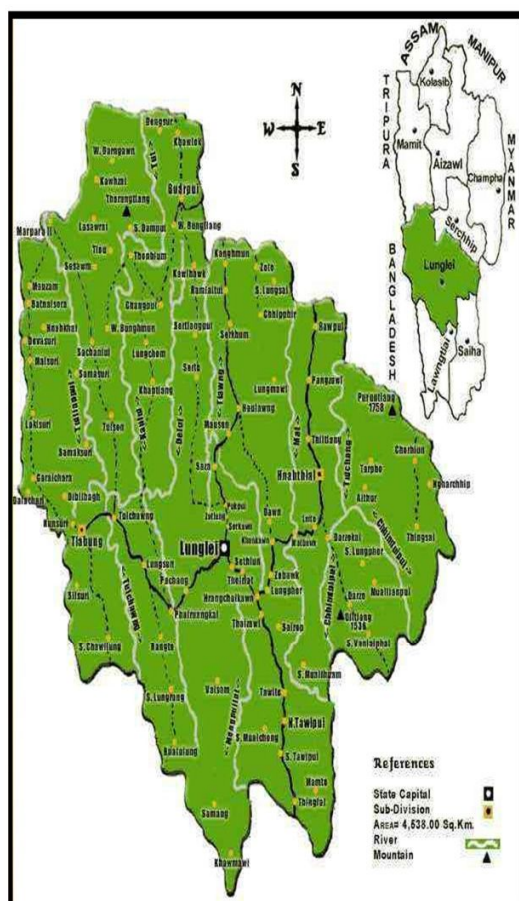


# DISTRICT DISASTER MANAGEMENT PLAN

## LUNGLEI DISTRICT 2011



Prepared by District Disaster Management Authority  
Lunglei District

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## **F O R W A R D**

I am happy that the District Management Plan for Lunglei District has been prepared and is now ready for publication. The District Plan consists of details of measures to be taken in the even of either natural or man-made disasters within the District on the basis of actual capacity of the District resource. All the District level officers are expected to go through the DDMP to acquaint themselves with their respective responsibilities and remain ever alert for prompt action.

It is not an easy task to prepare this operational plan outlining different measures to be taken by different departments within the District in times of emergency. I would like to place on record my deep appreciation of the sincere efforts and hard work put in by all the officials in bringing out this useful handbook. The District Disaster Management Plan

shall be updated from time to time and any concrete suggestions for the improvement is ever welcome.

Sd/- M. ZOHMINGTHANGI  
Deputy Commissioner,  
Lunglei District, Lunglei  
&  
Chairman  
District Disaster Management  
Authority,  
Lunglei District, Lunglei.

## **CHAPTER - I**

### **APPROACH, OBJECTIVES AND PRINCIPLES OF DISTRICT DISASTER MANAGEMENT PLAN**

#### **1.1 INTRODUCTION:**

A disaster refers to a catastrophe, mishap, calamity and grave occurrence from natural or man-made causes, which is beyond the coping capacity of the affected community. DM involves a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient for:

- Prevention of danger or threat of any disaster.

- Mitigation or reduction of risk of any disaster or its severity or consequences.
- Capacity building including research and knowledge management.
- Preparedness to deal with any disaster.
- Prompt response to any threatening disaster situation or disaster.
- Assessing the severity or magnitude of effects of any disaster.
- Evacuation, rescue and relief.
- Rehabilitation and reconstruction.



A typical DM continuum comprises six elements; the pre-disaster phase includes prevention, mitigation and preparedness, while the post-disaster phase includes response, rehabilitation, reconstruction and recovery. A legal and institutional framework binds all these elements together.

## **1.2 PRINCIPLES AND NEEDS OF DISASTER MANAGEMENT PLAN**

Disaster has been mankind's constant though inconvenient companion since time immemorial. Natural disasters continue to strike unabated and without

notice and are perceived to be on the increase in their magnitude, complexity, frequency and economic impact.

India is a disaster prone country. In view of its sub tropical location, long coast line and the tectonic history, India is vulnerable to major natural hazards, such as, Earthquakes, Cyclones, Floods and Droughts. Man made disasters like Fires, Bomb blast; Building Collapses, Road Accidents and Dam Burst too are common.

It is now recognized facts that while natural disaster are primarily due to imbalances in nature but losses due to them on account of human failings. Human suffering and misery from a large number of natural disasters can be mitigated by taking timely action, preventing mechanisms and undertaking capital works of long and medium terms. The social and economic losses of disaster are high and often immeasurable. Usually the most hit are the poor and the marginalized sections of the society, such as, the small and landless farmers and the agricultural labourers.

In view of the global environmental changes, it is likely that the frequency and impact of disasters would increase the World over. The population pressure leads to degradation of environment by interrupting the water flow and hydrological cycles, causing either landslides, floods, siltation or soil erosion. Absence of Regulatory instruments in regard to safety considerations against natural hazards in planning of habitations and constructions of building and life lines, could be cited as one of the major reasons for wide spread fuel wood damage observed year after year in various parts of the country. As a welfare State, the Government would have to take the lead in disaster prevention and reduction and mitigating their impact, enhancing the awareness of the coping mechanisms among the people and to prevent loss of lives and property. The overwhelming drive for industrial growth, lack of coordination among various departments and various agencies and haphazard development also contribute to the problem. Maintaining quality and proper maintenance are the prerequisites to prevent accidents which are now killing a very large number of people annually.

In modern developing world, it has been well experienced that various types of disasters are occurring every second. These disasters may be of natural and man-made. Be it natural or man-made, these disasters disrupt the

normal functioning of society as well as environment. Besides, there is a huge loss of materials and infrastructure causing serious consequences. It is possible to avoid such disasters if one is prepared very well and have a disaster management plan incorporating the preparedness and mitigation measures to minimize its serious effects. Availability of a good disaster management plan facilitates the preparedness and commitment for its positive implementation at the hour of crisis. Mizoram especially, is under the heavy damage risk zone and one of the most vulnerable regions in the country. This disaster management plan should envisage the following factors with reliability from the practical point of view such as preparedness, risk assessment, vulnerability analysis and quick and effective response mechanism. Impact of disasters in the society affected has to be taken into account.

The Deputy Commissioner's Office (Lunglei) is the administrative unit for administration and the District Disaster Management Authority headed by the Deputy Commissioner of the District play a crucial role in any event of Disaster Management within the District. It is therefore, imperative to strengthen the administrative machinery, stakeholder and coordinating inter agency and also equip and train the District Collector, Department Officials and the Disaster Management Team within the District. Public awareness would have to be also created through the NGOs, apart from the local administration. It should be the combined effort of the Government at the Centre, the State, the District, the Panchayats, NGOs and people to collectively pool their resources, capability put in their best efforts to mitigate the losses and organize rescue and relief effective. The need to prevent loss of their lives and property is the driving force behind this Disaster Management Plan.

### **1.3 APPROACH:**

A holistic and integrated approach will be evolved towards disaster management with emphasis on building strategic partnerships at various levels. District Disaster Management Plan is inevitable for strong administrative unit of linkup between bottom and the top. There is no doubt about its formulation, vow for preparedness and commitment for its positive implementation at the hour of crisis. The plan is viable because it envisages the following factors critically from a practical point of view.

- Risk assessment & Vulnerability analysis.

- Culture of quick and effective response.
- Maintaining cohesiveness & uniformity in the formulation of strategy taking a wide range of heterogeneous factors posed by a Disaster.

#### **1.4 OBJECTIVES:**

The main objectives of Multi-Hazard Disaster Management Plan of Lunglei District are to reduce the severe effects of various disasters which have been constantly striking the normal life of the people through proper planning and preparedness. Since it is known that only post disaster management is not adequate to restore the life of the affected people to its normal functioning status after the disaster, therefore it is important to have proper preparedness and mitigation plan in order to achieve minimal loss.

To minimize the disastrous effects of unwanted incidents which destroy many lives and properties, the disaster management plan has been developed encompassing the active participation of all the stake holders and help the public to know how to deal with such situations in future by utilizing the readily available resources with optimum response mechanisms ensuring flawless operation in various activities like search and rescue, rehabilitation, damage assessment and post disaster recovery processes.

An effective and realistic District Disaster Management Plan with fail proof communication, authentic and accurate data base, documented and rehearsed to be activated in the shortest possible time with minimum simple orders and procedures ensuring active participation both by government, Community and Volunteers at all levels making optimum utilization of men, material and available resources with no gaps or no overlaps to prevent loss to lives minimize loss to property ensuring fastest approach to rescue, rehabilitation & to avert further miseries of the calamity stricken people. The DDMP will obviously guide the entire machinery engaged for relief operation and input courage among the community to face the eventuality boldly.

The Basic objectives of the District Management Plan of Lunglei District are to protect all its residents and every kind of wealth from all sorts of untoward incidents through the following objectives:

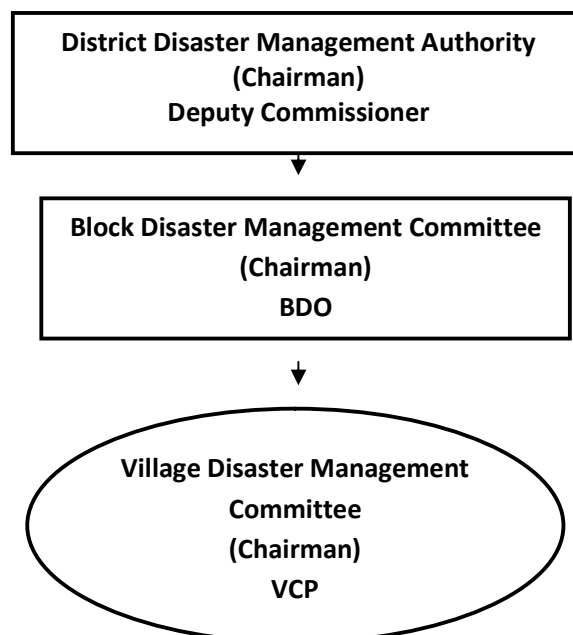
1. Institutionalization of disaster management in district administration

2. Encouraging a culture of disaster preparedness in the district
3. Vulnerability reduction and disaster mitigation through better planning process
4. Creation of the best Govt. mechanism to handle any unprecedented events
5. Instant response and effective decisions making in disaster
6. Better coordination of relief and rehabilitation aftermath of a disaster
7. Better coordination of all line departments in disaster management
8. Encouraging and empowering the local community to own disaster management
9. Regular update of resources available in and around the district

### **1.5 WHO FORMULATES AND CARRY OUT THE PLAN :**

District Disaster Management Authority (DDMA); under the Chairmanship of the Deputy Commissioner is the apex body in the district to oversee and supervise the disaster management. The Committee makes a plan and monitors routine preparedness for different types of calamities for minimal effects of disaster, draw a response mechanism and coordinate linkages of all departments and agencies in tackling the problems of disaster.

