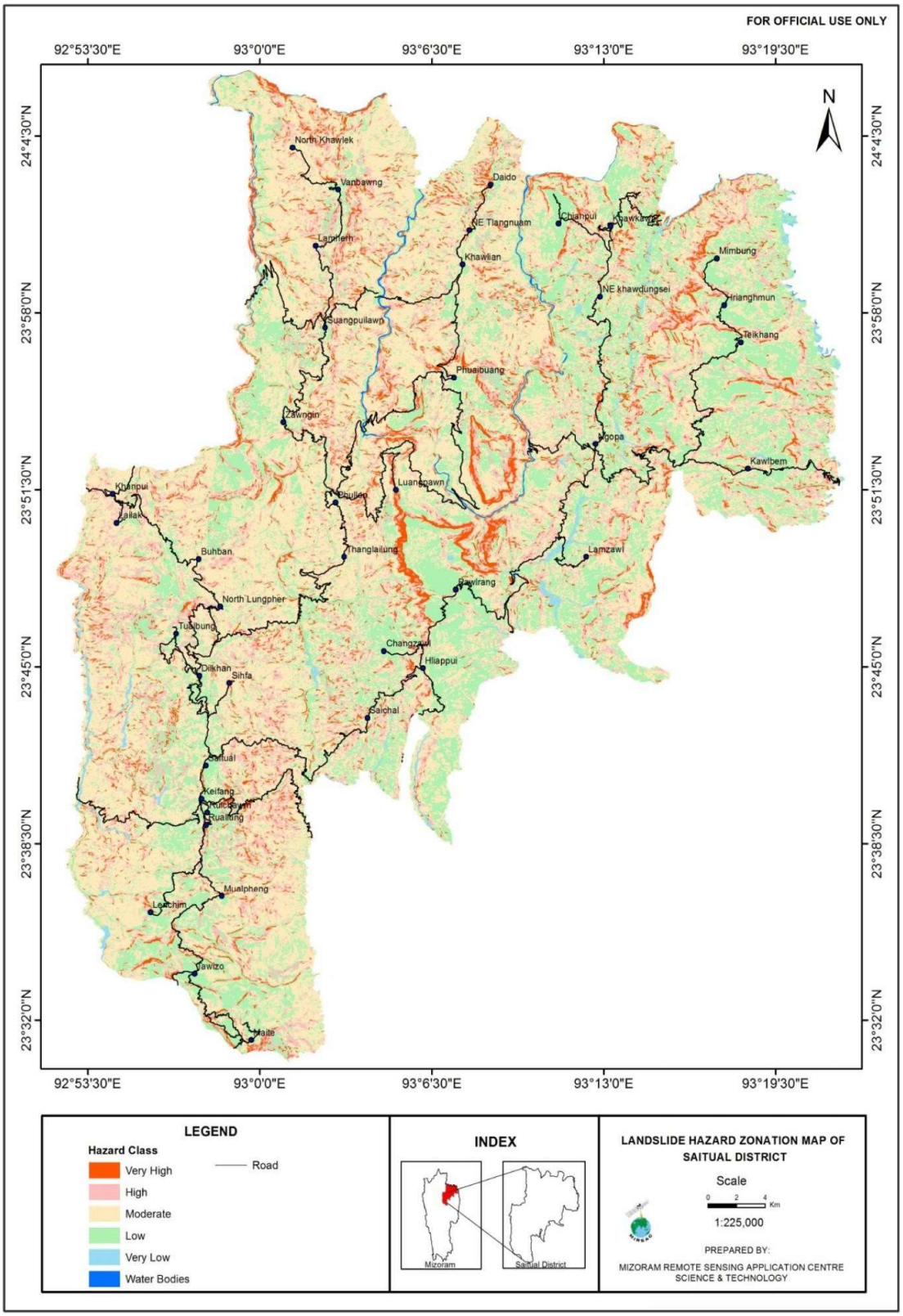

Figure 1. Landslide Hazard Zonation Map of Saitual District.

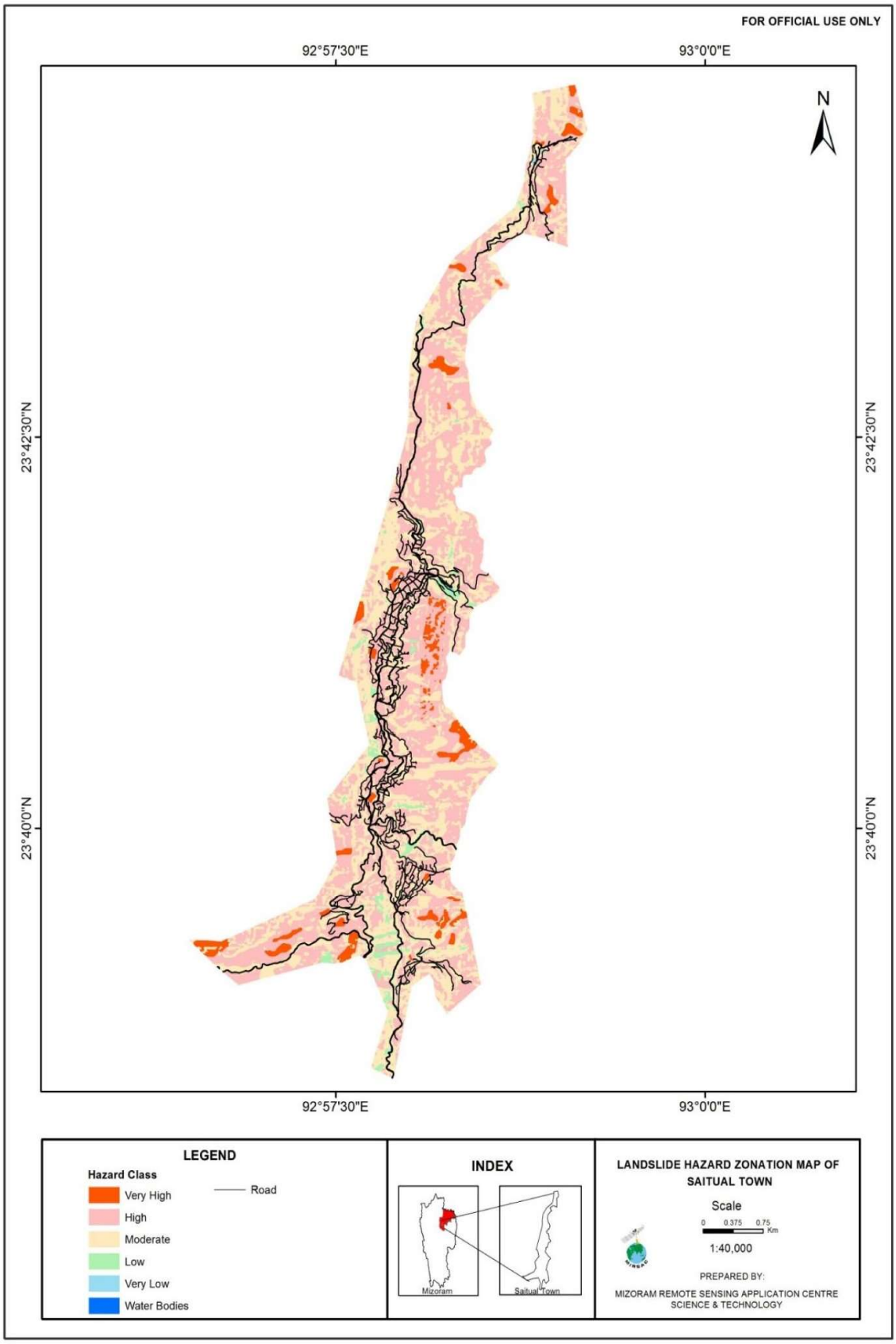

Fig. 2 Landslide Hazard Zonation Map of Saitual Town

II. 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 Zone Map of India prepared by Bureau of Indian Standards (BIS) in 2002. As such, the region has experienced 18 large earthquakes (M<=7) during the last hundred years including the devastating earthquakes of Shillong (M=8.1) in 1897 and Assam (M=8.7) in 1950. Besides, several hundred small and micro-earthquakes have also been recorded in the region. The high seismicity in the region is attributed to the collision tectonics between the Indian plate and the Eurasian plate in the north and subduction tectonics along the Indo-Myanmar range (IMR) in the east. Subduction is still continuing in the IMR, which is evident from the intermediate to deep focused earthquakes in this range. Incidentally, maximum seismic activity has also been recorded in this range.

Mizoram lies to the southern end of the Purbachal Himalayan range. Tectonically, the region is related to the eastward subduction of the Indian plate along the Arakan Yoma suture during Eocene time and the subsequent development of the Indo-Burman Orogenic belt. It is a part of the Neogene Surma Basin comprising a belt of elongated folds having sub-meridional trend and arcuate shape with westward convexity. The fold belt is elongated in the N-S direction almost parallel to the suture zone of the Arakan Yoma subduction. Structural complexity and also the intensity of deformation gradually increase from west to east. Several lineaments and faults of varying lengths criss crossed the area. Most of these are local in nature and are not important from the seismological viewpoint. However, a strike-slip Mat fault orienting in NW-SE direction in the central part of Mizoram is found to be tectonically active, and research is going on to understand the nature and rate of the movement. Seismotectonic map of Mizoram and its surroundings is shown in Figure 3.

There have been some research works to advocate that the region is of high seismic intensity. In 2011, the Mizoram Remote Sensing Application Centre (MIRSAC) had carried out Seismic Hazard Zonation of entire Mizoram using probabilistic method. The Seismic Hazard map shows longitudinal variations in hazard level which is very well correlated with the seismicity map of the region. The peak ground acceleration (PGA) value within Saitual district is 0.52 g, indicating that it is high in terms of seismic hazard. The Global Seismic Hazard Assessment Program (GSHAP) in 2003 provides seismic hazard map that depicts a hazard level

of 0.36 g to 0.52 g in terms of peak ground acceleration (PGA) along Mizoram which is demarcated as high seismic hazard zone. Sandip Das from IIT Kanpur and his colleagues in 2006 have carried out another study based on a regionalization free seismicity model and by adopting the Probabilistic Seismic Hazard Assessment (PSHA). From their study, the Pseudo-Spectral Acceleration (PSA) values for entire Mizoram at different natural periods range from 0.25 g to 0.30 g which is indicative of high seismic hazard potential. In 2016, a team of research scientists led by Michael Steckler from Lamont-Doherty Earth Observatory of Columbia University, New York, USA discovered the presence of a locked megathrust plate boundary beneath the thick sediments deposited in Ganges-Brahmaputra Delta in Bangladesh. Their finding is based on a decade-long extensive research across Bangladesh, North-east India and Myanmar. After studying GPS measurements of plate motions in Bangladesh, combined with measurements from Myanmar and northeast India, they arrive at a conclusion that the pattern of deformation around northeast India and Myanmar indicates that the Indian plate and Eurasian plate are locked or stuck together, building enormous strain which when released, can produce an earthquake as large as magnitude 9 or more.

Thus, it is evident that entire Mizoram in general and Saitual district in particular, fall in the highest seismic potential zone. The earthquake hazard map of Saitual district based on Seismic Zoning Map of India is shown in Figure 4.

Until recently, 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. However, the year 2020 witnessed a series of seismic activities which took place in the eastern part of Mizoram within Khawbung RD block of Champhai district, and also within the Chin Province in Myanmar. These events occurred within a span of 6 months with a total number of more than 30 times. The epicentre map of the 2020 earthquakes in the eastern part of Mizoram and its surroundings is shown in Figure 5.

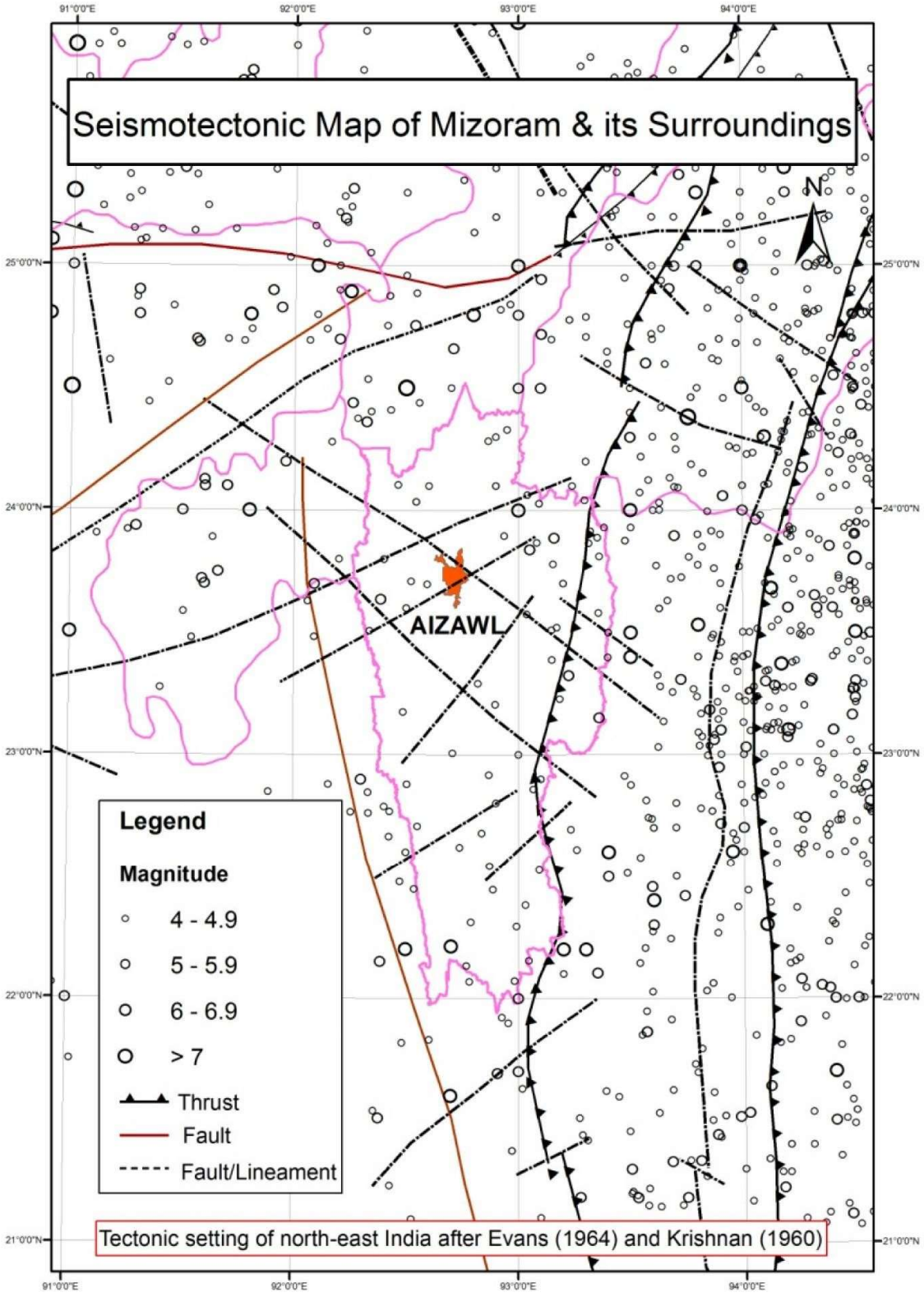

Figure 3. Seismotectonic Map of Mizoram and its surroundings

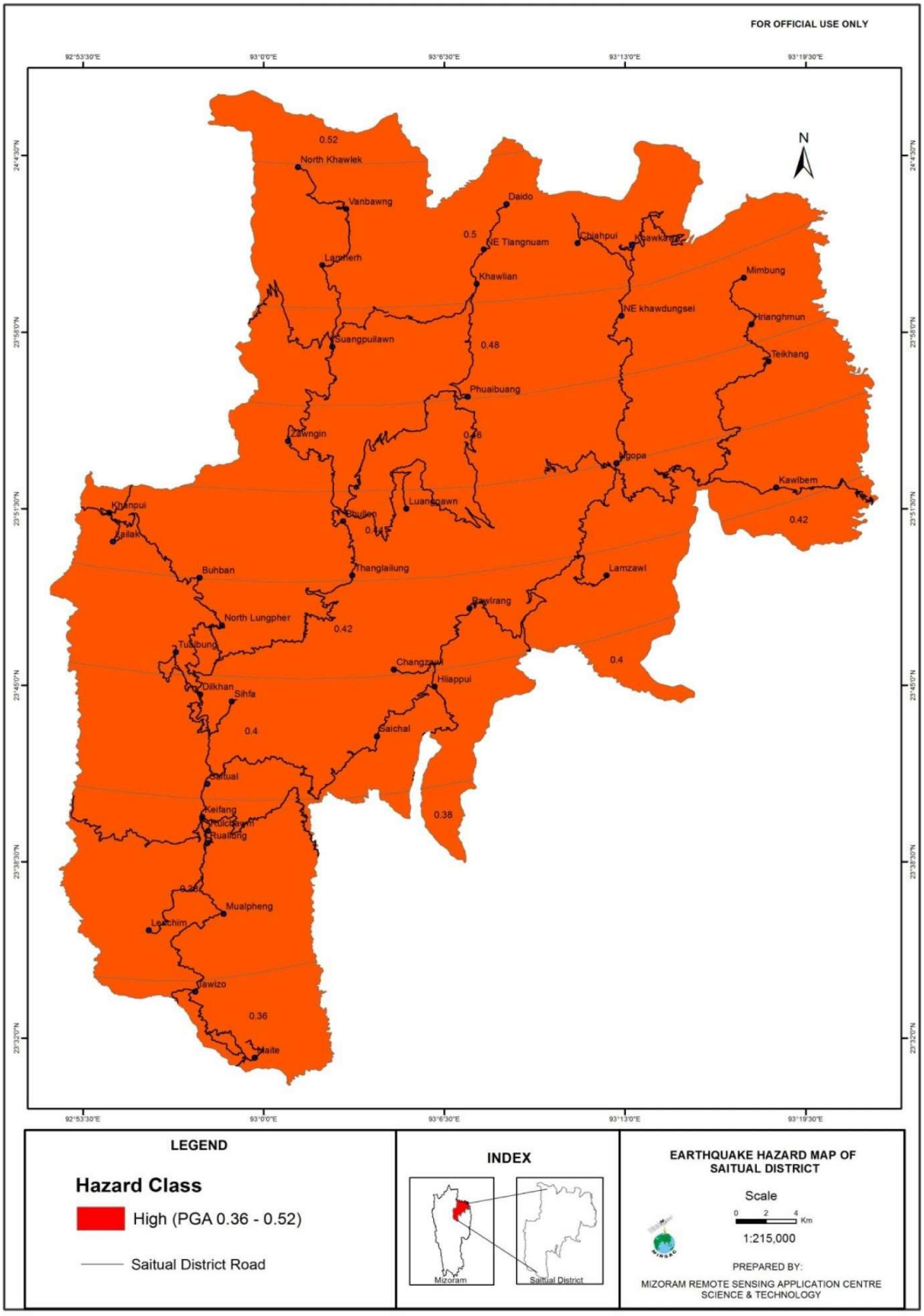

Figure 4. Seismic Hazard Map of Saitual District

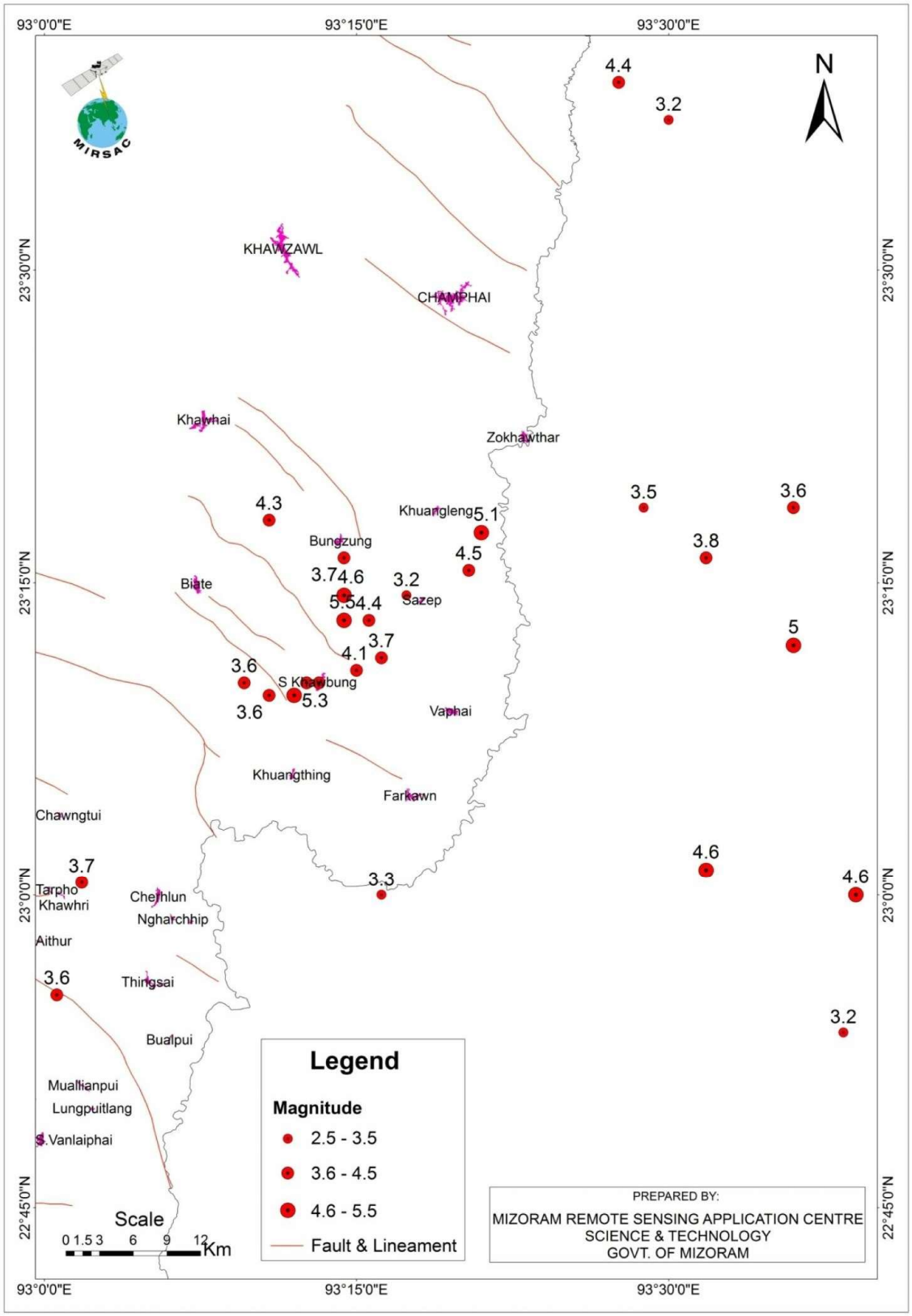

Figure 5. Epicentre map of earthquake 2020

III. WIND & CYCLONE

The name 'Cyclone' was first coined by Henry Paddington at Calcutta in 1848. Cyclone is a violent storm, resembling a whirlpool, occupying a circular or nearly circular area of low pressure. A cyclone begins to form when moist air heated by the sun rises from the surface of the warm tropical seas and is funnelled upwards in a natural updraft. As this moist air rises, it cools and condenses into rain. This condensation feeds back into the air large amount of heat, which adds to the force of the storm's updraft and which strokes the power of the cyclone. Air continues to spiral up, and hot moist air rushes in from all sides to replace it and to feed the updraft. The winds spiral around an "eye", an area of calm and light rains a few kilometers across. The cyclone itself may be between 100 and 200 km (60-125 miles) in diameter with a vertical depth of 11-19 km (7-12 miles). Cyclones are low-pressure systems or depressions around which the air circulates in an anti-clockwise direction in the northern hemisphere, but in a clockwise direction in the southern hemisphere. Since both the Bay of Bengal and the Arabian Sea lie in the tropical region of northern hemisphere, cyclone in this region moves in counter clockwise direction. The Indian sub-continent often experiences Tropical Cyclones, which are more destructive than their temperate region counterpart 'Temperate Cyclones'.

In relation to the fluctuating pattern of earth's heating, the Sub-tropical high pressure belt and the thermal equator are shifted northward during the summer. They migrate towards the land mass and blow over the Asian continent from the ocean, typically from the north Indian Ocean or the Bay of Bengal. The monsoons are known as the South-West monsoons, and they arrive in Mizoram between May and October. The summer monsoon is known for its very unpredictable weather, which includes periodic shortages and torrential rainfall. Apart from that, the winter monsoon is in effect, which a gentle drift of air with winds is blowing from the north east. This receding monsoon causes sporadic rainfall, particularly in Mizoram and other north- eastern states, with strong cyclonic showers occurring sometimes. In Mizoram, the cyclones of the post-monsoon season (October to December) are more intense than those of pre-monsoon season (April & May).

The entire state of Mizoram is vulnerable to the effects of a tropical cyclone developing in the North Indian Ocean (Bay of Bengal). In Mizoram, the first occurrence of wind and cyclone was documented in 1876. The year is known locally as *'Thlichhe Tleh Kum'* which means 'Year of Cyclonic Storm'. Several incidents of disturbance to normal life and property damage due to wind and storm have been reported in Mizoram since that period. Several settlements in Saitual district would have undoubtedly been disrupted and damaged in the past by this hydro-meteorological hazard.

Every year, the influence of wind and cyclone is observed in the Saitual district, as it is in other parts of the state. The consequences of this hazard can be disastrous at times, resulting in property damage and even death. The effect also resulted in power outages, road closures, crop and plantation damage, and livestock losses, among other things. Cyclones in the form of powerful winds and heavy downpours frequently inflict huge damage and devastation in Mizoram due

to its location in the climate region. As a result, careful monitoring of wind and cyclone hazards is essential.

Mizoram Remote Sensing Application Centre (MIRSAC) have prepared wind & cyclone hazard zonation map for entire Saitual district. There are three main parameters considered, viz., distance from the coastline, aspect and elevation. The buffered distance from the coastline is taken as 60 km intervals, assuming that there is an appreciable change in the intensity of wind speed within the specified distance. Each buffered distance is given different weightages in the decreasing order towards Mizoram. The second parameter is slope-aspect where slopes are divided into two classes taking 180° from NW to SE quadrant into one class and the rest into another class. The first class is given weightage value of 2 along with flatland and water bodies, and the latter class is given weightage 1. The third parameter is altitude which is divided into three classes 0-500 m, 500-800 m and above 800 m. These have been given weightage value of 3, 2 and 1 respectively. The three main parameters mentioned are given an influence of 2:1:1 ratio in percentage. The district is then classified into three zones of relative degrees of the wind & cyclone hazard. The map is shown in Figure 7 along with the corresponding area statistics in Table 3.