### **1.6 SETUP OF DISTRICT DISASTER MANAGEMENT AUTHORITY**



**FORMATION OF THE DISTRICT DISASTER MANAGEMENT  
AUTHORITY AND ITS COMPOSITION**

**2.1 FORMATION AND COMPOSITION OF DDMA**

In the event of a disaster occurring in Lunglei District, total responsibility for its management lies with the Disaster Management Committee. Composition should include all departments as well as Non-Governmental Organization should be constituted as under:

S/n	Name of Functionaries	Designation	Phone Number	
			Office	Residence
1	Deputy Commissioner	Chairman	2324121	2324020
2	SDC (DM&R)	Secretary	2325316	
3	Addl. DC (Establishment)	Member	2324039	
4	Addl. DC (Planning)	Member	2324818	
5	Superintendent of Police	Member	2324010	2324112
6	Comdt. 2 <sup>nd</sup> MAP	Member	2325827	2325004
7	Comdt. 40 <sup>th</sup> A.R	Member	2324329	2324342
8	Comdt. 136 <sup>th</sup> BSF	Member	2342648	
9	OC MRHG	Member	2324369	
10	CMO	Member	2324743	2324725
11	Med. Supdt Civil Hospital	Member	2325071	2324232

12	Med. Supdt Serkawn	Member	2342268	
13	PD, DRDA	Member	2324888	2322335
14	SDO (S)	Member	2324023	2324826
15	SE PWD	Member	2324720	2324092
16	SE P&E	Member	2324528	2324971
17	SE PHE	Member	2324270	2325024
18	DLAO	Member	2324775	2325801
19	Conservator of Forest	Member	2324860	2324549
20	District Education Officer	Member	2324072	
21	DCSO	Member	2324017	2324025
22	DTO	Member	2324756	2324588
23	SO	Member	2324046	2324771
24	DE Telecom	Member	2325144	
25	OC F&ES	Member	101	
26	President Sub Hqtrs YMA	Member	2324799	
27	President Sub Hqtrs MHIP	Member	2324583	
28	I&PRO	Member	2324759	2324071
29	DAO	Member	2324011	2324170
30	DHO	Member	2324298	2322693
31	BDO (Lunglei)	Member		
32	DSYO	Member		
33	DVO	Member		

34	AT & CP (Town & Country Planning)	Member		
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## **2.2 Designated Meeting Venue:**

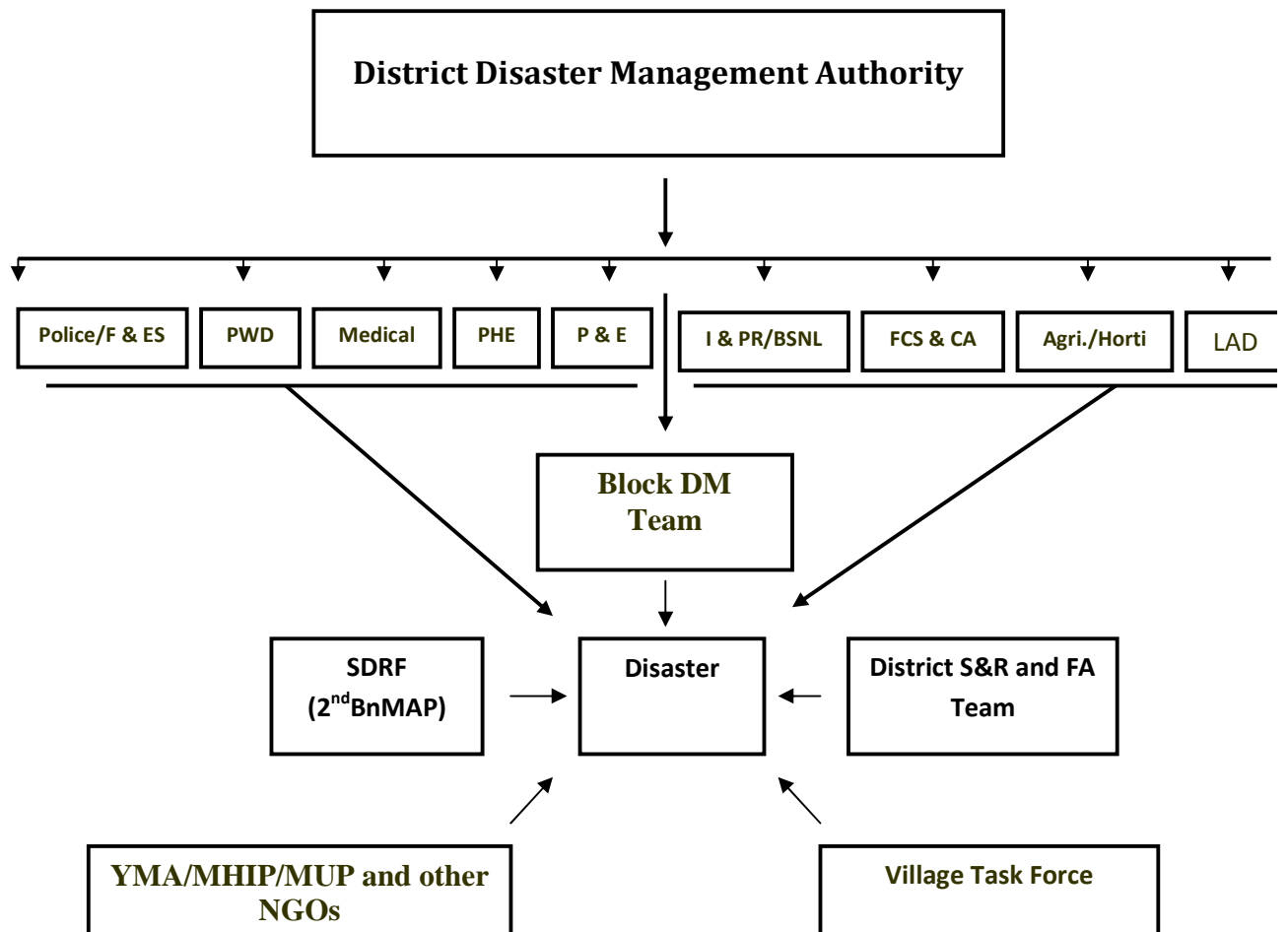
In the event of a major disaster with catastrophic consequences affecting Lunglei or other parts of the District, when there is total disruption of communication system, all members of the Disaster Management Authority will have to assemble immediately within 1(one) hour after the occurrence of such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

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

- 1) Office of S.P., Lunglei
- 2) D.C.'s Circuit House

If the Chairman is unable to preside over the meeting or fails to attend such meetings for any reason, the Addl. DC or Superintendent of Police will take the Chair. If the Addl. DC or Superintendent of Police is also absent, one of the senior members of the committee nominated by other members will preside over the meeting. There will be no quorum.

### **2.3 SETUP OF DISASTER MANAGEMENT RESPONSE MECHANISM**



## **2.4 OPTIMUM STRATEGY FOR LUNGLEI DISTRICT DISASTER MANAGEMENT AUTHORITY**

Optimum strategy is to be maintained by the Disaster Management Authority through framing a District Disaster Management Plan to minimize loss of life and property. Officials from District Administration, Public, NGOs, VCs, and interest groups are monitored to stand in interaction with a view to play a major role in Disaster Mitigation. Broadly, the major action plan for DDMA has been divided into three major strategies:-



**Pre Disaster Management:** It refers to activities which actually eliminate or reduce the vulnerability or chance of occurrence or the effects of a disaster. Pre Disaster phase begins with hazard identification and vulnerability analysis. Firstly, the hazard is identified which has the potential effecting the population. Secondly, how people, property and structures will be affected by the disastrous event. Pre-Disaster Management includes planning how to respond in case an emergency or disaster occurs and working to increase resources available to respond effectively. Disaster preparedness in a district is being ready to react prompt and effectively in the event of disaster. It measures depend upon the analysis of hazards and vulnerability.

**During Disaster:** It implies response activities occur during an immediately following a disaster. They are designed to provide emergency assistance to victims of the event and reduce the likelihood of the secondary damage. The five basic stages of during disaster response to an emergency disaster are:

**1. Notification/Warning:** Warning should be issued to two specific groups. (i) The general public and (ii) Line Departments, individual or agencies who must respond to the disaster. In such situation, in Lunglei District, the general public can be informed through loud speaker (FLS) and Local

Newspapers. However, that immediate danger area should be informed by telephones, messenger and Local Cable Televisions etc.

**2. Immediate Public Safety:** Immediate public safety deals with providing disaster medical services, search and rescue evacuation from the danger area. The primary concern is for safety of the people and treatment for those who may be injured.

**3. Property Security:** This stage deals primarily with the protection of property in the community. The local police should vigil the property and should ensure that property is safe and looting vandalism does not occur. The fire organization should aid in prevention of further damage to surrounding property. The local PWD may also play an important part by providing man power, remove debris or provides street barricades.

**4. Public Welfare:** During the public welfare stage, the prime concern is about mass. Care for injured, shelter for homeless, food and clothing those in need. During this stage, assessment of the damage is necessary in order to obtain state or national support. And all the service agencies must work closely.

**5. Restoration:** Restoration means restoring of essential services such as communications, water supply, power supply etc. as early as possible and removal of debris from disaster scene here. It requires good administration and commitment by all i.e. Government, people and voluntary organizations.

### **Post Disaster Management:**

This is the final phase of disaster management and can be divided into short term and long term recovery.

**1. Short Term Recovery:** Short term recovery means the restoration of vital services and facilities to minimum standard of operation and safety. During short term recovery people's immediate needs are taken care of and assistance programmes are put into effect

2. **Long Term Recovery:** Long term recovery is simply those recovery efforts, which are still in operation long after a disaster and includes everything from complete developed of a disaster area to mitigation effort to prevent a similar disaster on an ongoing basis for year after disaster.