Hazard Zone	Area (in sq. km.)	Area (in %)
Very High Hazard Zone	**0.29**	**0.02**
High Hazard Zone	**284.03**	**16.16**
Moderate Hazard Zone	**1473.02**	**83.82**
Grand Total	**1757.34**	**100**

Table 3. Statistics of Wind & Cyclone Hazard Zonation of Saitual District

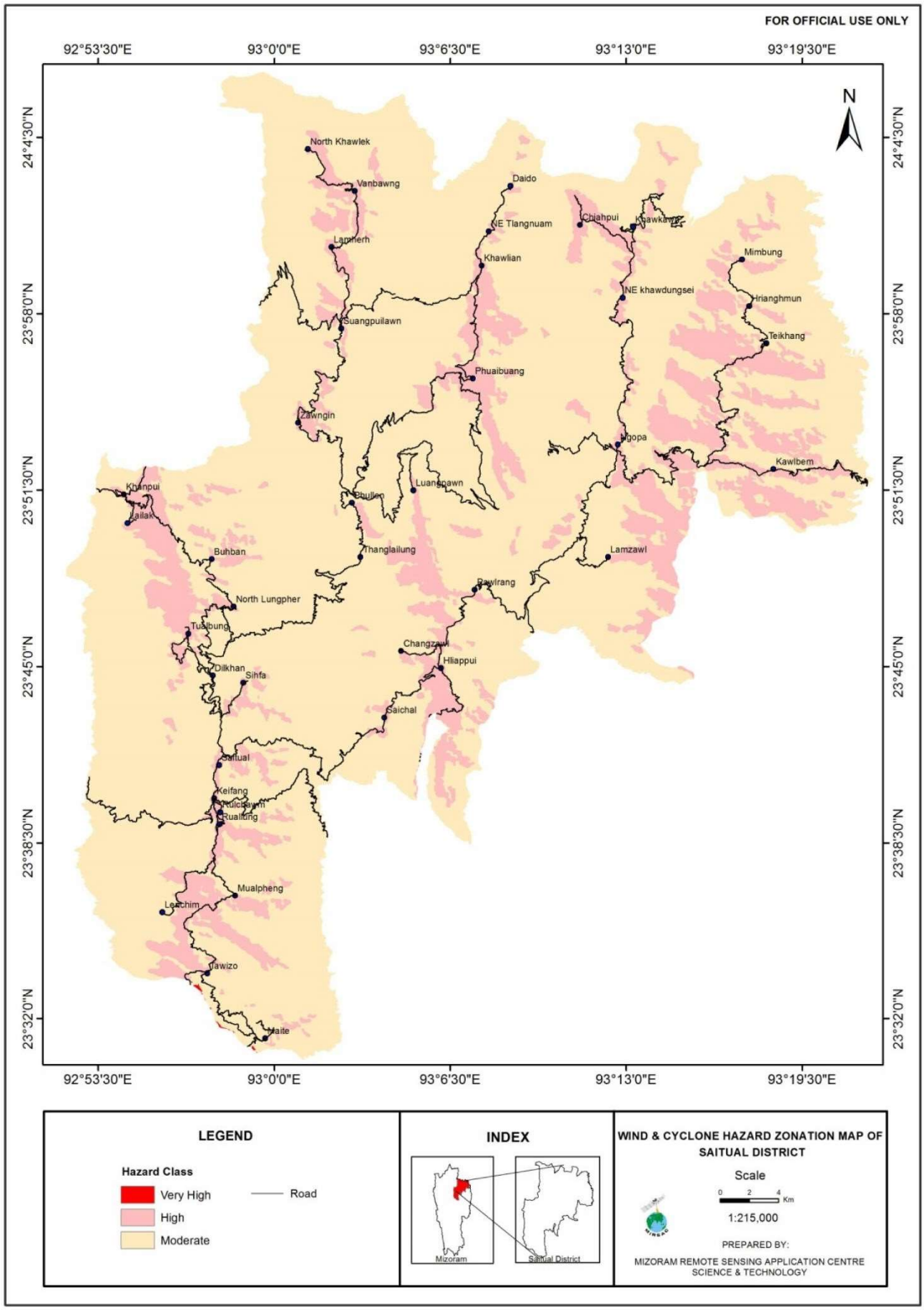

Figure 6. Wind & Cyclone Hazard Zonation Map of Saitual Disrict

IV. OTHER HAZARDS

Apart from the aforementioned natural hazards, Saitual district is also prone to cloud burst, river floods, forest fires, pest infestations and other man-made hazards such as urban fires, drowning, road accidents, etc. Though these hazards may appear to occur less frequently, they cannot be ignored. For example, if due proper precaution and preventive mitigation measures not taken in the routine slashing and burning practice of the forest for cultivation, it may result in large scale destruction of the forest.

V. CONCLUSION

It is evident that Saitual district is vulnerable to various natural hazards. Landslides are the most common and destructive natural danger that the district faces. Although landslides occur naturally, the majority of their causes may be traced back to unexpected actions on places where they are likely to occur. Landslides are more likely to occur in regions with a high degree of slope and loose soil structure, which, when combined with irregular land use practices, can enhance the frequency and size of landslides even more. These types of locations are widespread in urban complexes and road cuttings where population growth has prompted the extension of numerous infrastructure amenities. Construction is frequently carried out in such places without sufficient consideration of site safety and viability.

Another natural calamity that is unpredictable and can occur at any time is an earthquake. Although earthquakes occur rarely, the intensity and area of impact are estimated to be quite high, resulting in significant loss of life and property if this natural hazard happens. Saitual district, to a lesser extent, may be subjected to wind or cyclone hazards, which may cause damage to some villages and even result in human deaths. Aside from these, other threats that the district encounters on a regular basis must not be overlooked. To assess the possible harm caused by these events on a larger scale, more research and studies are needed.

Social and economic disasters caused by natural hazards can be avoided or reduced significantly if natural hazards are identified and appropriate mitigation measures are implemented into the developmental planning process. As a result, the district authorities must design plans to implement various mitigation, preventative, and preparedness measures in order to combat these threats, as well as plans to carry out various response and rehabilitation operations in times of crisis. The district's development needs should be assessed, and specialised planning procedures should be developed, taking into account the district's physical characteristics, resource endowments, population pressure, and hazards. Various non-governmental organizations in the district also have roles to play in the various stages of managing the looming calamities brought on by these threats. A public awareness campaign must also be conducted to educate the public about the dangers of these risks and to encourage them to adopt preventative measures at their own level. It's important to remember that managing disasters and the dangers posed by these hazards requires the collaboration or synergy of the many stakeholders mentioned.

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CHAPTER - 5

PREVENTION AND MITIGATION MEASURES

A disaster depends on the type of hazards and its intensity as well as vulnerability of the community. No one can prevent any natural hazards but we can minimize the effect by strengthening the capacity of the vulnerable groups and reduce the risk factors. Some activities like strengthening new construction practices, environment protection and proper land use plan for the urban areas etc. can be undertaken by the State Government and the community to reduce the impact of natural disasters.

I. MITIGATION

Mitigation means activities taken up to reduce the impact of any hazard that cannot be prevented or evaded. Natural hazards like cyclone, monsoon rain or earthquake cannot be prevented; therefore, it is necessary to prepare ourselves to minimize the loss and sufferings that followed once these hazards occur. Mitigation is, therefore, closely associated with preparedness. Therefore, mitigation is an integral part of disaster management. The objectives of mitigation strategy are:

- To enhance the public awareness of disaster risk reduction and public demands for a safer communities to live and work
- To significantly reduce the risk to minimize the loss of life, injuries, loss of economics or loss of development initiatives, damage of infrastructures, which are the result of any disaster.

The mitigation activities could be structural and non-structural also. The assumption of mitigation efforts are long terms and more expenditure, which would be treated as investment in terms of reduction of life loss and damage to infrastructure. The effective hazard assessment and the vulnerability analysis would project the probability of future damage/losses.

Some of the mitigation strategies suggested to the State Government to be adapted to minimize the effect of various disasters are as follows:

- Risk reduction measures ensure the long term economic development for the community as a whole rather than short term benefit to a specific interest.
- Risk reduction measures of one disaster should be compatible to the other risk reduction measures for other disasters.
- Community participation should be there in the entire mitigation programme to reduce the local risks.
- Proactive mitigation measures can reduce the response time and help in quick recovery.
- Hazard identification and risk assessment should be the focus of all mitigation strategy.

- All risk reduction measures shall always be compatible to the protection of nature and cultural resources of the State.
- Mitigation activity is to be recognized as an integral part of sustainable development and multi-disaster approach should be adopted.

1) Preventive measures for Earthquake:

(i) Structural mitigation:

- The best mitigation process from earthquake is to construct earthquake resistant buildings in safe location.
- Unsafe old building/structures be reconstructed/retrofitted as per technical assessment to make the house safe from earthquake.
- Land use planning is an essential part to minimize the effect of earthquake.
- The district has to ensure the safety of buildings or institution where mass gathering usually takes place as in schools, public halls, etc.
- Strict regulation for approvals of building design and to ensure safe construction practices are followed while construction of new buildings is undertaken.

(ii) Non- structural mitigation:

- Mass education on safe construction practices and protection of human being from the earthquake. Practice do's and don'ts on regular basis.
- Have mock drills with all institutions and buildings to ensure the preparedness.
- Training of engineers and masons on safe construction practices

2) Preventive measures for Flood:

(i) Structural mitigation:

- Strengthen the early warning system for accurate warning to the community.
- Storm drains are strengthened and cleared before rainy season.
- Land use planning is done properly to avoid mudslides and landslides due to heavy rainfall.
- Stream restoration can be done based on the rain water carrying capacity to avoid flood due to heavy pouring.

(ii) Non- structural mitigation:

- Community awareness and education is required to prevent flood.
- Mapping of flood prone areas and flood risk mapping which can assist during pre-disaster decision making.
- Formulation of flood preparedness plan which includes emergency response planning and training, land use regulation, flood proofing, setting alternative plans and local social structure strengthening.

3) Preventive measures for Cyclone/ High wind:

(i) Structural mitigation:

- Structural modifications in existing houses to keep the roof intact during heavy wind.
- Construction of Cyclone shelters that can act as safe places to flee during cyclone.
- Construction of wind breakers to minimize the effect of high wind on the houses.

(ii) Non- structural mitigation:

- Strengthen early warning system in the State. Coordinate with Meteorology Dept. to get localized cyclonic information and alert the people for preparedness.
- Use of technology to identify evacuation routes in case of emergency.
- Mapping, delineation and demarcation of cyclone hazard areas and sensitive/vulnerable areas to high wind velocities.
- Design and control of Land use so that least critical activities are placed in vulnerable areas. Vulnerable areas can be kept for parks, grazing or play grounds.

4) Preventive measures for Landslides:

(i) Structural mitigation:

- Landslides always occurred due to heavy rainfall. Identify all stream runoff and clear blocked areas before the rainy season, to avoid blockade.
- Maintain and protect both sides of river and stream to avoid erosion and improve the channels for free flow of water.
- Monitoring of landslide prone areas either through an automated system or by preparation of hazard area maps and following up ground check on such prone areas during monsoon or raining season.

(ii) Non- structural mitigation:

- House site allotment should be considered only after careful consultation with Land Use Plan to avoid risk against landslides and land-sinking.
- Soil testing should be mandatory before permission is considered for any new construction.
- Campaigns to create public awareness of warning services and protective measures, importance of insurance to encourage sound land use and structural mitigation actions.

5) Preventive measures for Drought:

(i) Structural mitigation:

- Tracking the behaviour of monsoon and taking advance action to reduce the drought situation.
- Keep ready with food for work programme, so that people would get opportunity to earn their livelihoods when severe drought is forecasted.
- Construction of rainwater harvesting structures in prone areas to ensure that water is at least available during drought prevalence.

(ii) Non- structural mitigation:

- State government can provide necessary support on alternative crop planning to the farmers.
- Crop insurance should be promoted to transfer the risk.
- Micro watershed development should be initiated with community participation for maintenance and optimum utilization of water to avoid drought situation.

6) Preventive measures for Hailstorm:

(i) Structural mitigation:

- For new construction as well as retrofitting existing buildings, techniques to minimize hail damage include:
- Including measures such as structural bracing, shutters, laminated glass in window panes, and hail-resistant roof coverings or flashing in building design to minimize damage.
- Improving roof sheathing to prevent hail penetration;
- Installing hail resistant roofing and siding.

(ii) Non- structural mitigation:

- Posting warning signage at local parks, county fairs, and other outdoor venues.
- Teaching school children about the dangers of hail and how to take safety precautions.

7) Preventive measures for Pest attack:

- 10 % cow's urine is sprayed once in 10 days thrice.
- Half litre cow's urine along with ½ litre sour butter milk is mixed with 9 litres of water. This is sprayed once in 7 days twice.
- Cow's urine and water is mixed in the ratio 1:2. The seeds or roots of seedlings are soaked in this for half an hour before sowing or transplanting.
- 40 kgs of neem cake per acre is applied as basal manure for vegetable crops to prevent diseases.
- If there is a disease attack in the nursery, then add 10 % cow's urine extract along with the water that is used to irrigate the nursery.

(http://www.agritech.tnau.ac.in/org_farm/orgfarm_pestanddisease.html)

II. MITIGATION MEASURES FOR CROPS AGAINST FROST AND COLD WAVE:

Department of Agriculture & Cooperation, Ministry of Agriculture closely monitors cold wave situation in consultation with India Meteorological Department (IMD) and State Governments.

Farmers are to provide light irrigation as per need, immediately prune damaged tips of branches or shoot, burn leave/waste material in the orchard to create smoke and manage rejuvenation of damaged crops through pruning of dead material, application of extra doses of fertilizer through foliar sprays. Illustrative example of mitigation measures during different vegetative stages are as under:

Sl. No.	Stages of Plant Growth	Measures to be taken by farmers
1	Seedling/Nursery Stage	Change of micro climate by smoking around the field especially during night
2	Vegetative Stage	Irrigating the field, smoking the field during night
3	Reproductive Stage	
4	Harvesting Stage	Harvesting the crop at physiological maturity stage

(Source: Contingency Plan developed by Central Research Institute for Dry land Agriculture, CRIDA, available at http://www.crida.in)

III. LIVESTOCK MANAGEMENT DURING DISASTER

The following preparations are essential for management of animals during disasters:

i) **Development of cyclone and other natural calamity warning system:** Early Warning System would make it possible to avoid many adverse economic and human costs that arise due to the destruction of livestock resources every year.

ii) **Establishment of fodder banks** at the village level for storage of fodder in the form of bales and blocks for feeding animals during drought and other natural calamities is an integral part of disaster mitigation. The fodder bank must be established at a secure highland that may not be easily affected by a natural calamity.

iii) **Supply of feed ingredients at nominal cost:** Most grain rations for cattle and sheep provide enough protein to maintain a satisfactory 10-

12% level. But when we feed livestock in emergency situations, mostly low, protein materials such as ground ear corn, grain straws or grass straws, a protein supplement is needed. Adequate reserves as per the availability of resources will be developed.

iv) **Conservation of monsoon grasses** in the form of hay and silage during the flush season greatly helps in supplementing shortage of fodder during emergencies.

v) **Provision of free movement of animals** for grazing from affected states to the unaffected reduces pressure on pastures and also facilitates early rehabilitation of the affected livestock.

vi) **Treatment and vaccination of animals** against contagious diseases in flood affected areas.

IV. MITIGATION STRATEGY OF SOME GOVERNMENT DEPARTMENTS

Some of the suggested measures to be undertaken by different Government Department as mitigation approach for various disasters:

1) Agriculture Department:

- Storing of seeds, seedlings, mini kits, fertilizers, pesticides and other agricultural inputs for making them readily available to the affected cultivators under the loan/grant for raising alternative crops after any disaster.
- Raising seed beds with support from community and keep them in stock to the places prone to the disasters for easy access.
- Introduction of new seeds storage banks at community level.