## **2.5 PRE DISASTER MANAGEMENT**

The DDMA will undertake the following task that has been divided into three action major plan in collaboration with different line department and stakeholder.

### **Preparedness in “No-Disaster Situation”**

1. Preparation of District Disaster Management Plan for the current year
2. Hazard Analysis & Resource Inventory
3. Allocation of responsibilities to the line department, block and village level, institutions, organizations and voluntaries
4. Broadly defining the responsibilities and operational functions
5. IEC Programme
6. Training and capacity building
7. Logistic arrangement-Safe shelters (immediate/permanent), Food items like Rice, Chura & Biscuits, Drinking water, Medical facilities, clothing, Other essential commodities, Communication network like wireless system, etc.
8. Conduct mock drill
9. Strengthening of EOC
10. To co-ordinate the efforts of the Govt. Departments and NGOs in Disaster Management Programme

## **2.6 DURING DISASTER**

1. Functioning of District Emergency Operating Centre (DEOC) & other Sub-Divisional/Block  
Administrative Centre/Line Departmental Control Rooms
2. Dissemination of warning /information
3. Coordination meeting with officials at District Control Room in each 12 hours to monitor the situation
4. Alerting CMO/Line Department/Field Official to remain in readiness to gear up into action immediately after abetment of crisis.

5. Immediate freezing of reasonable POL stock with different petrol pumps
6. Rescue operation/evacuation by teams (already identified) providing infrastructural facility and movement to rescue centers
7. Management of rescue shelters
8. Monitoring Disaster Management by ensuring a line of Control through Police & Armed forces, Fire Services, Civilians, NGOs and essential Service Departments by District Collector
9. Daily stock of the situation by District Magistrate and Addl. District magistrate
10. Administration of relief
11. Preparation of Daily situation report
12. To plan, organize and render relief in accordance with provisions of the District Plan
13. To directly monitor the progress of relief operation at Sub-Division/Block headquarters in rendering relief before, during and after the Disaster
14. To coordinate the efforts of the Govt. Departments and NGOs

## **2.7 POST DISASTER MANAGEMENT**

1. Assessment and enumeration of damage
2. Distribution of relief/Emergent reliefs
3. Monitoring Relief Operation organized by outside agencies/UN Agencies/Red Cross/NGOs/PSUs/other states etc through District Administration
4. Restoration of communication-roads & bridges
5. Restoration of Electronic communication system
6. Immediate arrangement of free kitchen in the cutoff/shelter camps and inaccessible areas
7. Ensuring transportation of relief materials to affected areas
8. Ensuring safeguarding of belongings of the evacuees
9. Maintenance of Law and Order
10. Ensuring safe availability of Drinking water
11. Provision of Medical facilities and Minimum sanitation
12. Removal of debris and disposal of carcasses
13. Helping the evacuees to return to their homes
14. Special care to Children, Lactating Mothers, Old & infirm
15. Meeting Officers of both District level and Field level in every 24 hours to take stock of the situation

16.Documentation of the entire event-Black & White/Audio & Video

**2.8 Block Level Coordination Committee on Disaster Management:**

There shall be a Disaster Management Committee at Block Level. This Committee will assist in the implementation and coordinate programmes undertaken by Block and Village Level Committee. The Committee shall consist of the following members:

- |                  |   |  |
|------------------|---|--|
| Chairman         | : | BDO  |
| Member Secretary | : | Principal/Headmaster of Local High School or HSS   |
| Members          | : | 1. SDPO<br>2. Medical Officer<br>3. EE/SDO, PWD/PHE/P&E<br>4. CEO (Edn.)<br>5. Representative of YMA, MHIP, MUP<br>6. Representative of local Churches<br>7. President, V.C<br>8. Any other member co-opted by the |

Chairman

One third of the members will form the quorum and the functions of this Committee shall be:

1. Preparation of Block Disaster Management Plan for the current year
2. Training and capacity building
3. Logistic arrangement-Safe shelters (immediate/permanent), Food items like Rice, Chura & Biscuits, Drinking water, Medical facilities, clothing, Other essential commodities, Communication network like wireless system, etc.
4. To plan, organize and render relief in accordance with provisions of the District Plan
5. To directly monitor the progress of relief operation at Sub-Division/Block headquarters in rendering relief before, during and after the Disaster
6. To coordinate the efforts of the Govt. Departments and NGOs

7. To suggest measures for further improvement of relief operation
8. To supervise various efforts or relief services at the village level

**2.9 Village Level Co-ordination Committee:** The Village Level Committee on Disaster Management shall consist of the following:

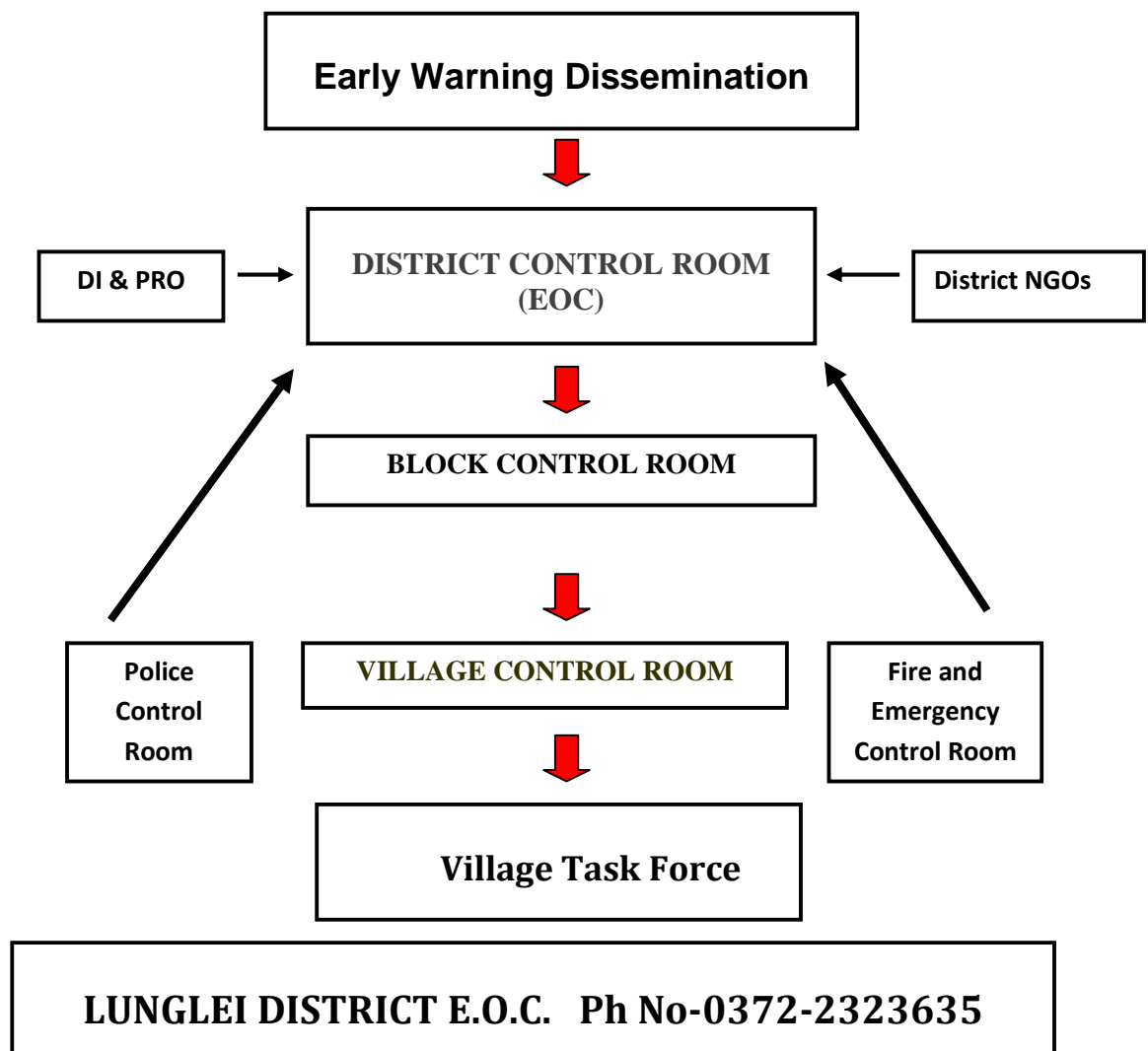
Chairman	: President, VC/Senior most Govt. Officer
Vice Chairman	: Vice President, Village Council
Member Secy.	: President, Group/ Branch YMA or Headmaster,
M.E	School
Members	1. Post Commander, Security Post or his
representative	
	2. O.C., Police Station/ Out Post (if any)
	3. VFA if posted in the area
posted	4. Health Assistant/Pharmacists/Nurse/Midwife, if
	in the area.
	5. Representative from MHIP and MUP
	6. Section Officer/Section Assistant, PWD if any
	7. Secretary, Branch YMA
High	8. Head Teacher, Primary School, Middle School,
	School
	9. Representative of local Churches
	10. Any other member co-opted by the chairman

One third of the members will form the quorum and the functions of the Co-ordination Committee shall be:-

1. Preparation of village Disaster Management Plan for current year
2. To plan, organize and render relief in accordance with the provisions of the District and Block DM Plan
3. Training and capacity building
4. Logistic arrangement of self center
5. To coordinate efforts of Government Department, Non-government organizations in connection with relief operations
6. To suggest measures for improvement of relief operations.
7. To advise on any measures necessary for relief operations

## **2.10 EMERGENCY OPERATION CENTRE (EOC) / DISTRICT CONTROL ROOM:**

Lunglei District have an exclusive District Control Room/Emergency Operation Centre (EOC) at the Office of the Deputy Commissioner, Lunglei District. This shall be around the clock set up with sufficient man power and most modem equipments. Considering the unique responsibility of the district Emergency Operation Centre, the equipments provided to it shall not be taken to any purpose other than disaster management. This centre is intended to coordinate all disaster related activities in the district starting from preparedness to rehabilitation and reconstruction.



The District EOC will be the nerve centre of the Disaster Management for the entire District. Its main purpose will be to monitor, coordinate and implement the actions for disaster management. It shall ensure that all warning, communication systems and instruments available in the district are in working conditions. The EOC control room will receive necessary information on a routine basis from the district departments on the vulnerability of various places in the district. A complete report on the preparedness of the district level departments and the resources available at their disposal should be with the authorities at the control room. If required, it shall also arrange and supply requirements. The District Control Room shall also see to it that the disaster management plan is updated according to the changing scenario. It has to maintain an inventory of all resources and should be able to provide information to all those who are needy. It will also provide information at the district and local level and disaster prone areas through appropriate media. In order to do this, it will have to brief the media of the situations and give day to day reports during the disasters. It will also maintain a record of the actual scenario and the action taken.