2) School Education Department:

- Have School Safety Plans in all schools.
- Practice evacuation drills on regular basis.
- Strengthen school building against earthquake, cyclonic storms, landslides and fire.
- Ready with books and kits for crash course after any major disasters.

3) Health Department:

- There should be a health and medical services plan for vulnerable areas.
- Emergency Mass Casualty Plans for each hospital and health service centres to be drawn up.
- Mobile health and medical facilities to be always alert and ready.
- Materials and manpower shall be made available at all time to set up temporary health centres in affected areas.
- Inoculation, vaccination and health care shall always be in readiness.

4) Public Health Engineering Department:

- Keeping ready materials required for quick supply of drinking water where it may be required after any disaster.
- Protect all water supply systems from earthquake and landslides. Keep ready with alternate water supply system in case normal water supply system is broken.
- Provide water to Fire & Emergency Services when there is an outbreak of fire for refilling of empty Fire Tender without any delay in time.
- Proper drainage and sewerage system be constructed to prevent or mitigate landslide

5) Police Department:

- Trained Personnel shall be placed in static duty in their respective battalions as far as possible to facilitate quick response and efficiency in Search & Rescue operations as nobody knows when disaster may strike.
- Put on alert officers and other ranks to immediately act and take control of any critical situation side by side with the administration.
- Provide security during relief operation in disaster situation.
- During normal time, trained personnel of SDRF Units can impart training to Community DMTs on research and rescue operation and maintain linkages with community leaders for better cohesion during any type of disaster.

6) Fire and Emergency Services:

- Create more community volunteers to support the department in carrying out their activities.
- Organize trainings of volunteers and upgrade their skill and knowledge on search and rescue on regular basis.
- Auxiliary Fire Force be recruited during critical period–February to May.

7) Public Works Department:

- Maintain all roads before the rainy seasons.
- Ensuring that equipments, materials and workers are kept ready to repair broken roads and establish linkages quickly after any disaster.
- Keep an updated list of heavy earthmoving equipment, etc with contact numbers.
- Special provision for roadside drainage be included with road development projects.
- Vigilance maintained during construction work to ensure that engineering designs are strictly followed for safety against cyclonic wind and earthquake.
- Rock fall/Landslide vulnerable area be monitored regularly and take necessary preventive measures by removing or fixing those portions which are likely to fall during rainy season. Such works along the roads be maintained by the department to avoid risk to life and to maintain regular flow of traffic.

8) Power and Electricity Department:

- Assess the electricity supply system of the district and take preventive action to protect the supply system during disaster periods.
- Keeping ready the requirements of manpower and stock to meet any emergency situation.
- Conduct refreshers' training for existing staff at regular interval to handle the emergency situation and provide electricity to the essential services and community as well.
- Keep equipments ready to provide electricity supply temporarily to disaster affected areas.

9) Environment & Forest Department:

- Support the community in generation of wind break by planting appropriate trees near the community settlements.
- Give support to Soil & Water Conservation Department to maintain all river banks and streams to protect landslides and mud slides. Enhance the community participation in generation of more saplings and encourage them to protect the forest.
- Generate the awareness among the community to avoid forest fire.

10) Transport Department:

- Keep list of transport/vehicle for relief and rescue operation.

11) Food, Civil Supplies and Consumers Affairs Department:

- Construction of food storage facilities in disaster prone areas to keep sufficient food-grain before disaster seasons.
- Stock sufficient food-grain before monsoon starts in isolated rural areas.

12) Land Revenue & Settlement Department:

- Coordinate with other departments and follow the Land Use Plan approved by the Government before making house sites plan for residential or other purposes.
- 'No development zones' as per approved Land Use Plan should be disturbed.
- Natural drainages should not be disturbed while allotment of house sites in areas where natural drains crosses the sites.

13) Village Councils/Local Councils:

- VC level Disaster Management Committee be formed to look after various aspects of pre and post disaster activities.
- Coordinate with the village NGO's to establish active Disaster Management Teams for various activities like Search & Rescue, First Aid, Shelter Management, Information & Damage and Needs Assessment, Relief Coordination, Trauma Counselling, Food & Water Supply, etc as may be considered required.
- Assess the risk factor of the community and develop various protection measures along with the Government Dept. and NGOs.

- Have a VC level DM Plan and regularly update the knowledge and skill of DMTs.
- Carry out mock drills twice a year to assess the preparedness levels.

V. EARLY WARNING AND DISSEMINATION SYSTEM

General warning may not be useful to the community but specific warning indicating the probability of affected areas and intensity of the disaster could help both the community and Government system to manage the disaster effectively.

Early warning system indicates the onset of a disaster, its intensity, possible affected areas and the system may range from alarms, sirens, public announcements; media to reach the mass community through radio and TV for various disasters. In remote and hilly areas, people use some of the traditional methods to communicate with each other. For example, beating drums, using colour lights, ringing bells, using various colour flags, torchlight morse code communication to communicate with people living in remote and inaccessible areas.

District administration is primarily responsible for the dissemination of early warning based on the information received from the technical agencies such as IMD, CWC, etc.

These are the following technical agencies that are responsible for issue of hazard wise early warnings:

Earthquake: The data acquired from or dispatched by Indian Meteorological Department (IMD) should be utilized for early warning. Information for early warning should be disseminated to the public by the responsible State/District level Disaster management authorities.

Flood: Data or information dispatched by Meteorological dept./CWC/ Water resource dept., should be used for early warning.

Cyclone: Indian Meteorological Department (IMD) is the nodal agency for observing, detecting, tracking and forecasting cyclones which develop in the Indian seas. Information can also be acquired from cyclone early warning centres located on the east coast of India.

Epidemics: Information acquired through diseases surveillance team, etc of Health Department should be used for early warning.

Fire: Fire Services/ Police should disseminate necessary early warning information.

Road Accident/ Road Blocked: Police Department will be responsible for early warning dissemination for this hazard. The early warning information received from these agencies/Depts. for specific hazards will be used for further planning and information dissemination to responsible State/District level Disaster management authorities.

VI. DISSEMINATION OF WARNING

With regard to the dissemination of warning to the communities and other concerned, following points are to be kept in mind –

- An alternate early warning tracking should be identified and kept ready in case of failure of the regular early tracking system like failure of power functions etc.
- Identify the officer for issue of early warning. Make sure that there is a back up of the nodal officer to issue early warning.
- The warning message should be simple and easily understood by the communities. There should be awareness among the communities regarding various type of warning signal and its intensity. The language should be in local and should limit the use of technical words for dissemination of early warning.
- The Do's and Don'ts should be clearly communicated to the community and ensure an appropriate response from the community.
- Make sure that warning message should not create any panic and confusion among the community. Rumour control mechanism should be there to control panic and curiosity.
- All relevant agency and organization should be alerted and make them active.
- Use DMT members and VC members for early warning dissemination. They should be trained to understand the early warning message for mass awareness.
- Once warning is issued, the community should be informed about the situation at regular interval.
- After the danger is over, de-warning should be immediately disseminated.

VII. DAM BURST SCENARIO AND ITS CONTINGENCY PLAN

The most common cause of dam failures in India is breaching accounting for about 44% of cases followed by overtopping that accounted for about 25% failures. Majority of Indian dams have failed immediately after construction or at the time of first full-load, which can be clearly attributed to factors of either inadequate design or poor quality of construction.

Two dams are there in Saitual District–Tamdil and Rungdil. Human settlement is not close to the site of existing dams for which risk of failure and other related hazards may not be very sensitive to the local residents.

Safety Plans

Routine Periodic Inspections

- Safety Inspection of Dams
- Routine Periodic Inspection by trained and experienced engineers from concerned department at least twice a year-**Pre monsoon** and **post monsoon**
- Examination of general health of the dam and appurtenant works
- Preparedness of dam and hydro mechanical structures for handling expected floods

Comprehensive Dam Safety Evaluation

- Once in a 10 year
- More comprehensive examination
- Multi-disciplinary team for holistic view
- May order additional field and laboratory investigations as well as numerical simulations

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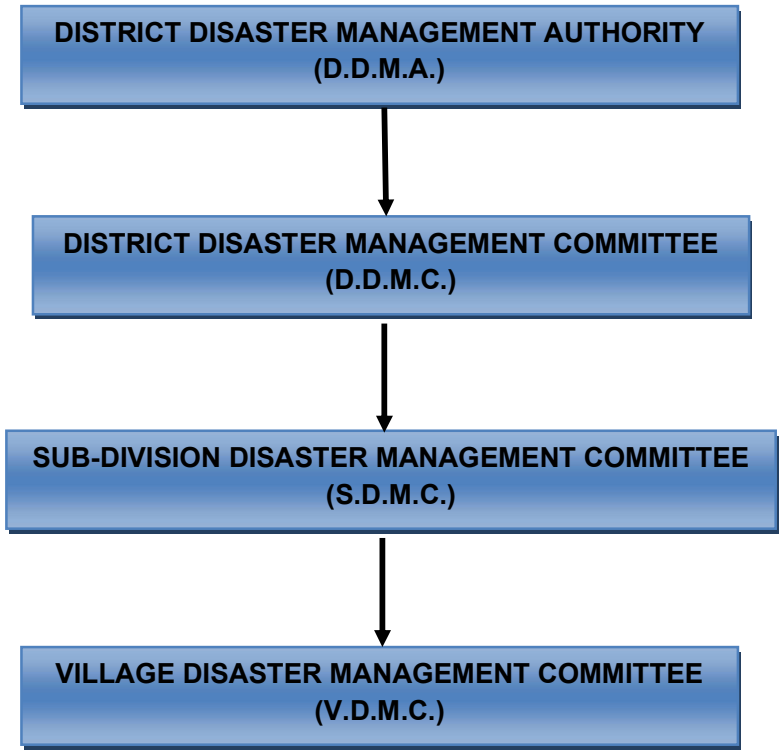
CHAPTER - 6

DISTRICT INSTITUTIONAL MECHANISM FOR MANAGEMENT OF DISASTERS

As desired, the following institutional mechanism has to be put in place to manage effectively any disasters within the district.



District has been and continues to be the pivotal and centre of rural administration in normal time in the country. Its roles and responsibilities in times of disaster as well have great importance. Taking this situation into consideration, the state government has constituted DDMA at the District level to look after disaster management and emergency response. (Vide No. B. 13011/17/2006-REH dated 6th June, 2006). The Authority which is chaired by the Deputy Commissioner, co-chaired by Project Director, DRDA comprising the Superintendent of Police, Chief Medical Officer, Executive Engineer PWD, Executive Engineer, PHE and Additional Deputy Commissioner as the members. The Addl. DC will act as Chief Executive Officer of the Authority. This body has full authority in any sphere of disaster management in normal time as well as during and after disaster strikes in the district.

I. DISTRICT DISASTER MANAGEMENT AUTHORITY (D.D.M.A.)

As per the government notification No cited above, the following are the composition of DDMA and its powers and functions:

The members of the DDMA shall be:

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)
1. Chief Executive Officer:		Additional Deputy Commissioner-cum-Secretary

Power & Functions:

Subject to the provisions under the Disaster Management Act, 2005 and in accordance with the guidelines laid down by the National Authority and the State Authority, the District Authority shall act as the planning, coordinating and implementing body for disaster management in the District and shall also be responsible for the following:-

(i) Prepare a District Management Plan, including District Response Plan for the District.

(ii) Coordinate and monitor the implementation of National Policy, State Policy, National Plan, State plan and District Plan.

(iii) Ensure that the areas in the District vulnerable to disaster are identified and measures for the preventions of disasters and mitigation of its effects are undertaken by all the District Level Government Departments and the local authorities.

(iv) Ensure that the guidelines for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the National Authority and the State Authority are followed by all the District level State Government Departments and the local authorities.

(v) Give directions to different District level authorities and local authorities to take such other measures for the prevention or mitigation of disaster as may be necessary.

(vi) Monitor the implementation of Disaster Management plan prepared by the District Level Govt. Departments and local authorities.

(vii) Lay down guidelines to be followed by the District Level State Government departments for the purpose of integration of measures for prevention of disaster and mitigation in their development plans and projects and provide necessary technical assistance therefore, and monitoring the implementation of such measures.

(viii) Review the capabilities for responding to any disaster or threatening disaster situation in the District and give directions to the relevant Departments or authorities at the District level for their up-gradation as may be necessary.

(ix) Review the preparedness measures and give directions to the District level or other concerned authorities, where necessary, for bringing the preparedness measures to the levels required for responding effectively to any disaster or threatening disaster situation.

(x) Organise and coordinate specialized training programme for different levels of officers, employees and voluntary rescue workers in the District.

(xi) Facilitate Community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, Governmental and non-governmental organizations.

(xii) Set up, maintain, review and upgrade the mechanism for early warning and dissemination of proper information to the public.

(xiii) Prepare, review and upgrade the District level Response Plan and Guidelines.

(xiv) Coordinate response to any threatening disaster situation of disaster.

(xv) Ensure that the District Level Government Departments and local authorities prepare their response plans in accordance with the District Response Plan.

(xvi) Lay down guideline, or give directions to the concerned District Level State Government Departments or any other authorities within the local limits of the District, to take measures to respond effectively to any threatening disaster or disaster.

(xvii) Advise, assist and coordinate the activities of the District Level State Government Departments, statutory bodies and other governmental or non-governmental organizations engaged in disaster management in the District.

(xviii) Coordinate with, and give guidance to, local authorities in the District to ensure that measures for the prevention or mitigation or threatening disaster situation or disaster in the District are carried out promptly and effectively.

(xix) Provide necessary technical assistance or give advice to the local

authorities in the District for carrying out their functions effectively.

(xx) Review the developmental plans prepared by the District level State Government Departments, statutory authorities or local authorities with a view to make necessary provisions therein for prevention of disaster or mitigation.

(xxi) Examine the construction in any area in the District and, if it is of the opinion that the standards for the prevention of disaster or mitigation laid down for such construction is not being, or has not been followed, may direct the concerned authority to take such actions as may be necessary to secure compliance of such standards.

(xxii) Identify buildings and places which could, in the event of any threatening disaster or disaster, be used as relief centres and make arrangements for water supply and sanitation in such buildings and places.

(xxiii) Establish stock piles of relief and rescue materials or ensure preparedness to make such materials available at a short notice.

(xxiv) Provide information to the State Authority relating to different aspects of disaster management.

(xxv) Encourage the involvement of NGOs and voluntary social welfare institutions working at the grass root level in the District for disaster management.

(xxvi) Ensure that communication systems are in order, and disaster management drills are carried out periodically.

(xxvii) Perform such other functions as the State Government or State Authority may assign to it or as deems necessary for disaster management in the District.

II. FORMATION OF SUB-DIVISION DISASTER MANAGEMENT COMMITTEE (S.D.M.C.)

Sub-Division (Saitual and Ngopa) shall have Sub-Division Level Disaster Management Committee (SDMC) within their respective areas. It shall work under the control and supervision of DDMA. It will be headed by the concerned SDM. Other members will also be appointed keeping in view the deployment of officers from line departments within the area, and the organisational structure of NGOs.

It is to mention that since the SDO(S)/SDO(C) are the Sub-Divisional Magistrates, it is preferable that they should head the Sub-Division DMC. This is felt necessary in order to gear up the proper flow of its functioning in general, and to achieve the desired results on the matters of 'unity of command' and 'span of control' in the odd hours in particular. The BDOs are expected to help their respective SDM in the formation and smooth functioning of the Committee, and

they are to report themselves to their concerned SDO(S)/SDO(C) in the normal period as well as in the crisis hours.

The Sub-Division DMC is to have its Sub-Division Disaster Management Plan which is likely to be approved by the DDMA. The Sub-Divisional Magistrate must ensure that his/her Sub-Div. DM plan is prepared, updated as per the need of time, and activated in the hours of need. The SDMC is also expected to set up Sub-Division Level Quick Response Group/Team as deemed appropriate.

The Sub-Divisional Magistrates are also required to set up institutional mechanism for management of disasters within their specific areas. They are to co-operate with various departments' nodal officer appointed exclusively for their respective areas.

Each SDMC will be responsible for managing any type of disaster within their respective spheres. However, based upon the intensity of disaster, the DDMC will be intervened.

Besides, the SDMC will be responsible for the control and supervision of the functioning of Local/Village Level Disaster Management Committee within their respective areas. The members of the SDM Committee will be as follows:

Chairperson	:	SDO (Sadar)/SDO (C), as the case may be.
Member Secretary	:	BDO of the concerned area (the SDMC will identify)
Members	:	(i) BDOs of the concerned area.
		(ii) Departmental Officers of various departments of the concerned. area/Sub-div. area nodal officers of various departments.
		(iii) Local Council/Village Council representatives.
		(iv) NGOs representatives

III. VILLAGE LEVEL DISASTER MANAGEMENT COMMITTEE

Each village within Saitual district is to be instructed to set up a committee known as Village Disaster Management Committee afresh under the Chairmanship of VCP/a reliable local resident. It will comprise members from different walks of life, viz.:

1) NGO's representative.
2) Political Party's representative.
3) Prominent Citizens.
4) VC Members.
5) Teachers.

The committee will be made responsible for giving awareness to public, making Disaster Management Plan, mitigation plan, undertaking rescue works

after disasters and pre-disaster activities. Under its supervision, following village level Task Forces/Disaster Management Teams will be formed and activated.

1) First Aid & Medical Team

2) Evacuation and Rescue Team.

3) Shelter Management Team.

4) Relief Co-ordination Team.

5) Water & Sanitation Team

6) Information & Damage Assessment Team.

7) Trauma Counselling Team.

1. **FIRST AID & MEDICAL TEAM:**

This team will promptly attend to all the casualties in the event of any disaster. They will be providing with First Aid kits and they will be trained by Health Department.

2. **EVACUATION & RESCUE TEAM:**

This team will also perform evacuation and search and rescue operations. They will undergo training on-

(i) drowning,

(ii) fire fighting and

(iii) search and rescue of collapse building victims.

3. **SHELTER MANAGEMENT TEAM:**

This team will identify building for accommodation of shelter-less people due to disaster.

4. **RELIEF & CO-ORDINATION TEAM:**

This team will operate collection and distribution of all other relief material except food and water supply.

5. **WATER & SANITATION TEAM:**

This team will ensure that sufficient food stuff and water is available for emergency response. They will be responsible for fair distribution of food and water during relief works.

6. **INFORMATION & DAMAGE ASSESSMENT TEAM:**

This team will give immediate assessment to the authorities on damage, missing, casualty etc. All relevant information will also be supplied to the government machineries as well as given necessary information to the local people in the disaster period.

7. TRAUMA COUNSELLING TEAM:

This team will take immediate steps in connection with counselling to traumatize people. This team will extend their helping hands by counselling the affected families, casualties etc. to reduce their burdensome out of disaster.

IV. S.O.P. FOR VILLAGE TASK FORCES AND TEAMS

Team 1: FIRST AID & MEDICAL TEAM:

Pre-Disaster

1. Maintain a list of pregnant women, infants, disabled, sick, old etc.
2. Keep First Aid kits ready and ensure that expired drugs are replaced with new ones.
3. Distribute basic medicines and demonstrate their use.
4. To keep stretchers/local alternative ready to carry injured people.

On receipt of Warning

1. Ensure that contents of all First Aid kits are satisfactory.
2. Move into the safe shelter.
3. If caught inside, stand with their backs against a strong indoor wall (in EQ).
4. If outside during the earthquake, run to an open space (in EQ).
5. If in a moving vehicle, will stop and stay inside (in EQ).

Post Disaster

1. Attend to the injured people.
2. Counsel the traumatized people.
3. Listen to and calm the victims affectionately and patiently.
4. Help doctors and paramedics shift the ill and the injured to hospitals.
5. Isolate the cases with infectious diseases and prevent them from spreading.
6. Provide preventive medication if there is danger of cholera, dysentery.

Team 2: EVACUATION & RESCUE TEAM:

Pre-Disaster

1. Monitor the infrastructure needs of the Community such as roads, school etc.
2. Co-ordinate with the local authority to identify the location for setting relief camps.
3. Check for plaster cracks and damp patches in safe shelters that require repairs.
4. Stock dry food and other safe food stocks, fuels, etc.
5. Ensure that the shelters are easily approachable.

6. Ensure that the shelters are cleaned regularly.

On Receipt of Warning

1. Evacuate people from their homes and clear the area as soon as possible. Move stocks of dry food, fuel and medicines to the shelter.
2. Setting up for house evacuee families.
3. Help the old, disabled, pregnant women, children etc. to settle in the shelter.
4. Ensure that strict sanitary practices are adhered to in the shelter.
5. Register the evacuees and give them identification slips/cards.

During Disaster

1. If caught inside building/house against a strong indoor wall.
2. If outside during disaster, run to an open space away from trees, buildings etc.
3. If in a moving vehicle, stop and stay inside.

Post-Disaster

1. To ensure that evacuees are provided shelter and food until the de-warning is received.
2. Organise tents and materials for construction of temporary shelters.
3. Collect stocks of food, clothing and fuel etc.
4. Clean and disinfect the shelter all throughout the stay and before leaving.
5. Help NGOs and their engineers in conducting meeting and rehabilitation activity.
6. Monitor the rehabilitation and reconstruction process of the community.

Team 3: SHELTER MANAGEMENT TEAM:

Pre-Disaster

1. Co-ordinate with the local authority to identify the location for setting relief camps.
2. Check for plaster cracks and damp patches in safe shelters that require repairs.
3. Stock dry food and other safe food stocks, fuels, etc.
4. Ensure that the shelters are easily approachable.
5. Ensure that the shelters are cleaned regularly.

On Receipt of Warning

1. Setting up for house evacuee families.
2. Ensure that strict sanitary practices are adhered to in the shelter.
3. Register the evacuees and give them identification slips/cards.

Post-Disaster

1. To ensure that evacuees are provided shelter and food until the de-warning is received.
2. Organise tents and materials for construction of temporary shelters.
3. Collect stocks of food, clothing and fuel etc.

4. Clean and disinfect the shelter all throughout the stay and before leaving.
5. Help NGOs and their engineers in conducting meeting and rehabilitation activity.
6. Monitor the rehabilitation and reconstruction process of the community.

Team 4: RELIEF & CO-ORDINATION TEAM:

Pre-Disaster

1. Familiarize with damage and needs assessment formats.
2. Assess the estimated need of relief materials.
3. Mobilize stocks of food grains and medicines from government, NGOs, etc.
4. Stocks materials like ropes, bamboos, tarpaulin etc. in the safe shelter identified.
5. Keep a record of the stock available and maintain and dispatch them as required.
6. Always be impartial and sincere to the duty the victims.
7. Be transparent in the accounting and stocks by giving timely correct information.

On receipt of Warning

1. Coordinate with the evacuation and temporary shelter management team to move stocks of food, water and so on to the safe shelter.
2. Move to the safe shelter.
3. If caught inside, will stand with their backs against a strong indoor wall (in EQ).
4. If outside, run to an open space away from trees, buildings and electric lines (in EQ).
5. In a moving vehicle, will stop and stay inside (in EQ).

Post Disaster

1. Conduct an assessment of complete damage for rehabilitation.
2. Based on a preliminary need assessment as follows, communicate preferences to the District Control Room. The size, scope of the relief items required like- duration of the distribution of relief material, the estimated number of people affected local capacity, resources and external help the immediate needs of the victims.
3. Communicate the assessment findings to other Task Force groups and local authorities.
4. Establish a distribution centre or community kitchen.
5. Ensure that food and other materials are distributed in an equitable manner.
6. Priorities the elderly persons, pregnant women, children etc.
7. Make a physical inventory of stocks when external assistance arrives.
8. Work closely with the communication group to keep in touch with control room.
9. Organise a meeting to evaluate the experience, internalize learning.

10. *Ke*ep the undistributed relief material in a safe place/godown and preserve it.

Team 5: WATER & SANITATION TEAM:

Pre-Disaster

1. Ensure sufficient supplies of chlorine tablets etc. for disinfecting drinking water.
2. Ensure sufficient stocks of lime powder for disinfecting large water bodies.
3. Ensure that sufficient water is stored in proper tanks and jerry cans in safe shelters.
4. Ensure that there is list of contact persons at Dist. Com and PHE for assistance.
5. Raise awareness amongst the community about how to treat water resources.
6. Set a minimum standard in advance for distribution of water in emergency.
7. Stock long steel rods, kerosene and fuel wood to dispose corpus and carcasses.
8. Help of the local administration to construct temporary sanitary facilities.
9. Identify the tractors and labours required for sanitation purposes.
10. Contact PHE for assistance in acquiring diesel engines and generators.

On receipt of Warning

1. Assess the drinking water supply and available water resources.
2. Organise for alternate power supply by procuring generators/diesel engines.
3. Ensure that the sanitation facilities at the safe shelter are in working order.
4. Move into the safe shelter for safety.

Post Disaster

1. Make immediate repairs of broken or burst pipes.
2. Coordinate with PHE/LAD for procurement of water tankers if required.
3. Disinfect large water bodies with lime power.
4. Coordinate with the Sanitary Inspectors for taking drinking water samples.
5. Ensure that water is distributed in an equitable manner.
6. Ensure that sufficient water is available in bathing units and toilets at relief camps.
7. Demarcate areas for safe excreta disposal around the relief camp.
8. Guide the local authorities to construct latrines away from ground water resources.
9. Coordinate with the local authority to construct sufficient bathing cubicles for females.

10. Spray bleaching powder and other disinfectants to prevent infectious disease.
11. Ensure that solid waste is put in refuse containers or buried in a refuse pit.
12. Ensure that there are no medical waste such as needles, drugs etc. lying around.
13. Co-ordinate with the first aid team to inoculate people against water borne diseases.
14. Construct temporary soak pits for onsite disposal of wastewater.
15. Co-ordinate with the search and rescue team for disposal of carcasses.
16. Ensure that dead bodies are registered and cremated after legal/religious formalities.

Team 6: INFORMATION & DAMAGE ASSESSMENT TEAM:

Pre-Disaster

1. Carry a hazard map demarcating the most vulnerable/safe areas and households.
2. Prepare and store sufficient number of assessment formats required.

During Disaster

1. Remain in the safe shelters and provide the evacuees with regular updates.
2. Call emergency meeting of the group and assign duties and area of assessment.

After a Disaster

1. Give immediate assessment to the authorities on damage, missing, casualty etc.
2. Give detailed report of assessment to the authority.
3. Guide the search and rescue team with geographic information.

TEAM&: TRAUMA COUNSELLING TEAM:

Post Disaster

1. Attend to the injured people.
2. Counsel the traumatized people.
3. Listen to and calm the victims affectionately and patiently.
4. Help doctors and paramedics shift the ill and the injured to hospitals.
5. Isolate the cases with infectious diseases and prevent them from spreading.

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CHAPTER - 7

TRIGGER MECHANISM FOR DIFFERENT FUNCTIONARIES

Trigger Mechanism is a Quick Response Mechanism that has been developed in order to ensure the smooth flow of response activities immediately after occurrence of a disaster. It is to set spontaneously the vehicle of management into motion on the road to disaster mitigation process. The trigger mechanism has been envisaged as a preparedness plan whereby the receipt of a single or an impending disaster would simultaneously energize and activate the mechanism for response and mitigation without loss of crucial time. The immediate response in all disasters has more or less the same parameters. These are to provide rescue and relief and save the precious human life. Thus, the emergency response of the disaster managers is a factor independent of the types of intensity of the disasters.

In fact, the trigger mechanism is an essence of the Standard Operating Procedure (SOP) in which the implementation of the efforts on ground is well laid down. Generally, the activities which include evacuation, search and rescue, law and order, temporary shelter, food, drinking water, clothing, health and sanitation, communications, accessibility, and public information which are very important components of disaster management, would follow on the activation of the Trigger Mechanism.