The Control Room will require participation of key officers from the line departments and other officers from the District Administration directly involved in the Disaster Management. The facilities and amenities available with the D. C. will be at the disposal of the officials on duty. The Control Room will perform the following main functions-

- i) Collection and compilation of information from the affected areas
- ii) Documenting information flow
- iii) Decision making regarding resources management
- iv) Allocation of tasks to different resources organizations
- v) Supply of information to State Government

It is partially impossible for the D.C. and his team to man the EOC round the clock, a specialized team of Desk Officers from key source departments from the following departments should be formed-

- i) Police Department
- ii) Medical (Health and Family Welfare)
- iii) PWD/PHE/P&E Depts.
- iv) LAD

The D.C will spell out priorities and policy guidelines and will coordinate the services of various departments and agencies. The Desk Officer will maintain constant contact with the District Disaster Management Committee and other head of offices to ensure quick decisions making. They will be responsible for allocating tasks to concerned staff, resources management and information flow. Responsibility of each desk will be pre-assigned.

### **2.11 Role of Emergency operation Centre in Normal Time:**

The Deputy Commissioner of Lunglei District may be empowered to appoint an Administrative Officer as Officer-in-charge of EOC. He will be responsible for the effective functioning of the EOC. Responsibilities of the EOC in charge in normal time include:

1. Ensure that all equipments in the EOC are in working condition
2. Collection 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 District Disaster Management plan
5. Maintenance of data bank with regular updating maintenance of data bank with regular updating
6. Activate the trigger mechanism on receipt of disaster warning/occurrence of disaster

### **2.12 Role of Emergency Operation Centre during Disaster**

On the basis of the 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 D.C 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, Lunglei
3. Hospitals in the disaster area

4. State Relief Commissioner
5. Emergency Operation Centre in the neighboring districts
6. State Emergency Operation Centre
7. People's representatives from the district

During Emergency, the Officer in Charge must ensure the availability of the following equipments in the Control Room and ensure they are fully functional for proper disaster management activities:

1. Communication facilities, phone (land line and mobile wireless set).
2. Generator, inverter and batteries.
3. Radio/TV for information collection.
4. Record Book for entry of important notes and warning received about disaster.
5. Sufficient fuel for running the generator.
6. Vehicles for emergency (two, four wheelers).
7. Disaster mapping of different aspect like vulnerable and safe areas etc.
8. Standard Operating Procedure for line departments.
9. Important contact numbers for emergency.
10. List of NGOs, NSS, and NCC with their capability to respond disaster.

Apart from this, District Emergency Operational Centre (DEOC) must arrange desk for the Emergency Support Function 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 EOC, District EOC and onsite EOC is mandatory for updates on the disaster, which happened.

#### **EQUIPMENT PROVIDED AT DEOC LUNGLEI**

Sl. No	Name of equipment	Quantities issued	Remarks
1	Figure of 8	3 each	
2	Rapelling mitten	4 each	
3	Ascender jumner	4 each	
4	Digital camera	1 each	
5	Photo copier (Sharp)	1 each	
6	Jumper	4 each	
7	Aluminum ladder	2 each	
8	Climbing rope 10 mm	2 bindles	
9	Climbing rope 8 mm	1 bundle	
10	Tape atrier	2 each	
11	Body harness	4 each	
12	Heavy duty work glove	2 each	
13	Climbing helmet	3 packs (120 no's)	
14	Carabiner screw	10 each	
15	Carabiner plain	10 each	
16	Sit harness	4 each	
17	Pully	2 each	
18	Rain coat	10 each	
19	Stretcher	3 each	
20	Sledge hammer	2 each	
21	LCD screen	1 each	
22	Petromax	3 each	
23	Head lamp	3 each	
24	Megaphone	1 each	
25	Emergency light	2 each	
26	Portable inflatable lightning system	1 each	
27	Printer	1 each	
28	Breathing air compressor	1 (only for DC Aizawl)	

29	Laptop	1 each	
30	Projector	1 each	

### **2.13 DISTRICT CONTROL ROOM AND LINKAGES WITH OTHER CONTROL ROOMS**

Co-ordination and linkage with District level Officers and Field Officers.

Sl.	TIME	COORDINATION LINKAGE
1.	PREPAREDNESS	Considering the gravity of situation the Collector shall convene the district level Natural Calamity Meeting whenever required.
2.	Pre-crisis After warning	Meeting with District Level Officials/Officials at Headquarter and chock out emergency plan with vulnerable areas and resource list.
		Coordination meeting of NGOs/VC's Assignment of duties.
		Pre-positioning of staff in the likely cut off areas.
		Arrange food and other basic requirement for emergency response.
		Collect information from different areas, and to act accordingly.
3.	During crisis	Coordination meeting with officials at headquarters by 12 hours intervals and 24 hours intervals with the field officials.
		Regular collection of situation report of the risk and vulnerable areas from the officers assign for the purpose.
		Provision for administering emergent relief and the other basic needs.
		Contact with SRC for supply of temporary

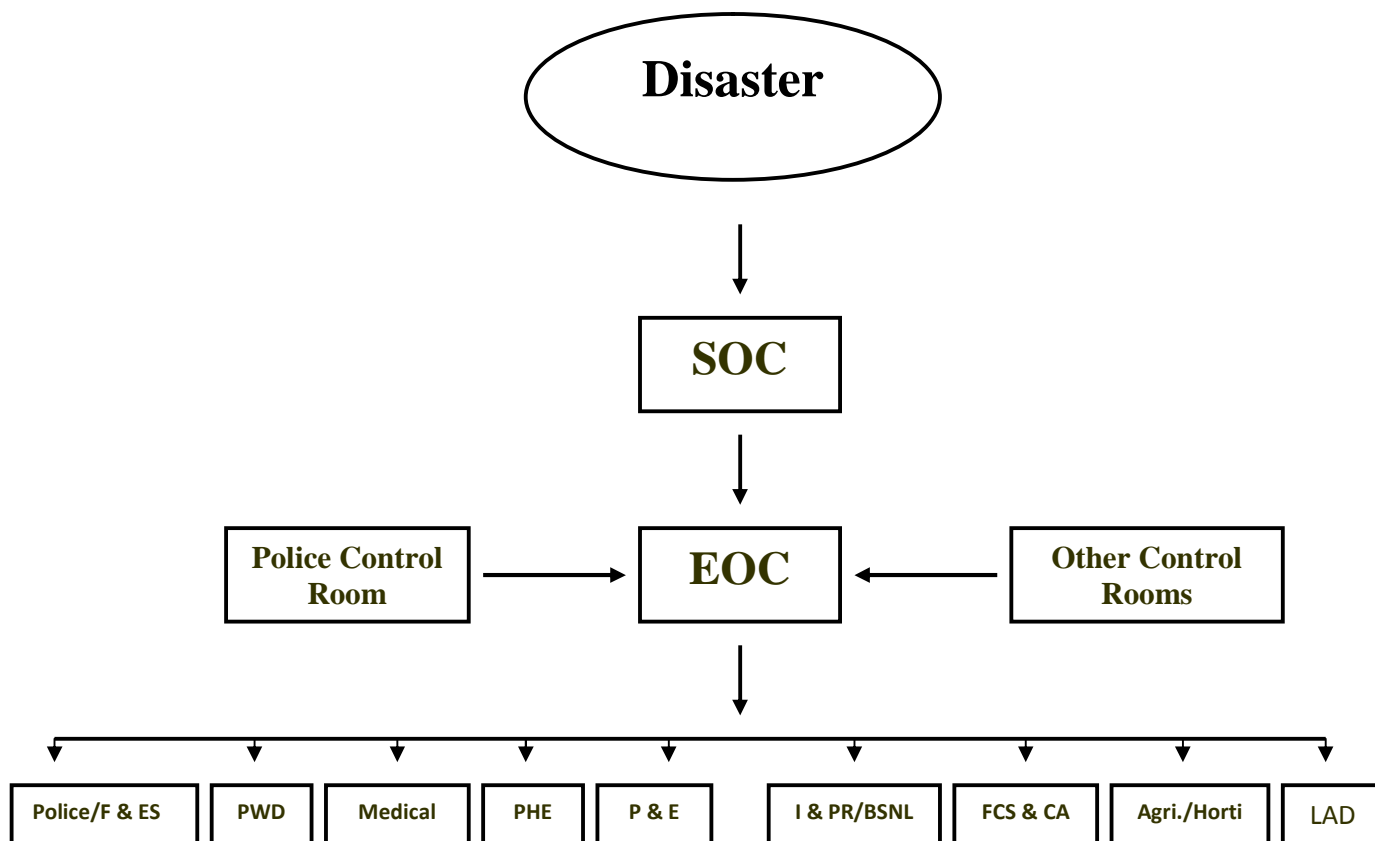
		shelter. Keeping inform CSO for supply of food articles procuring from FCI/whole sellers. Deputation of Volunteers to different probable affected areas. Keep regular link with State Control Room/SRC/etc.
4.	Post crisis	Helping the people evacuees for returning to their houses. Immediate arrangement of free kitchen in the cut-off and inaccessible areas. Relief distribution. Monitoring of Relief distribution. Provision of drinking water. Provision of Medical facilities. Repair/Restoration of Roads. Transportation of Relief and Human Resources. Keep regular link with State Control Room/SRC/etc

#### **2.14 SITE OPERATION CENTRE (SOC):**

Site Operation Centre, a complementary unit to the EOC would operate close to the district site. This will be directly linked with the EOC. It is the local community who would set up such operation centre at the locality level in order to coordinate various activities of evacuation, rescue and relief operations. Volunteers from locality supplemented by re-enforcements from the neighbourhood will conduct large scale relief operations without waiting for government agencies to reach the site, once the mantle of responsibility is assumed by the local functionary to take away the charge of co-ordination. Thus, if the SOC has already been set up by D.C. should not assume charge

but will be responsible for assisting, monitoring and evaluation the centre. He shall ensure that rescue and relief operations are carried out smoothly.