Once information about occurrence of any disaster within the district has been received by the district EOC or the office of the District Magistrate, the Incident Commander shall take the following actions: -

1. *Convene meeting of District Disaster Management Authority/Committee.*
2. *Based on the requirement, shall activate SDMC and VDMC*
3. *If required, requisition the service of concerned State Disaster Response Force, i.e. 1st Bn MAP, Armed Veng or 2nd IR, Khawzawl*
3. *Disseminate warning/alert to the potential victims.*
4. *Disseminate information vertically and horizontally from EOCs.*
5. *Declare state of disaster based on the severity/vulnerability.*
6. *If necessary, the state government may be requested to help out to manage the disaster.*
7. *Nodal Officer (DM&R) of the district administration or SDO(C)/BDO of the concerned area may be detailed to go to the spot and function as an On-Site Incident Commander at the disaster site.*
8. *The Chairperson of the DDMC may, by general or special order in writing, delegate such of his powers and functions to the Chief Executive Officer, subject to such conditions and limitations, if any, as he deems fit.*

9. *Vigil strictly as to whether the action plan/responsibilities assigned to various departments, as mentioned in the following, are carried out properly or not.*

I. DESIGNATED MEETING VENUE

In the event of major disasters like earthquake with catastrophic consequences affecting Saitual or other parts of the district, when there is total disruption of communication system, all members of the District Disaster Management Authority/Committee will have to assemble immediately within 1 (one) hour after the occurrence of such disaster at a pre-destined venue without waiting for any formal correspondence or circular from the chairman/DC or other officers authorised in that behalf.

The designated venue for holding emergency meeting on Disaster Management shall be the office of the Deputy Commissioner/Emergency Operations Centre. If holding of such a meeting in the designated venue is not possible due to the damage caused to the area or building, or blockade caused by debris, alternative venues in order of priority will be:

1. Office of the Project Director, DRDA, Saitual
2. Office of the Superintendent of Police, Saitual District
3. Government Saitual College
4. Office of the Executive Engineer, PWD, Saitual
5. Tourist Lodge

If possible, a spare/duplicate key for each of the above alternative venues shall be with the Addl. DC, Saitual so that emergency access as and when required is ensured.

II. PANEL OF CHAIRMAN

If the Chairman is unable to preside over the meeting or fails to attend such meeting for any reason, the Addl. Deputy Commissioner will take the chair. If the Addl. Deputy Commissioner is also unable to take the chair, the Project Director, DRDA will preside over the meeting. If both the Addl. DC and PD, DRDA are also absent, the SDO (S) will be the meeting chairman. If the SDO (S) fails to take the chair, the Branch Officer (Disaster Management), Office of the Deputy Commissioner will preside over the meeting. There will be no quorum.

Since disaster management is a multi faceted discipline that needs different mechanisms with diverse methodology, the DDMA/DDMC shall take immediate action for the fullest utilisation of all the resources available within the district. For effective management of disasters in the district, the following trigger mechanism has to be applied and followed in the district.

For Police:

The Police is the leading agency which works under the operational control of the District Superintendent of Police. Hazard analysis of Saitual district indicates that there are mainly risks of earthquakes, landslides, cyclone, fires, road accidents, etc. In view of hazardous scenario in the district, the role of Police department will include:

i. Evacuation of the affected people

ii. Security of the property of affected people and maintenance of law and order in the affected area.

iii. Traffic management leading to the affected area.

iv. To ensure non-violation of Essential Commodities Act, 1955 (as amended in 2010).

v. Activate SDRF

For Power & Electricity:

In the event of natural calamities, P&E Department, Saitual will be used as a Nodal Cell within the District. The Cell is responsible for carrying out all necessary actions in connection with restoration of power supply after the occurrence of disaster anywhere in district.

For M.P.R.O. (Wireless):

Wireless communication could be our last resort of communication during and after disaster as all the terrestrial infrastructures would be destroyed.

A control room has already been set up in the office of S.P, Saitual which has a link to all the existing PR stations including Repeater stations in different places all over the District. This control room can have a direct or indirect link to all these PR Stations at the time of disaster.

The Control Room will have a wireless communication link with the Emergency Operation Centre at the district level under the chairmanship of the Deputy Commissioner.

For BSNL & private network/service providers:

BSNL and other private network/service providers operating in the District are primarily responsible for restoration of communication facilities. It should ensure the smooth flow of information that can cater to those needed in a time sensitive manner at the state level in any disaster response efforts.

BSNL and private network/service providers should also ensure the smooth flow of information within the area in a time-sensitive manner at the state level in disaster response efforts.

For Information & Public Relation Department:

The following tasks will be taken up by the department of I & PR Department in liaison with the District Disaster Management Authority/Committee.

Press briefing:

Press briefings play a very important role in disaster management. Daily press briefs will be issued at **11:00 AM** at the D.C's Chamber. The Government of Mizoram had declared the department as Nodal Department at the State level for communicating the events or latest situation to public in this regard; therefore, I&PR Department, Saitual shall release appropriate information to the public as decided by the DDMA.

For Public Works Department:

The duty of PWD in disaster situations shall be –

1. Equipment support
2. Debris and road clearance
3. Ensure proper corpse disposal and post-mortem by co-ordinating with medical team
4. Assess the possibility of further disaster in the affected area, eg- hazard hunting etc.

For Public Health Engineering Department:

PHE will ensure provision of basic quantity of clean drinking water and water for other purposes in a manner that does not allow the spread of diseases through the contamination of water. It will also take initiatives on-

1. Quick assessment of water line damage and contamination.
2. Supply of water tankers to disaster affected communities.
3. Deploy response teams to repair and restore water supply lines that may be damaged after disaster.
4. Quick assessment of water contamination levels and taking steps to restore clean drinking water.

For Department of Agriculture:

Flash flood is hazardous to wet rice cultivation during rainy season in low-lying areas where big rivers flow. Outbreak of insects, pests and diseases can occur wherever crops are grown depending upon the suitability of the environmental conditions. However, the occurrence of other hazards like hailstorm, forest fire, cyclone, landslide, and heavy rainfall cannot be confined to a specific place, area, or district.

For Department of Horticulture:

The Department will take immediate steps on:-

1. Spot verification to assess the extent of damage as well as seriousness of the disaster.
2. Quick response by arranging all the necessary materials and equipments as well as man power to tackle the disaster.
3. Immediate action to prevent further spread of the disaster occurring in a particular location in case of diseases and pest attack to crops.

For FCS&CA Department:

Officials from FCS&CA department will help the District Administration in a desired manner. The Deputy Commissioner will activate necessary arrangements in this regard.

For Army/Military:

The Army/Military here denotes the Paramilitary Forces operating in the district, like – the Assam Rifles. Though they are under the direct supervision of the Central Government, their services are very useful especially in the Search & Rescue works and First Aid management. They are to participate actively to complement civil and police administration in times of disaster if requested to do so.

It is therefore recommended that these forces may be informed and requested by the District Disaster Management Authority to extend their help especially in the Search & Rescue and First Aid response.

For Health Department:

On receipt of a warning of an impending Cyclone from the District EOC, CMO, E&W will immediately put their doctors and the paramedical staff on alert for preventing outbreak of epidemic. In case of occurrence of an earthquake all the staff of the Health Department will immediately report to CMO i/c for duty, or to their concerned controlling authorities/ District Hospital/CHC/ PHC or the health sub centre, as the case may be. The CMO i/c will try to mobilize additional manpower from the area not affected by earthquake to supplement the local resources of the affected area.

The CMO will identify the external sources in the community and the market for procuring equipment and medicine with the assistance of the DDMA/DDMC. In case of a disaster the CMO can request the services of the medical officers working in **Private Hospitals, Private Doctors and Nurses,** and during the periods of such requisition such medical officers can work under the administrative control of CMO.

For School Education Department:

On receipt of information about occurrence of disaster from the District EOC or any other source, the District Education Officer will come up to help the district authorities especially in relief and shelter management activities. It may be mentioned here that schools are one of the most convenient places for temporary lodging of the disaster-hit families. The DEO is, therefore, expected to do all related activities in this connection.

For Social Welfare Department:

On receipt of information, Social Welfare department officials working at Saitual will take actions relating to trauma counselling. He/she shall depute reliable officer and staff to go to the spot and do the counselling work. In disaster situation, the affected people are getting panic and they need immediate counselling. It is an important task to keep the victim's hope alive in such situation. Since disaster can cause untold physical and mental hardships to the victims and their relatives, they sometimes commit suicide when they think that there is no reason of being lived. The Department is expected to do necessary arrangement so as not to happen unfortunate incident of such kind in the district.

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CHAPTER - 8

DISTRICT EMERGENCY OPERATIONS CENTRE

Saitual District recently has an Emergency Operation Centre (EOC) located at the D.C. Office's premises in district headquarters. This shall be round the clock set up with sufficient man-power and most modern equipments. Considering the unique responsibility of the district EOC, the equipments provided to it shall not be taken out for any purpose other than disaster management. This Centre is intended to coordinate all disasters related activities in the district starting from preparedness to rehabilitation and reconstruction.

There shall be permanent sitting place for each emergency support functionary in the EOC and they shall be provided with sufficient telephone connections. Only the Nodal ESFs are to sit in the EOC and co-ordinate the disaster management activities in the district with their support agencies. There shall be dedicated telephone lines and other communication facilities

Name of District	Location of Control Room	Contact Number	Name, Designation and Contact Number of officials on duty
Saitual	D.C. Office, Saitual	0389-2562004	1. Dr. Albert Vanlalruata, S.D.C. Ph. No.: 9774024592
			2. Lallawmzuala, D.A. Ph. No.: 9612120798

I. ROLE IN NORMAL TIME:

The Deputy Commissioner of Saitual District may be empowered to appoint one officer as Officer in-Charge of EOC. The appointee will be responsible for effective functioning of the EOC. Responsibilities of EOC in-charge in normal time include:

1. Ensure that all the equipments in the EOC are in working conditions.
2. Collect data on routine basis from line departments for disaster management.
3. Develop status reports of preparedness and mitigation activities in the district.
4. Ensure appropriate implementation of DDMP.
5. Maintenance of data bank with regular updating through IDRN.gov.in.
6. Activate the trigger mechanism on receipt of disaster warning/ occurrence of disaster.

II. ROLE OF EOC DURING DISASTER:

The District EOC shall be a meeting place for different stakeholders. On the basis of message received from the forecasting agencies, warning has to be issued for the general public and the departments, which play a vital role during emergencies. Issuing correct and timely warning would be one of the prime responsibilities of EOC. For effective dissemination of warning, EOC should have a well planned line of communication. The DC shall be the competent authority to disseminate a disaster warning. The warning on occurrence of a disaster will also be communicated to:

1. All Emergency Support Functions.
2. Members of DDMA/DDMC, Saitual District
3. Hospitals in the disaster area.
4. State Relief Commissioner/Secretary, DM&R.
5. EOC in the neighbouring districts.
6. State EOCs
7. NGO representatives from the district.

III. SOP FOR DISTRICT EMERGENCY OPERATION CENTRE

1. Officer in charge of EOC:

The control room shall be in overall charge of the DC. In the absence of DC, Addl. DC, Nodal Officer (DM)/SDO(S) or any other officer or staff on duty at that point of time shall remain in charge of Control Room. The person in charge of control room shall personally be responsible for implementing the SOP. He/she shall take all decisions without any delay.

2. Assembly in Control Room:

The following officers and staff shall assemble in the EOC on getting any information from any source about any emergency. Apart from these, any other officer/staff who get the information from any source will reach the Control Room.

DC, Addl. DC, Nodal Officer (DM)/SDO(S), Branch Officer (DM), members of DDMA, IPRO, and other related officers.

3. Getting the Control Room ready:

Following preparatory steps will be taken up for keeping the EOC functional during emergency.

- Shift two or more phone lines to control room.
- Keep a radio with new batteries ready.
- Get the generator ready.
- Stock at least 2 barrels of Kerosene and Diesel for running the generator sets.

- Charge the battery of inverter.
- In case of warning, arrange extra batteries.
- Inform NIC & BSNL for internet accessibility.

4. Alert all responsible officers, VCs, MOs, Police, Telephone, Agriculture, Social Welfare, MLAs, DIPRO shall inform the media

Apart from this, the district's EOC must arrange desks for the ESF in its complex for better coordination and help. Simultaneously the onsite EOCs are to be set up with the help of the district EOC. Constant communication between the State EOC, District EOC and Onsite EOC is mandatory for updates on the disaster, which happened.

IV. ONSITE EMERGENCY OPERATION CENTRES (OEOC):

Onsite Emergency Operation Centres (OEOC) are complementary units to District Emergency Operation Centre in the district (EOC), which will operate close to the disaster sites and will be linked directly with the District Emergency Operation Centre. The district administration shall designate the OEOCs, which are located in the Sub-Divisional Officer office and Block Development Officer's Office complexes. These strategic locations will help covering operations in a calamity instantly. The concerned SDO(C)/BDO will be the Incident Commander at this level. The OEOCs will be physically activated only in time of a disaster. The Concerned SDO(C)/BDO of the OEOC unit would be responsible to execute activity at the disaster site.

However, tasks would be controlled and coordinate from District EOC through DDMA/DDMC.

List of Equipment at District EOC:

Sl. No.	Name of Equipment	Quantity
1	Chainsaw	1
2	Scoop Stretcher	3
3	Folding Stretcher	4
4	Nylon Rope	2
5	Pelican Light	1
6	Folding Shovel	3
7	First Aid Kit	4
8	Emergency Survival Kit	3
9	Torch Light	7
10	Anti-Dust	5
11	Pick Axe	2
12	Megaphone	3
13	Floating ring	3
14	Hand Steel Cutter	2
15	Tow Strap (25feet x 3 inch)	1

16	Life Jacket	8
17	Trolley Combo	1
18	Gumboot	5
19	Safety Jacket	20
20	Inflatable Boat	1
21	Raincoat	14
22	Display Board	1
23	Bolt Cutter	4
24	Padded Harness	5
25	Carabiner Oval Shape	20
26	Carabiner D Shape	20
27	Descended	10
28	Foot loop	2
29	Fice pulley	5
30	RIG	2
31	Tandem Pulley	2
32	Prusick Pulley	2
33	Tape Sling 60cm	6
34	Tape Sling 80cm	6
35	Tape Sling 120cm	6
36	Gloves	12 pairs
37	Rope 9mm, 100mts	3
38	Rope 10mm, 100mts	3
39	Indian rope for Hauling, 10.5 mm (UIAA)	2
40	Rescue Helmet	12
41	Head Lamp	12
42	Jumar	2 pairs
43	Safety Helmet	13
44	Neck Brace	1
45	Rope Ladder	5
46	Surgical Gown	30 packs
47	Rubber Shoe Protector	12 packs
48	Rope Large	1
49	Hydraulic Jack	1
50	Power Cutting shaw	1
51	Saw blade	6 (wood 4)(metal 2)
52	Garden Hoe	2
53	Grass Cutter	1

V. LOCATION OF HELIPAD

In some cases of disaster like earthquake, landslide etc when road communication network has been totally blocked or damaged from district

Sl. No.	Name of Helipad	Grid Ref.	Elevation (in metre)	Dimension (l x b in metre)	Surface	Fit for	Status

headquarters to interior villages, air dropping of public needs may be required. In this case, the following helipads may be used by Helicopter for landing.