If SOC has not been set up on the first visit of the site, the officer so deputed from the District Administration viz. SDO, BDO or other officers conveniently available near the site will see to it that the SOC is set up without delay. In order to make SOC more effective and cohesive, the local leadership should be associated in such a way that maximum participation in terms of manpower and authority is ensured.



### **2.15 EMERGENCY SUPPORT FUNCTIONS:**

This is an additional feature in the new mechanism of disaster management. A concerted effort of various agencies is required to manage a

disaster. Usually the agencies are able to perform the required function, but lack of proper coordination leaves them under-utilized. To avoid this type of problem, a new mechanism called Emergency Support Functions (ESFs) are formulated.

<b>ESF</b>	<b>FUNCTION</b>	<b>NODAL AGENCY</b>	<b>SUPPORTING AGENCIES</b>
EFS-1	Communication	BSNL	I&PR/NIC/MPRO
EFS-2	Evacuation	D.C.	POLICE/HOME GUARD/NCC
EFS-3	Search and Rescue	MAP	Police, NCC, Health Dept./F&ES/40 <sup>th</sup> A.R/136 BSF
EFS-4	Law & Order	POLICE	Home Guard
EFS-5	Medical response & Trauma Counseling	Health Dept.	NSS/MHIP/MUP/SWD
EFS-6	Water Supply	PHE	LAD
EFS-7	Relief	FC&CA	NGOs
EFS-8	Debris and road Clearance	PWD	LAD
EFS-9	Help lines, Warning dissemination	D.C.	MPRO/NIC/NGO Reps/I&PR
EFS-10	Electricity	P&E	NGOs
EFS-11	Transport	Transport Dept.	PWD

The basic structure of the ESF depends up on the functions they are supposed to perform. Altogether there are 11 ESFs in the district. Each ESF is led the nodal department in the district and assisted by the other parallel civic bodies.

## **CHAPTER - III**

### **DISTRICT INFORMATION**

#### **3.1 Location:**

Lunglei district falls in the southern part of Mizoram. It is bounded by Saiha district, Lawngtlai district, Serchhip District and Mamit district on the South-East, South-West, North-East and North-West respectively. It shares international border with Myanmar in the east and Bangladesh on the west.

Lunglei district occupies more or less the central part of Mizoram, extending more to the southern side; 235 km from Aizawl along NH 54.

**Location** : 22°30' N - 23°18' N Latitudes  
92°15' E - 93°10' E Longitudes  
Altitude: 1222 metres.

### **3.2 Area and Administrative Division :**

Lunglei district is the second largest district in Mizoram. In Lunglei district have seven assembly constituencies viz., Lunglei 'N', Lunglei 'S', Lunglei 'E', Lunglei 'W', South Tuipui, Thorang and West Tuipui. For the purpose of general and developmental administration, the district has been divided into three sub-divisions:

- Lunglei sub-divisions.
- Hnahthial sub-divisions.
- Tlabung sub-divisions.

Lunglei district is also divided into four Rural Development Blocks, R.D.Blocks and their areas are:

Lunglei R.D. Block	:	1,117.06 sq. km.
Lungsen R.D. Block	:	1,046.29 sq. km.
Bunghmun R.D. Block	:	1,389.26 sq. km.
Hnahthial R.D. Block.	:	985.26 sq. km.
<b>Total Area of the District</b>	<b>:</b>	<b>4536 sq. km.</b>

### **3.3 DEMOGRAPHIC DETAILS:**

(According to stat. handbook Lunglei 2007)

Total Population	:	1,37,223
Male	:	71,403
Female	:	65,821
Density	:	30

### **3.4 HOUSEHOLD DETAILS**

Lunglei Block	:	12,107
Hnahthial Block	:	4,899

Lungsen Block : 7788

Bunghmun Block : 3,201

### 3.5 TYPE OF WORKERS (2001 census)

Main Workers : 60,870

Marginal Workers : 10,922

**Total Workers : 71,792**

### 3.6 Literacy Rate in Percentage

Literacy Percentage of the District : 84.20

Literacy Percentage of Male : 87.36

Literacy Percentage of Female : 80.74

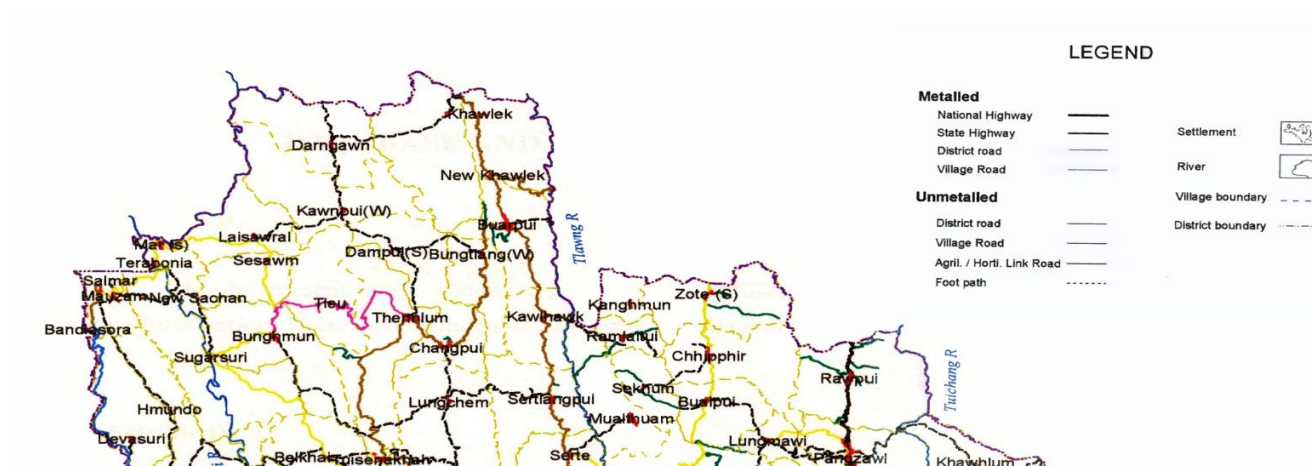


passing through villages like Balukiasuri, Kalapani, Lokisuri, Saisen, etc. before entering Lawngtlai district at the north western corner of the district. From Chhumkhum village, district road runs towards south up to Chawngte passing through villages like Rangte, Lalnutei, S.Lungrang, Rualalung, Chawngte, etc. and then enters Lawngtlai district. From Phairuankai village, district road runs towards north passing through villages like Belthei, Putlungasih, Zawlpui, Thenhlum, etc. and then continues to run towards the north eastern part of the district passing through villages like Changpui, W.Bungtlang, Buarpui, New Khwlek, etc. before reaching Serchhip district at Thenzawl town. From Thenhlum village, the district road runs along the western ridges of the district passing through villages like Tleu and Bunghmun, from Bunghmun village, village road runs towards north passing through villages like Sesawm, Laisawral, Mars before reaching the south western corner of Mamit district at Marpara, from New Dawn village, the State Highway runs along the middle ridges of the district passing through villages like Zotuitlang, Haulawng, Mualthuam, Sekhum, Ramlaitui, S. Kanghmun, etc before entering Serchhip district at Thenzawl town. From Lunglei town, towards north the district road runs along the central ridges of the district passing through villages like Vanhne, Thumpui, Serte, Sertlangpui, etc. and then joins the district road at Buarpui village. From Kutkawak village, the district road runs towards the south eastern part

of the district passing through villages like Tuipui D, Darzo, S.Vanlaiphai before reaching Saiha district. Besides these there are a large number of Horticulture/Agriculture link road in Lunglei district. As a whole Lunglei has a good road network. The whole length of the district is traversed by various road networks.

### 3.8 ROAD NETWORK (in kilometers):

S/n	Types of Roads	Surfaced	Un-surfaced	Total
1	State Highway	72.8	Nil	72.8
2	Major District Road	Nil	154.45	154.45
3	Other District Road	18	51	69
4	Town Road	79.67	40.69	120.36
5	Village Road	1.13	2.55	3.68
6	National Highway (BRO)	68	Nil	68
7	<b>Total</b>	<b>239.6</b>	<b>248.69</b>	<b>488.29</b>



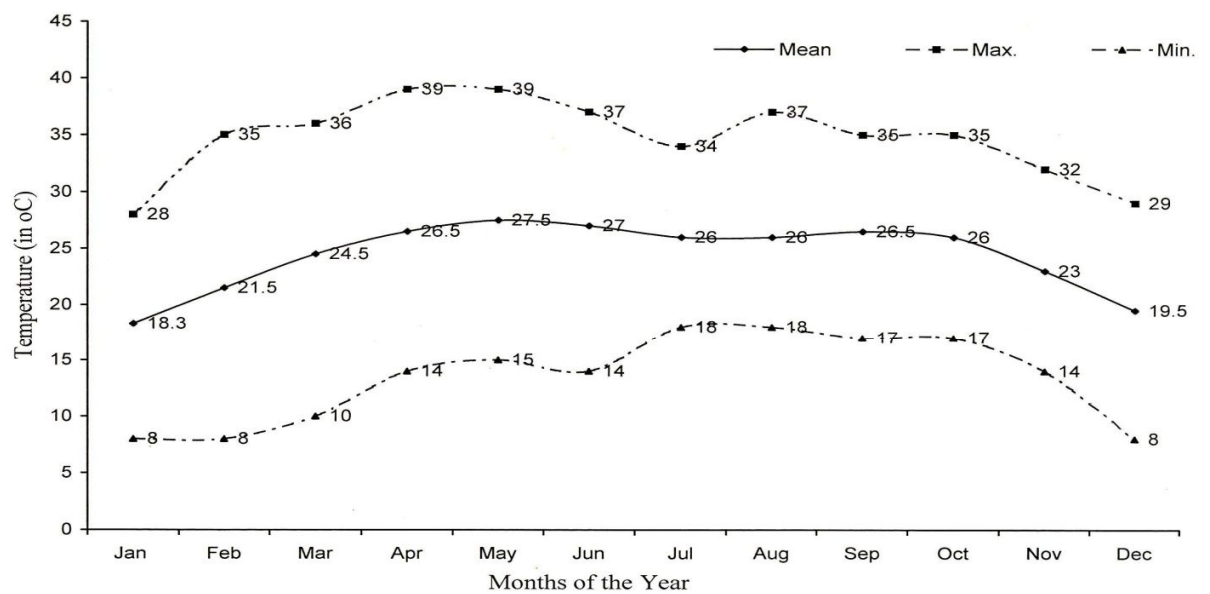
### **Road Network in Lunglei District**

**3.9 CLIMATE:** Lunglei district enjoys a moderate climate owing to its tropical location. It is neither very nor too cold throughout the year. And the district falls under the direct influence of the south west monsoon. As such the area receives an adequate amount of rainfall which is responsible for a humid tropical climate characterized by short winter and long summer with heavy rainfall.

**3.10 SEASON:** Depending on the variation in temperature and general weather conditions, four different types of seasons are observed for the district. They are as follows:

1. **The cold or winter season (thlasik):** This season starts from the month of December to first half of February. This is the coldest season of the year. During this period rainfall is much less as compared to other seasons, and whatever amount rainfall received is originated from the North East Monsoon, generally known as the retreating monsoon.
2. **Spring season (Thal):** This is the longest season of the year. It starts from the second half of February to the first half of March. Temperature is mild during this period and the sky is clear. There are no weather disturbances during the period.
3. **Summer season/rainy season:** This is the longest season covering about seven month starting from the second half of March till the first half of October. The early part of this season is from second half of March till First Half of May. May and June are the hottest months in the district and maximum isolation is received during this season.

few kilometers from Lunglei Town, for a period of 10 years since 1996-2005 and is shown in Table and Fig. The district experience a warm summer and yet due to the prevalence of monsoon showers, the temperature is kept down to a considerable extent.



Mean, Maximum and Minimum Temperature of Lunglei District (1996 - 2005)

temperature does not fluctuate much throughout the year. The highest temperature is observed during the months of April and May. The temperature remains high, but thereafter, the onset of Monsoon (Fur)

brings down the temperature. May and June are the warmest months with mean daily maximum at about 36°C and the mean daily minimum at 18.5°C. And the highest maximum temperature recorded was 39°C in May 1998 and also on April 1999.

The temperature started to fall down sharply from the month of November and it is minimized in December and January. January is the coldest month with the mean daily maximum temperature at 26.6° and the mean daily maximum of 9.9°C. However, the lowest minimum temperature was recorded at 8°C in December 1999, also on January and February of 2000.

**3.12 RAINFALL:** The entire state of Mizoram is under the direct influence of South West monsoon; hence Lunglei district also receives an adequate amount of rainfall during the monsoon season. The study of the available rainfall data reveals that the heavy rainfall starts from the second part of May and ended in the second part of October.

The average rainfall for Lunglei district is 2566 mm per annum and the highest average rainfall received during a particular month was 1103 mm recorded in June, 1994.

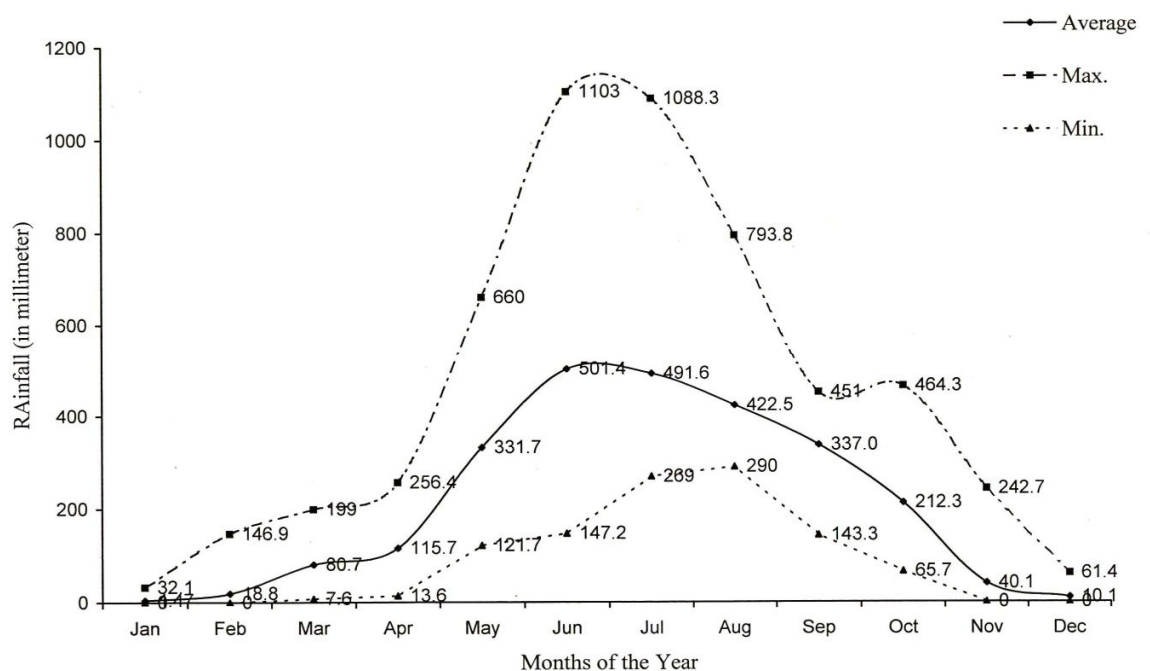
Precipitation is heavy during summer. This coincidence of south west monsoon with the summer makes the climate favorable for inhabitants of the district since the temperature is kept down to a considerable extent by the usual rains. Normally, June and July are the rainiest months while December and January are the driest months.

The monthly rainfall data for the district recorded for a period of twenty years i.e. 1986 – 2005 is shown in Table and the monthly average rainfall and maximum and minimum rainfall of the district is also shown in the graphical form in figure.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1986	0	0	7.5	182.5	106.5	461.5	330	478	438.5	249.5	0	0
1987	0	0	54.7	145.3	182	421	441	467	472	237	55	0
1988	0	21.3	59	117.3	363.3	446.3	467	381.6	336	464.3	35.7	0
1989	0	14	20	63	267	287	478	440.7	430.7	431	0	0
1990	0	20.9	195	256.4	286.8	354.5	448.9	406.8	409.6	102.4	35.4	61.4
1991	32.1	4.6	44.4	207.3	391.1	491.1	415.5	290	327.6	275.8	25	22.4
1992	1.6	41.8	21	35.6	130.2	432.1	489.4	415	327.4	250.3	30.3	2.4
1993	10	146.9	81.8	119.7	438.8	451	507.5	385.9	315.9	229.5	14.7	0
1994	0	0	194	131.7	121.7	1103	269	330.3	143.3	97.3	13.7	0
1995	0.7	3.3	11.3	19	245.7	178.3	319	587.3	295	167.7	242.7	0
1996	0	25.3	155.3	156	349.7	407.7	455.7	483.3	296.1	294.3	12	0
1997	6.7	9.3	199	106.7	309	589.7	1088.3	402.7	451	65.7	17.3	39.3
1998	16	43	130	166.3	652.3	382.6	636.3	510.3	393	178.7	6.3	0
1999	0	0	27.6	13.6	321	623	552.2	335.2	386.2	214.2	6.6	27.2
2000	6.8	3	109.6	207	660	509.4	360.8	793.8	349.2	184.6	71.2	0
2001	0	5.4	7.6	51.4	428.8	517.6	379	344.4	261.8	245.8	101.6	0
2002	15	0	77.2	66	447	341	695.4	352.4	286	69.8	86.8	0
2003	0	0.3	46	68.8	195.8	878.5	334.3	330.3	306.3	155.5	0	15.5
2004	0	0	11.8	230	194	884.5	641.3	367.8	377.5	130.8	12.5	0
2005	0.5	0	62.3	67	167.7	147.2	311.1	447.6	372.6	264.5	10.3	13
Average	4.5	18.8	80.7	115.7	331.7	501.4	491.6	422.5	337.0	212.3	40.1	10.1
Max.	32.1	146.9	199	256.4	660	1103	1088.3	793.8	451	464.3	242.7	61.4
Min.	0	0	7.6	13.6	121.7	147.2	269	290	143.3	65.7	0	0

Source : Department of Agriculture, Gov't of Mizoram

Average Monthly Rainfall of Lunglei District (1986 - 2005)



Average, Maximum and Minimum Monthly Rainfall of Lunglei District (1986 - 2005)

### **3.13 RAIN RECORDING STATION:**

<b>S/n</b>	<b>Name of Rain Recording Station</b>	<b>Location of Rain Recording Station</b>	<b>Telephone Number</b>	<b>Remarks</b>
1	DAO's Office	Chanmari, Lunglei	0372- 2324011	Rain gauge
2	BDO,s Office	Lungsen	0372- 2561008	Rain gauge
3	DC's Office	Lunglei	0372- 2324121	Rain gauge

### **3.14 WIND:**

The monsoon wind is the most important wind that prevails in Lunglei District. South-West monsoon usually reach Lunglei district during the second half of May and prevails up to the first half of October. The summer monsoon is characterized by highly variable weather with frequent spells of drought and heavy rains. Besides this, the winter monsoon also prevails which is a gentle drift of air in which the winds generally blow from the north east. This retreating monsoon causes sporadic rainfall especially in Lunglei District and other north eastern states producing sometimes heavy cyclonic rains.

As evidence from the earlier records, Lunglei District is vulnerable to impact of tropical cyclone which develops in North Indian Ocean (Bay of Bengal), and the cyclones of the Post Monsoon season (October to December) are more intense than those of Pre-Monsoon season (April &

May). Cyclone is associated with strong winds, torrential rains and storms. The impacts of these cyclones could be devastating as it has often led to loss of properties and even lives. The impact of these cyclones could be devastating as it has often led to loss of lives and property. The impact of cyclone has often led to damages of houses, power line cut-off, blockage of road, damages to crops and plantation, loss of live stocks, etc. Generally these winds came from the north western part of the state as the winds as the winds originate from the Bay of Bengal.

According to the report there are 185 villages/towns/wards falling in different classes of vulnerability in Lunglei district. Out of this, fifty two villages (i.e. 28.11 %) are falling in the high vulnerable areas; whereas fifty eight villages/towns/wards (i.e. 31.35 %) are in the medium class and the rest seventy five villages/towns/wards (i.e. 40.54 %) are in the low vulnerability areas.

### **3.15 DRAINAGE SYSTEM:**

Lunglei district is drained by the north and south flowing rivers such as Tlawng, Chhimtuipui, and Khawthlangtuipui Rivers. Amongst these Tlawng river is the only north flowing river whereas Chhimtuipui and Khawthlangtuipui rivers flow southwards and westwards draining into Myanmar and Bangladesh respectively.