The following playground can also be used for Helipad in emergencies:

1. NE Khawdungsei
2. Chiahpui
3. Mimbung
4. Teikhang
5. Kawlbem
6. Pawlrang
7. Hliappui
8. Phullen Playground
9. Sihfa Playground
10. Buhban Playground
11. Saitual Playground
12. Phuaibuang Playground
13. Suangpuilawn Playground
14. Vanbawng Playground
15. Zawng In Playground
16. Tualbung Playground
17. Thanglailung Playground
18. Keifang Playground
19. Rulchawm Playground
20. Khawlian Playground

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CHAPTER - 9

ROLE OF VARIOUS STAKEHOLDERS FOR ACTUAL IMPLEMENTATION OF D.D.M.P.

District Disaster Management Authority (DDMA) under the Chairmanship of the Deputy Commissioner is the apex body in the district to oversee and supervises the disaster management. The DDMA is the authority for maintaining and reviewing the DDMP. As per Sub section (4) of section 31 of the Disaster Management Act, 2005, the plan would be reviewed and updated annually.

I. Proper Monitoring and Evaluation of District Disaster Management Plan

Through this document, basic aspects of select disasters are considered with a view to make adequate and appropriate preparedness & response measures. It is expected that this Plan will be revised and updated annually and become more and more comprehensive with the addition of more information and features. Any deficiency can be revised and strengthened to meet possible future emergencies. All stakeholders of DM like the Government, NGOs, corporate and community are to be participated for the success implementation of the plan.

II. Post-Disaster Evaluation Mechanism for district Disaster Management Plan

After the simulation exercises, the DDMA will encourage interaction with all the stakeholders to evaluate the gaps, lessons learnt with prepare documentation for further improving the capability to deal with future disasters.

III. Schedules for Updation of District Disaster Management Plan

This DDMP is the first ever for the District. It shall be updated annually on the basis of information/data etc. receipt of various agencies

IV. Conduct of Mock Drills

A mock drill is the testing of the efficiency of Disaster Management Plan. Lot of effort needs to be put in to prepare a plan and then conduct a mock drill which may last only a few minutes. It is a participatory method to practice the safety related measure and evacuation of a building during an emergency situation. To ensure proper execution of a mock drill exercise, the roles and responsibilities of the concerned Officers and Staff as well as Emergency Support Functions(ESF)like Police, Fire services, Home Guards, Medical Services, Civil Defence, SDRF etc should be precisely defined and the Standard Operating Procedures (SOPs) should be clearly understood by everyone.

V. The objectives of conducting Mock Drills in Office

Educating and training officers and staff to react for any unforeseen emergency situations specifically like earthquake & fire, mainly because they have a quick onset and hardly have any warning signs.

- Mock exercises and evacuation to build up courage and confidence in officers and staff.
- To teach life saving and rescue techniques to staff and to enable them to be life savers at the time of emergencies.
- Testing the efficiency of District Disaster Management Plan and improving it further so that it becomes practicable.
- To have clarity and better understanding of the roles and responsibility of all stakeholders.

VI. Responsible Parties for Organizing District level mock Drills

A mock drill is the testing of the efficiency of Disaster Management Plan. Effort needs to be put in to prepare a plan and then conduct a mock drill which may last only a few minutes.

The responsible parties for organizing district drills are:-

All line departments take part in the mock drill to show their achievement/preparedness in the field of evacuation, search & rescue, health & first aid, garage clearance, and drinking water facility, etc.

Schedule for organizing drills

Mock drill is scheduled to be conducted every year for all the line departments and other parties. Resources for mock drill: List of resources for mock drill:

(1) Stretcher (2) Helmet (3) Climbing rope (10mm) (4) Gimbing rope (8mm)

(5) Figure of 8 (6) Mitten (7) Megaphone with siren (8) Carbineer

(9) Rope Ladder (10) Aluminium Ladder

(11) Sit Harness (12) 'Traffic Cone (13) Fire extinguisher (14) Deployment of Police Personnel

VII. Monitoring:

All the personnel involved in execution DDMP are trained on the latest skills whenever plans are being updated.

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CHAPTER - 10

CAPACITY BUILDING AND TRAINING MEASURES

Capacity Building develops and strengthens skills, competencies and abilities of both Government and non government officials and communities to achieve their desired results during and after disasters, as well as preventing hazardous events from becoming disasters. Therefore, all stakeholders and communities are critical components to a successful, long term, sustainable Disaster Management Plan (DMP).

While undertaking disaster management planning assessments, the indigenous traditions, methods and materials being used for disaster management locally are considered and incorporated appropriately. Local residents are likely to be the first emergency responders to such incidents, particularly in remote areas and, therefore, critical to the successful outcome. Developing institutional capacity is very important. At the same time, by making the local community part of the process and solution would help in ensuring that disaster mitigation measures are more likely to be implemented and maintained over time. The capacity building plan should cater to the differential capacity building needs based on the functional responsibilities assigned to stakeholders.

Besides sensitization programme on Do's & Don'ts in case of disasters, Search & Rescue Technique, Basic First Aid Training and conduct of Mock Drills are to be given most priority. Sensitization of Persons with Disabilities, Family Disaster Management Planning, School Disaster Management Planning, Locality/ Community Based Disaster Management Planning are some of the important components of capacity building measures.

I. APPROACHES TOWARDS CAPACITY BUILDING

The approaches of the SDDMA are proactive in prevention, mitigation, preparedness and response and follow a holistic and integrating approach in dealing with disasters.

Holistic approach is about integrating all aspects of DM like preparedness, mitigation, response, recovery etc with sustainable development.

Integrated approach is about involving all stake holders, the government, NGOs and the Community with DM.

Community Based Disaster Management (CBDM) / Community Based Disaster Preparedness (CBDP) approach is about involving the community in every aspect of DMP. Involving communities in disaster preparedness programme provides a venue for these communities to implement their own solutions thus inculcating ownership and an increased probability of sustainability.

II. CAPACITY BUILDING PLAN

Capacity building programs is to be conducted at both the district and local level as per the work plan made by the SDMA. The program may include:

1. Community Based disaster Management awareness at village level
2. Workshop on Gender Issues in Disaster Management for women
3. School safety training for school teachers and students
4. Awareness drive and training programme on institutional safety for persons with disability.
5. Conduct of mock exercise

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APPENDIX – I

GOVERNMENT OF MIZORAM
RELIEF & REHABILITATION DEPARTMENT

NOTIFICATION

Dated Aizawl, the 23rd May,2006

No. B. 13011/17/2006 – REH: In pursuance of the provision under Sec.14 of Disaster Management Act, 2005, the Governor of Mizoram is pleased to constitute the State Disaster Management Authority for Mizoram with the following composition with immediate effect and until further orders:

1. The Chief Minister : Chairperson
2. Minister, Relief & Rehabilitation : Vice-Chairperson
3. Minister, P&PI : Member
4. Minister, Finance : Member
5. Minister, PHE : Member
6. Minister Rural Development : Member
7. Minister, LAD : Member
8. Minister, Health & Family Welfare : Member
9. Minister, PWD : Member
10. Chief Secretary : Chief Executive Officer (Ex-officio)

2. The terms of office of the State Authority shall be 3 years.

3. Powers and Functions:

Subjects to the provision of the Disaster Management Act, 2005, the State Authority shall be responsible for the following.

i) Lay down the state disaster management policy.
ii) Approve the State Plan in accordance with the guidelines laid down by the National Authority.
iii) Approve the disaster management plans prepared by the state Govt. Departments.
iv) Lay down guidelines to be followed by the State Govt. departments for the purpose of integration of measures for prevention of disaster and mitigation in their development plans and projects and provide necessary technical assistance therein.
v) Coordinate the implementation of the State Plan.
vi) Recommend provision of funds for mitigation and preparedness measures.
vii) Review the development plans of different State Govt. Departments and ensure that preventions and mitigation measures are integrated therein.
viii) Review the measures being taken for mitigation, capacity building and preparedness by the State Govt. Departments and issue such guidelines as may be necessary.

ix) Lay down Guidelines for providing standards of relief to persons affected by disaster in the State, provided that such standards shall in no case be less than the minimum standards in the Guidelines laid down by the National Authority.

4. Subject to ex-post facto ratification by the State Authority, the chairperson shall, in case of emergency, have the power to exercise all or any of the powers of the State Authority.

5. The State Authority shall meet as and when necessary and at such place and time as the chairperson of the State Authority may think fit.

Sd/- **ROCHILA SAIAWI**
Commissioner/Secretary to the Govt. Of Mizoram
Relief & Rehabilitation Department

Memo No.B.13011/17/2006–REH : Dated Aizawl, the 23rd May, '06

Copy to:

1. Secretary to the Governor, Mizoram.
2. PS to Speaker/Dy. Speaker.
3. PS to Chief Minister.
4. PS to all Ministers/MOS
5. All Administrative Departments.
6. All Head of Departments.
7. All Deputy Commissioners.
8. Chief Executive Member, Mara Autonomous District Council, Saiha/Lai Autonomous District Council, Lawngtlai/Chakma Autonomous District Council, Chawngte.
9. Controller, Printing & Stationery with 7(seven) spare copies for publication in the Mizoram Gazette.

Sd/- **ROCHILA SAIAWI**
Commissioner/Secretary to the Govt. Of Mizoram
Relief & Rehabilitation Department

APPENDIX – II

GOVERNMENT OF MIZORAM
RELIEF & REHABILITATION DEPARTMENT

NOTIFICATION

Dated Aizawl, the 23rd May,2006

No. B. 13011/17/2006 – REH: In pursuance of the provisions under Sec 20 of the Disaster Management Act, 2005, and in order to assist the State Disaster Management Authority in the performance of its functions and to coordinate actions in accordance with the guidelines laid down by the State Authority and ensure compliance of directions issued by the State Government under the said Act, the Governor of Mizoram is pleased to constitute the 'State Executive Committee' with the following compositions with immediate effect and until further orders :

1. Chief Secretary, Govt. of Mizoram - Chairperson
2. Commissioner, Planning/Finance - Member
3. Commissioner/Secretary Home Deptt. - Member
4. Engineer-in-Chief, PWD - Member
5. Commissioner, Relief & Rehabilitation - Member Secretary

Powers & Functions:

The State Executive Committee shall have the responsibility for implementation of the National Plan and State Plan and act as the coordinating and monitoring body for disaster management in the State.

1. Without prejudice to the generality of the provisions of sub-section (1) of Sec. 22 of the Disaster Management Act, 2005, the Executive Committee may –

a) coordinate and monitor the implementation of the National Plan and State plan.
b) examine the vulnerability of the different parts of the State to different forms of disasters and specify measures to be taken for their prevention and mitigation.
c) lay down guidelines for preparation of disaster management plans by the departments of the Government of the State and District Authorities.
d) monitor the implementation of disaster management plans prepared by the department of the Government of the State and District Authorities.
e) monitor the implementation of the guidelines laid down by the State Authority for integrating of measures for prevention of disasters and mitigation by the departments in their development plans and projects.

f) evaluate preparedness at all governmental or nongovernmental levels to respond to any threatening disaster situation or disaster and give directions, where necessary, for enhancing such preparedness.
g) coordinate response in the event of any threatening disaster situation or disaster.
h) give directions to any Department of the Government of the State or any other authority or body in the State regarding actions to be taken in response to any threatening disaster situation or disaster.
i) promote general education, awareness and community training in regard to the forms of disasters to which different parts of the State are vulnerable and the measures that may be taken by such community to prevent the disaster, mitigate and respond to such disaster.
j) advise, assist and coordinate the activities of the Departments of the Government of the State, district Authorities, statutory bodies and other governmental and non- governmental organizations engaged in disaster management.
k) provide necessary technical assistance or give advice to District Authorities and local authorities for carrying out their functions effectively.
l) advise the State Government regarding all financial matters in relation to disaster management.
m) examine the construction, in any local area in the State and, if it is of the opinion that the standards laid for such construction for the prevention of disaster is not being or has not been followed, may direct the District Authority or the local authority, as these may be, to take such action as may necessary to secure compliance of such standards;
n) provide information to the National Authority relating to different aspects of disaster management.
o) lay down, review and update State level response plans and guidelines and ensure that the district level plans are prepared, reviewed and updated.
p) ensure that communication system are in order and the disaster management drills are carried necessary.
q) perform such other functions as may be assigned to it by the State Authority or as it may consider necessary.

2. For the purpose of, assisting and protecting the community affected by disaster or providing relief to such community or, preventing or combating disruption or dealing with the effects of any threatening disaster situation, the State Executive Committee may –

a) control and restrict, vehicular traffic to, from or within, the vulnerable on effected area. control and restrict the entry of any person into, his movement within and departure from, a vulnerable or affected area.
b) remove debris, conduct search and carry out rescue operations.
c) provide shelter, food, drinking water, essential provisions, healthcare and services in accordance with the standards laid down by the National Authority and State Authority.
d) give direction to the concerned Department of the Government of the State, and District Authority or other authority or other authority, within the local limits of the State to take such measures or steps for rescue, evacuation or

providing immediate relief saving lives or property, as may be necessary in its opinion.

e) require any department of the Government of the State or nay other body or authority or person in charge of any relevant resources to make available the resources for the purposes of emergency response, rescue and relief.
f) require experts and consultants in the field of disasters to provide advice and assistance for rescue and relief.
g) procure exclusive or preferential use of amenities from any authority or person and when required.
h) construct temporary bridges or other necessary structure and demolish unsafe structures which may be hazardous to public.
i) ensure that non-governmental organizations carry out their activities in an equitable and non-discriminatory manner.
j) disseminate information to public to deal with any threatening disaster situation or disaster.
k) take such steps as the Central Government or the State Government may direct in this regard or take such other steps as are required or warranted by the form of any threatening disaster situation or disaster.