#### **TLAWNG DRAINAGE SYSTEM**

Tlawng River originates from Zopui hill near Sairep village in Lunglei district at a height of 1480 metres and it is one of the most important rivers of Mizoram and it is the longest river in the state which measures about 102 kilometers. The river passes through five districts of the state forming district boundary lines while running along its course. The river is navigable by small boat throughout the year for a considerable length and hence it provides water transport route with neighboring state of Assam.

**CHHIMTUIPUI DRAINAGE SYSTEM:** Chhimtuipui River originates from the western part of Myanmar republic near Vanum village at an altitude of 2,325m. It starts flowing in south direction and then northwards after

making a U-turn in Haka district of Myanmar and then the river starts flowing northwards near Chapui village of Mizoram, thus forming an international boundary line between India and Myanmar for a distance of 92.56 kilometers till it meets Tiau river in the opposite direction near Pangkhua village. From this point the flow direction is diverted towards north-west entering Mizoram in north-west direction and then, after making a semi circular flow, it flows southwards till it enters into the Saiha and Lawngtlai districts forming the district boundary line between these two districts. Chhimtuipui River is the largest river in Mizoram by volume and it drains the whole eastern part of the district and it is also navigable by small boat even from Akyap (Myanmar) up to a considerable distance within the state of Mizoram.

### **KHAWTHLANGTUIPUI DRAINAGE SYSTEM**

The Khawthlangtuipui River originates from the western border area between Aizawl district of Mizoram and Tripura states near Sabual village of Tripura at a height of about 480m above mean sea level. The river flows southwards, and after meeting with Badal Chhara streamlet in the western corner of Aizawl district it forms an international boundary line between Mizoram (India) and Bangladesh for a distance of 87.72 kilometers before it enters to Lunglei district. The Khawthlangtuipui drainage represents the drainage system of the whole western part of the district. Before it enters to Bangladesh, it is joined by numerous important tributaries such as Kawrpui, Tuichawng and Phairuang rivers which associate it from the south. Rivers Kau and De flow parallel to it from the northern part of the district for a considerable length.

**3.16 GEOLOGY:** Lunglei District occupies the south central part of the state and represents a monotonous sedimentary sequence of argillaceous and arenaceous rocks of Surma group. The sediments are mainly represented by sandstones, Siltstones, shales and their intermixtures in different proportions. The formations are folded into almost N – S trending doubly plunging anticlines and corresponding synclines, and affected by longitudinal, oblique and transverse faults of varying magnitudes.

**3.17 TOPOGRAPHICAL DETAILS:** The general topography of Lunglei district varies widely. While the eastern and northern parts of the district are characterized by a rather hilly terrain with a high and prominent relief, the western and south western parts of the district, on the other hand is portrayed by comparatively low and less prominent ridges. The areas, as a whole is characterized mainly by several ridgelines and intervening valleys.

The western flank of the district bordering Bangladesh is characterized by several low undulating hillocks with varying dimensions. The western boundary of the district is formed by Sazuk lui (Bara Harina Chhara) until it joins the Karnaphuli River. Sazuk lui originates in the north-western side of the district near Saisen village, and flows towards southern direction for about 50km before it ultimately empties itself into the Karnaphuli River. The other half of the western boundary, i.e., the south western boundary of the district, on the other hand, is formed by another two major rivers. Tuichawng River, which enters the district from Chawngte village flows towards north and forms the south-western boundary for about 25 km., before it flows inside the district. The Khawthlangtuipui (Karnaphuli) river is one of the most important rivers within the district. The total length of the Khawthlangtuipui River within the district is about 34 kilometers.

The western and southern parts of the district are characterized by linear ridges which run more or less parallel to one another. The hills in these areas are generally low dissected, undulating and low relief. The ridges are long and slender and separated by wide valleys and small hills. One ridge starts from the south of Chawilung village which extends towards north for a distance of about 15 km. This ridge passes through Chawilung, Hmunthar and Zohmun villages, and is terminated by the Karnaphuli River. This ridge is locally named Puankhai Tlangdung.

To the east of this Puankhai Tlangdung, runs Tuilianpui or Sazai lui which enters the study area from Mamit district near Mar S village. On the eastern side of this ridge, flows Kau lui which originates from Thorang tlang in the north. To the north Kau lui, extends a long ridge towards north which starts from Tleu tlang near Tleu village. This ridge passes through Kawnpui and Darngawn villages. The eastern side of this ridge is bounded by Tut (Gutur)

river. The north-western boundary of the district is formed by Mar lui which enters the town area from Mamit district.

The Chhimtuipui (Kolodyne) river is one of the most important rivers within the district. It enters the district from Myanmar and flows in the northwest direction till it is joined by the Tuichang River from where it flows in the southward direction. The total length of the river within the district is measured to be 77 kilometers.

### **3.18 Relief Features of the Land**

Low	:	145.67 sq. km.
Moderately Low	:	2206.38 sq. km.
Moderately High	:	1775.72 sq. km.
High	:	354.87 sq. km.

**3.19 GEOMORPHIC CLASSES:** The main geomorphic classes within the district area include Structural Hills, Valley Fills and Flood Plains. Structural Hill is further divided into three classes, namely – High Structural Hills, Medium Structural Hill and Low Structural Hill on the basis of their respective heights with reference to the mean sea level. Hills protruding above 1200 metres are named as High Structural Hill. Settlement areas such as S. Chawngtui, Aithur, Tarpho, Cherhlum, Thingsai, S. Lungleng, Lungpuitlang, S. Vanlaiphai, Darzo, Sairep and Mamte villages are located around the High Structural Hill. The Medium Structural Hill includes those which range in height from 800 metres to 1200 metres. It is mainly found to surround the High Structural Hill in the eastern part of the district found along Bualpui V – Zote S ridge, Dengsur and S. Khawlek. On the eastern side of the district around Ngharchhip, Thingsai, Muallianpui and Khawhri villages in the southern part around Thingfal, Thlengang and Tawipui villages. Lunglei town and its surrounding villages extending from Thualthu village in the south to Kawmzawl in the north.

The Low Structural Hill includes all the hills and plains which rise below 800 metres. The major flood plains available in the district are such as Khawthlangtuipui, Karnaphuli, Sazuk lui, Tuichawng, De, Kau, Tuichang, Mat, Tlawng, Tiau and Tuipui rivers and along their tributaries.

### **3.20 GEOMORPHOLOGICAL STATISTICS OF LUNGLEI DISTRICT:**

<b>Sl. No.</b>	<b>Geomorphic Unit</b>	<b>Area (in Sq. Km.)</b>	<b>%</b>
1.	High Structural Hill	95.63	2.11
2.	Medium Structural Hill	592.82	13.06
3.	Low Structural Hill	3322.52	73.22
4.	Valley Fill	213.63	4.71
5.	Flood Plain	12.94	0.29
6.	Linear Ridge Area	300.45	6.62
	<b>Total</b>	<b>4538.00</b>	<b>100.00</b>

**3.21 LITHOLOGY:** Lunglei district is characterized by the Surma rock type. The Surma group of rock is represented by Lower, Middle and Upper Bhuban formation. Besides, the Bokabil sub groups are also exposed in

some parts of the western and north western parts of the district. The lithology is divided into sandstones, siltstones and shales.

Sand Stones	:	2264.51 sq. km.
Siltstone and Shales	:	2041.18 sq. km.
Clayey Sand	:	218.14 sq. km.
Gravel, Sand & Silt	:	14.17 sq. km

### **3.22 LITHOLOGICAL STATISTICS OF LUNGLEI DISTRICT:**

<b>Sl. No.</b>	<b>Rock Types</b>	<b>Area (in Sq. Km.)</b>	<b>%</b>
1.	Sandstone	2264.51	49.90
2.	Siltstone & Shale	2041.18	44.98
3.	Clayey Sand	218.14	4.81
4.	Gravel, Sand & Silt	14.17	0.31
	<b>Total</b>	<b>4538.00</b>	<b>100.00</b>

### **3.23 FOREST COVER:**

<b>Sl.</b>	<b>Forest Type</b>	<b>Square Kilometers</b>
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No.		(sq. km.)
1.	Dense forest	524.63 sq. km.
2.	Medium Dense Forest	486.08 sq. km.
3.	Less Dense Forest	733.08 sq. km.
4.	Bamboo Forest	1736.08 sq. km.
5.	Forest Plantation	23.29 sq. km.

**3.24 SLOPE:** Lunglei district is uniquely characterized by several hill ridges running almost parallel to one another, most of which roughly runs from north to south, except the eastern hill ridges around Tarphe, Ngharchhip, Thingsai, Lungleng and Muallianpui villages, where the hill ridges almost run in different directions.

Sl. No.	Slope (%)	Area (in Sq. Km.)	%
1.	0 – 3	93.63	2.06
2.	3 – 10	593.77	13.08
3.	10 – 15	13.99	0.31
4.	15 – 25	201.86	4.45
5.	25 – 35	430.73	9.49
6.	35 – 50	1490.92	32.85
7.	50 – 70	1095.47	24.14
8.	70 – 100	483.49	10.65
9.	>100	134.13	2.96
	<b>Total</b>	<b>4538.00</b>	<b>100.00</b>

### Slope Statistics of Lunglei District

**3.25 ASPECT:** The slope aspects of the hills within the district are more or less evenly distributed. The aspect of the area has been conveniently divided into nine(9) slope facets as per the table given below:

Sl. No.	Aspect	Area (in Sq. Km.)	%
1.	Flatland	188.85	4.16
2.	North	401.28	8.84
3.	North-East	569.33	12.55
4.	East	684.11	15.08
5.	South-East	459.18	10.12
6.	South	427.61	9.42
7.	South-West	671.51	14.80
8.	West	696.73	15.35
9.	North-West	439.40	9.68
	<b>Total</b>	<b>4538.00</b>	<b>100.00</b>

### Aspect Statistics of Lunglei District.

**3.26 ALTITUDE:** The altitude of Lunglei district has uncommon features. While many places include high altitudes, several areas fall under low altitude area. Purun tlang, whose peak is located in the north-eastern periphery of the district near S. Chawngtui village, is the highest peak within the district. It attains a maximum height of 1758 metres, the lowest elevation within the district, on the other hand, is represented by the Karnaphuli river

valley in the western flank of the district, where the elevation is as low as 20 metres.