3. The Chairperson of the State Executive Committee shall exercise such powers and such functions as may be prescribed by the State Government and such other powers and functions as may be delegated to him by the State Authority.

4. The procedure to be followed by the State Executive Committee in exercise of its powers and discharge of its functions shall be such as prescribed by the State Government.

5. The State Executive Committee may, as and when considers necessary, constitute one more sub-committees, for efficient discharge of its functions. The Chairperson of the sub-committee shall be appointed by the State Executive Committee from amongst its members.

Sd/- **ROCHILA SAIAWI**
Commissioner/Secretary to the Govt. Of Mizoram
Relief & Rehabilitation Department

Memo No.B.13011/17/2006–REH : Dated Aizawl, the 23rd May, '06

Copy to:

1. Secretary to the Governor of Mizoram.
2. PS to Speaker/Dy.Speaker.
3. PS to Chief Minister.
4. PS to all Minister/Minister of State.
5. All Administrative Departments.
6. All Head of Department.

7. All Deputy Commissioners.
8. Chief Executive Member, Mara Autonomous District Council,Saiha/Lai Autonomous District Council, Lawngtlai/Chakma Autonomous District Council, Chawngte
9. Controller, Printing & Stationery with 7(seven) spare copies for publication in the Mizoram Gazette.

Sd/- **ROCHILA SAIAWI**
Commissioner/Secretary to the Govt. Of Mizoram
Relief & Rehabilitation Department

APPENDIX – III

GOVERNMENT OF MIZORAM
RELIEF & REHABILITATION DEPARTMENT

NOTIFICATION

Dated Aizawl, the 23rd May, 2006

No. B. 13011/17/2006 – REH: In pursuance of the provisions under Section 25 of the Disaster Management Act, 2005, the Governor of Mizoram is pleased to constitute the "District Disaster Management Authority" for every District in Mizoram with the following composition, with immediate effect and until further orders:

1. Chairperson : Deputy Commissioner (Ex-Officio)
2. Co-Chairperson : Project Director, DRDA (CEM MADC/LAD/LADC for sixth Scheduled areas)
3. Members :
   1) Superintendent of Police.
   2) Chief Medical Officer.
   3) Executive Engineer, PWD (Govt. nominated)
   4) Executive Engineer, PHE (Govt. Nominated)
4. Chief Executive Officer : Additional Deputy Commissioner

1. Power & Functions:

Subject to the provisions under the Disaster Management Act, 2005 and in accordance with the guidelines laid down by the National Authority and the State Authority, the District Authority shall act as the planning, coordinating and implementing body for disaster management in the District and shall also be responsible for the following:-

i) Prepare a District Management Plan, including District Response Plan for the District.

ii) Coordinate and monitor the implementation of National Policy, State Policy, National Plan, State plan and District Plan.

iii) Ensure that the areas in the District vulnerable to disaster are indentified and measures for the preventions of disasters and mitigation of its effects are undertaken by all the District Level Government Departments and the local authorities.

iv) Ensure that the guide line for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the National Authority and the State Authority are followed by all the District level State Government Departments and the local authorities.

v) Give directions to different District level authorities and local authorities to take such other measures for the prevention or mitigation of disaster as may be necessary.

vi) Monitor the implementation of Disaster Management plan prepared by the District Level Govt. Departments and local authorities.

vii) Lay down guidelines to be followed by the District Level State Government departments for the purpose of integration of measures for prevention of disaster and mitigation in their development plans and projects and provide necessary technical assistance therefore, and monitoring the implementation of such measures.

viii) Review the capabilities for responding to any disaster or threatening disaster situation in the District and give directions to the relevant Departments or authorities at the District level for their up-gradation as may be necessary.

ix) Review the preparedness measures and give directions to the District level or other concerned authorities, where necessary, for bringing the preparedness measures to the levels required for responding effectively to any disaster or threatening disaster situation.

x) Organise and coordinate specialized training programme for different levels of officers, employees and voluntary rescue workers in the District.

xi) Facilitate Community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, Governmental and non- governmental organizations.

xii) Set up, maintain, review and upgrade the mechanism for early warning and dissemination of proper information to the public.

xiii) Prepare, review and upgrade the District level Response Plan and Guidelines.

xiv) Coordinate response to any threatening disaster situation of disaster.

xv) Ensure that the District Level Government Departments and local authorities prepare their response plans in accordance with the District Response Plan.

xvi) Lay down guideline, or give directions to the concerned District Level State Government Departments or any other authorities within the local limits of the District, to take measures to respond effectively to any threatening disaster or disaster.

xvii) Advise, assist and coordinate the activities of the District Level State Government Departments, statutory bodies and other governmental or non-governmental organizations engaged in disaster management in the District.

xviii) Coordinate with, and give guidance to, local authorities in the District to ensure that measures for the prevention or mitigation or threatening disaster situation or disaster in the District are carried out promptly and effectively.

xix) Provide necessary technical assistance or give advice to the local authorities in the District for carrying out their functions effectively.

xx) Review the developmental plans prepared by the District level State Government Departments, statutory authorities or local authorities with a view to make necessary provisions therein for prevention of disaster or mitigation.

xxi) Examine the construction in any area in the District and, if it is of the opinion that the standards for the prevention of disaster or mitigation laid down for such construction is not being, or has not been followed, may direct the concerned authority to take such actions as may be necessary to secure compliance of such standards.

xxii) Identify buildings and places which could, in the event of any threatening disaster or disaster, be used as relief centres and make arrangements for water supply and sanitation in such buildings and places.

xxiii) Establish stock piles of relief and rescue materials or ensure preparedness to make such materials available at a short notice.

xxiv) Provide information to the State Authority relating to different aspects of disaster management.

xxv) Encourage the involvement of NGOs and voluntary social welfare institutions working at the grass root level in the District for disaster management.

xxvi) Ensure that communication systems are in order, and disaster management drills are carried out periodically.

xxvii) Perform such other functions as the State Government or State Authority may assign to it or as deems necessary for disaster management in the District.

2. **Powers of the Chairperson**

i) The Chairperson of the District Authority shall, in the additions to presiding over the meetings of the District Authority, exercise and discharge such powers and functions of the District Authorities as the District Authority may delegate to him.

ii) Subject to the expose facto ratifications by the District Authority, the Chairpersons of the District Authority, in the case of an emergency, have the power to exercise all or any of the powers of the District Authority.

iii) The District Authority or the Chairperson of the District Authority may, be general or special order in writing, delegate such of its or his powers and functions to the Chief Executive Officer, subject to such conditions and limitations, if any, as it or he deems fit.

iv) The District Authority shall meet as and when necessary and at such time and place as the Chairperson may think fit.

Sd/- **ROCHILA SAIAWI**
Commissioner/Secretary to the Govt. Of Mizoram
Relief & Rehabilitation Department

Memo No.B.13011/17/2006–REH : Dated Aizawl, the 23rd May, '06

Copy to:

1. Secretary to the Governor of Mizoram.
2. PS to Speaker/Dy.Speaker.
3. PS to Chief Minister.
4. PS to all Minister/Minister of State.
5. All Administrative Departments.
6. All Head of Department.
7. All Deputy Commissioners.
8. Chief Executive Member, Mara Autonomous District Council,Saiha/Lai Autonomous District Council, Lawngtlai/Chakma Autonomous District Council, Chawngte
9. Controller, Printing & Stationery with 7(seven) spare copies for publication in the Mizoram Gazette.

Sd/- **JOHNY T.O.**
Joint Secretary to the Govt. Of Mizoram
Relief & Rehabilitation Department

APPENDIX – IV

GOVERNMENT OF MIZORAM

DISASTER MANAGEMENT & REHABILITATION DEPARTMENT

Dated Aizawl,the 25th October, 2019

NOTIFICATION

No.B.13011/102/2015 – DMR: In pursuance of the provision under Section 25 of the Disaster Management Act, 2005 and in supersession of previous notification dated 06.06.2006, the Governor of Mizoram is pleased to reconstitute the **"District Disaster Management Authority"** for every District in Mizoram with the following composition, with immediate effect and until further orders:

1. Chairperson : Deputy Commissioner (Ex-Officio)
2. Co-Chairperson : Project Director, DRDA or CEM, Autonomous District Council in respect of Sixth Scheduled areas)
3. Members : i) Superintendent of Police (Ex-officio)
   ii) Executive Secretary, ADC (in case of Sixth Scheduled areas)
   iii) Chief Medical Officer (Ex-officio)
   iv) Senior most officer from PWD i.e S.E or EE whoever is available
   v) Senior most officer from PHE i.e S.E or EE whoever is available
4. Chief Executive Officer : Additional Deputy Commissioner Office

1. Power & Functions –

Subject to the provisions under the Disaster Management Act, 2005 and in accordance with the guidelines laid down by the National Authority and the State Authority, the District Authority shall act as the planning, coordinating and implementing body for disaster management in the District and shall also be responsible for the following –

1) Prepare a District Management Plan, including District Response Plan for the District.

2) Coordinate and monitor the implementation of National Policy, State Policy, National Plan, State plan and District Plan.

3) Ensure that the areas in the District vulnerable to disaster are indentified and measures for the preventions of disasters and mitigation of its effects are undertaken by all the District Level Government Departments and the local authorities.

4) Ensure that the guide line for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the National

Authority and the State Authority are followed by all the District level State Government Departments and the local authorities.

5) Give directions to different District level authorities and local authorities to take such other measures for the prevention or mitigation of disaster as may be necessary.

6) Monitor the implementation of Disaster Management plan prepared by the District Level Government Departments and local authorities.

7) Lay down guidelines to be followed by the District Level State Government departments for the purpose of integration of measures for prevention of disaster and mitigation in their development plans and projects and provide necessary technical assistance therefore, and monitoring the implementation of such measures.

8) Review the capabilities for responding to any disaster or threatening disaster situation in the District and give directions to the relevant Departments or authorities at the District level for their up-gradation as may be necessary.

9) Review the preparedness measures and give directions to the District level or other concerned authorities, where necessary, for bringing the preparedness measures to the levels required for responding effectively to any disaster or threatening disaster situation.

10) Organise and coordinate specialized training programme for different levels of officers, employees and voluntary rescue workers in the District.

11) Facilitate Community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, Governmental and 4non-governmental organizations.

12) Set up, maintain, review and upgrade the mechanism for early warning and dissemination of proper information to the public.

13) Prepare, review and upgrade the District level Response Plan and Guidelines.

14) Coordinate response to any threatening disaster situation of disaster.

15) Ensure that the District Level Government Departments and local authorities prepare their response plans in accordance with the District Response Plan.

16) Lay down guideline, or give directions to the concerned District Level State Government Departments or any other authorities within the local limits of the District, to take measures to respond effectively to any threatening disaster or disaster.

17) Advise, assist and coordinate the activities of the District Level State Government Departments, statutory bodies and other governmental or non- governmental organizations engaged in disaster management in the District.

18) Coordinate with, and give guidance to, local authorities in the District to ensure that measures for the prevention or mitigation or threatening disaster situation or disaster in the District are carried out promptly and effectively.

19) Provide necessary technical assistance or give advice to the local authorities in the District for carrying out their functions effectively.

20) Review the developmental plans prepared by the District level State Government Departments, statutory authorities or local authorities with a view to make necessary provisions therein for prevention of disaster or mitigation.

21) Examine the construction in any area in the District and, if it is of the opinion that the standards for the prevention of disaster or mitigation laid down for such construction is not being, or has not been followed, may direct the concerned authority to take such actions as may be necessary to secure compliance of such standards.

22) Identify buildings and places which could, in the event of any threatening disaster or disaster, be used as relief centres and make arrangements for water supply and sanitation in such buildings and places.

23) Establish stock piles of relief and rescue materials or ensure preparedness to make such materials available at a short notice.

24) Provide information to the State Authority relating to different aspects of disaster management.

25) Encourage the involvement of NGOs and voluntary social welfare institutions working at the grass root level in the District for disaster management.

26) Ensure that communication systems are in order, and disaster management drills are carried out periodically.

27) Perform such other functions as the State Government or State Authority may assign to it or as deems necessary for disaster management in the District.

2. Powers of the Chairperson

1) The Chairperson of the District Authority shall, in the additions to presiding over the meetings of the District Authority, exercise and discharge such powers and functions of the District Authorities as the District Authority may delegate to him.

2) Subject to the expost facto ratifications by the District Authority, the Chairpersons of the District Authority, in the case of an emergency, have the power to exercise all or any of the powers of the District Authority.

3) The District Authority or the Chairperson of the District Authority may, be general or special order in writing, delegate such of its or his powers and functions to the Chief Executive Officer, subject to such conditions and limitations, if any, as it or he deems fit.

4) The District Authority shall meet as and when necessary and at such time and place as the Chairperson may think fit.

Sd/- **LALTHANGPUIA SAILO**
Commissioner & Secretary to the Govt. of Mizoram
Disaster Management & Rehabilitation Department

Memo No.B.13011/107/2011–DMR ***Dated Aizawl, the 25th October, 2019***

Copy to:

1. Secretary to the Governor of Mizoram
2. Sr. PPS to Chief Minister, Mizoram
3. P.S to Speaker/Dy. Speaker.
4. P.S to all Minister/Minister of State.
5. P.S to Vice Chairman, State Planning Board
6. Sr. PPS to Chief Secretary, Mizoram
7. All Administrative Departments.
8. All Head of Department.
9. All Deputy Commissioners.
10. Chief Executive Member, Mara Autonomous District Council, Siaha/Lai Autonomous District Council, Lawngtlai/Chakma Autonomous District Council, Chawngte.
11. Controller, Printing & Stationery with 7 (seven) spare copies for publication in the Mizoram Gazette.

12. Director, Disaster Management & Rehabilitation Department

13. Guard File

Sd/- **Dr. Malsawmtluanga Fanchun**
Under Secretary to the Govt. of Mizoram
Disaster Management & Rehabilitation Department