**3.27 LAND USE / LAND COVER:** The major land use / land cover classes within the district can be broadly categorized into built-up land, agricultural land / horticultural land, forests, bamboo forest, forest plantations, shifting cultivation, scrubland and river / water body. Built-up land includes settlement, recreational, commercial areas, quarries, isolated government builds etc.

Sl. No.	Category	Area (Sq. Km)	%
1.	<b>Built-up land</b> Town Village	6.70 17.19	0.15 0.38
2.	<b>Agriculture Land</b> 2.1 Cropland Kharif 2.2 Plantation Citrus woodland Banana Pineapple Tea Tung Misc. Agriculture Plantation	8.99 2.31 3.89 0.21 0.20 0.61 0.81	0.20 0.05 0.09 0.005 0.005 0.01 0.02
3.	<b>Forest</b> 3.1 Dense 3.2 Medium Dense 3.3 Less Dense 3.4 Bamboo 3.5 Forest Plantation Teak Miscellaneous	524.63 486.08 733.08 1736.08 22.46 0.83	11.56 10.71 16.15 38.26 0.49 0.02
4.	<b>Shifting Cultivation</b>		

	4.1 Current Shifting Cultivation	255.67	5.63
	4.2 Abandoned Shifting Cultivation	623.57	13.74
5.	<b>Scrub land</b>	83.52	1.84
6.	<b>Water body</b>	31.17	0.69
	<b>Total</b>	<b>4538.00</b>	<b>100.00</b>

### **3.28 DRINKING WATER SOURCES:**

Springs	:	210
Tuikhur (waterholes)	:	295
Hand Pumps	:	58
PHE Stands	:	134

### **3.29 MINOR IRRIGATION PROJECT:**

<b>S/n</b>	<b>Name of the Project</b>	<b>Ayacut (in hectare)</b>
1	Vawngzawl Minor Irrigation Project	8
2	Huisih Minor Irrigation Project	36
3	Upper Hmawngva Minor Irrigation Project	8
4	Tuipawl Minor Irrigation Project	30
5	Zaupui Minor Irrigation Project	60
6	Zawlpui Minor Irrigation Project	10
7	Chite Minor Irrigation Project	40
8	Rulkual Minor Irrigation Project	28
9	Ruangte Kanan Minor Irrigation Project	50
10	Vaului Minor Irrigation Project	5

11	Thelretlui Minor Irrigation Project	10
12	Pachang Minor Irrigation Project	16
13	Tuilut Minor Irrigation Project	13
14	Tuipawl Minor Irrigation Project Phase II	12
15	Daihnai Minor Irrigation Project	28
16	Aikhalui Minor Irrigation Project	42
17	Saithah Minor Irrigation Project	45
18	Tuikhurlui Minor Irrigation Project	25
19	Hnahchang Minor Irrigation Project	3
20	Phullui Minor Irrigation Project	55
21	Tlawng Minor Irrigation Project	40
22	Sabual Minor Irrigation Project	10
23	Kharzawl Minor Irrigation Project	20
24	Tuipawl Minor Irrigation Project	15
25	Mausen Minor Irrigation Project	12
26	Chite Minor Irrigation Project	8
27	Sazuklui Minor Irrigation Project	15
28	Lungpher Minor Irrigation Project	30
29	Khawiva Minor Irrigation Project	22
30	Arbawh Minor Irrigation Project	10
31	Aituilo Minor Irrigation Project	25.55
32	Damte Minor Irrigation Project	32
<b>Total</b>		<b>760.55</b>

### **3.30 IRRIGATION FACILITIES AND SOURCES (In Numbers):**

<b>S/n</b>	<b>Name of Block</b>	<b>Creek</b>	<b>Canals</b>
1	Lunglei	61	44113
2	Bunghmun	7	6896
3	Hnahthial	8	10900
4	Lungsen	2	1600

### **3.31 INFRASTRUCTURE:**

<b>S/n</b>	<b>Particulars</b>		<b>Name of District</b>
			<b>Lunglei</b>
1	Telephone Exchange		10
2	Post Offices (Head, Sub, Br.)		64
3	Police Stations/ Out Post		8
4	Pucca Buildings		19444
5	Hospitals		3
6	Veterinary Hospital		1
7	PHC		11
8	Sub-Centers		55
9	Dispensary		7
10	Cyclone Shelters		NIL
11	Educational Institution	Primary	260
		Middle	169

		High School	77
		Higher Sec.	12
		College	3
		Other institution	2 (Diet & Polytechnic)
12	Regional Animal Health Centers		16
13	Cottage Industries		106
14	Industries		292
15	Go-Down		15

### **3.32 Financial Institution:**

<b>S/n</b>	<b>Name of The Institution</b>	<b>Address</b>	<b>Telephone Number</b>
1	State Bank of India	Lunglei	2324118
2	State Bank of India	Hnahthial	2332065
3	Mizoram Rural Bank	Hnahthial	2332282
4	Mizoram Rural Bank	Lunglei	2324473
5	Mizoram Rural Bank	Serkawn	2342052
6	Mizoram Rural Bank	Lunglawn	2323528
7	Mizoram Rural Bank	Haulawng	-
8	Mizoram Rural Bank	Lungsen	2561079
9	Mizoram Rural Bank	Pangzawl	2567130
10	Mizoram Cooperative Apex Bank	Lunglei	2324819

### **3.33 LANDSLIDE HAZARD IDENTIFICATION OF LUNGLEI TOWN:**

Lunglei town, the second largest settlement of Mizoram and the district headquarters of Lunglei district has been experiencing a steady urbanization and increase in population. A number of development activities are being taken up in various parts of the town. These activities are generally undertaken without considering the geo-environmental factors like instabilities of the existing slopes, bearing capacity of the land, etc. These human activities coupled with heavy rainfall, soft nature of the sediments, topography and complex structural disposition leads to the increase in the incidences of landslide within the town.

The problem of landslides becomes more aggravated particularly during the rainy season. Some of these are severe and cause disruption of normal life. Knowing all the problems that frequently happens every year not only in Lunglei town, but also in different parts of the state.

**3.34 LOCATION AND EXTENT:** Lunglei town, the headquarters of Lunglei district is the second biggest settlement in Mizoram in terms of population and area. It is located in the southern part of Mizoram and is linked by National Highway No.54 with Aizawl and newly constructed World Bank Road from Mel thum (3) in Aizawl entering Lunglei from Pukpui via Thenzawl. The state capital of Mizoram is at a distance of 235 km from N.H.-54 and around 180 km from World Bank Road with Aizawl.

Lunglei town lies in between 92° 42' 45" E to 92° 50' 05" E longitudes and 22° 48' 18" N to 22° 56' 55" N latitudes. The total area is 55.08 sq Km and is the largest settlement in Lunglei district.

The notified town areas having a separated Village Councils Areas are as follows:- Pukpui, Zotlang, Serkawn, Zohnuai, Bazar veng, Venglai, Venghlun, College veng, Rahsi veng, Ramthar, Farm veng, Salem,

Chanmari, Lunglawn, Luangmual, Sethlun, Theiriat, Hrangchalkawn, Zobawk, Lungpuizawl and Hauruang villages.

### **3.35 SOCIO ECONOMIC CONDITIONS:**

Sl. No	Particulars	Quantities
1	Area of Lunglei Town	55.08 Sq. km
2	No. of Villages	22 villages
3	The total population of Lunglei town (According to 2001 census)	47137
4	No. of males No. of females	24395 22742
5	Density of population of Lunglei Town	855.79 %
6	The Literacy percentage in Lunglei Town	91.20 %

7	<p>The Educational Institutions and facilities available in Lunglei Town</p> <p style="text-align: center;"><u>Primary Schools</u></p> <p>Government Schools</p> <p>Private Schools</p> <p style="text-align: center;"><u>Middle Schools</u></p> <p>Government Schools</p> <p>Private Schools</p> <p>Deficit / Aided</p> <p style="text-align: center;"><u>Colleges</u></p> <p>Government Colleges</p>	<p>61</p> <p>41</p> <p>20</p> <p>51</p> <p>17</p> <p>20</p> <p>14</p> <p>3</p> <p>2</p>
	<p>Baptist Church of Mizoram</p> <p>Other institutions like Mizoram Polytechnic Training Institute, District Institute of Education and Training (DIET), etc.</p>	<p>1</p>
8	<p>The no. of hospitals and health centers located in Lunglei are</p> <p>Government Hospital</p> <p>Private Hospital</p> <p>Community Health Centers</p> <p>Health Sub-Centers.</p> <p>Veterinary Hospital</p>	<p>1</p> <p>1</p> <p>2</p> <p>20</p> <p>1</p> <p>6</p>

	RAH Centers	
9	No. of Water Points present in Lunglei are Public Water Points Drilled Water Points	79 19
10	No. of Post Offices Sub-Post Office Branches of Post Office.	1 2 5
11	No. of departmental houses Departmental Rest Houses Tourist Lodges District Jail Police Stations	4 2 1 3
12	Main mode of transport Auto-Rickshaws Taxis Town Buses.	120 60 7
13	No. of halls and play Grounds Community Halls Playgrounds Libraries	17 11 16
14	No. of banking facilities State Bank of India Rural Bank Apex Bank	2 2 1

Lunglei, being the second settlement of Mizoram is the District headquarters of Lunglei district and also the Headquarters of Baptist Church of Mizoram. Various important government offices and sub-headquarters of various organizations including Non-Governmental Organizations (NGOs) are located in this town. It is the business centre and also training centre for various disciplines for the southern part of Mizoram.

**3.36 LANDSLIDE HAZARD ZONES:** Within the town area, the regions of drainage outlet have a higher potential for landslide occurrences, i.e., landslides and other mass movements are controlled by drainage. It has been found that many of the slopes instabilities, except those occurred within unstable and disturbed areas are mainly confined within the vicinity of

steams, probably induced due to toe erosional activities of the streams. It has also been observed that where the dip of the rock beds is parallel with the topographic slope, and if it intersects with the road cutting, landslide is often triggered.

The statistics of landslide Hazard Zones is given in the table.

**Statistics of Landslide Hazard Zones**

<b>Hazard Zones</b>	<b>Area (in Sq. Km)</b>	<b>Percentage</b>
Very High Hazard Zone	1.01	1.84
High Hazard Zone	7.67	13.92
Moderate Hazard Zone	19.76	35.87
Low Hazard Zone	17.05	30.96
Very Low Hazard Zone	9.59	17.41
<b>Grand Total</b>	<b>55.08</b>	<b>100.00</b>

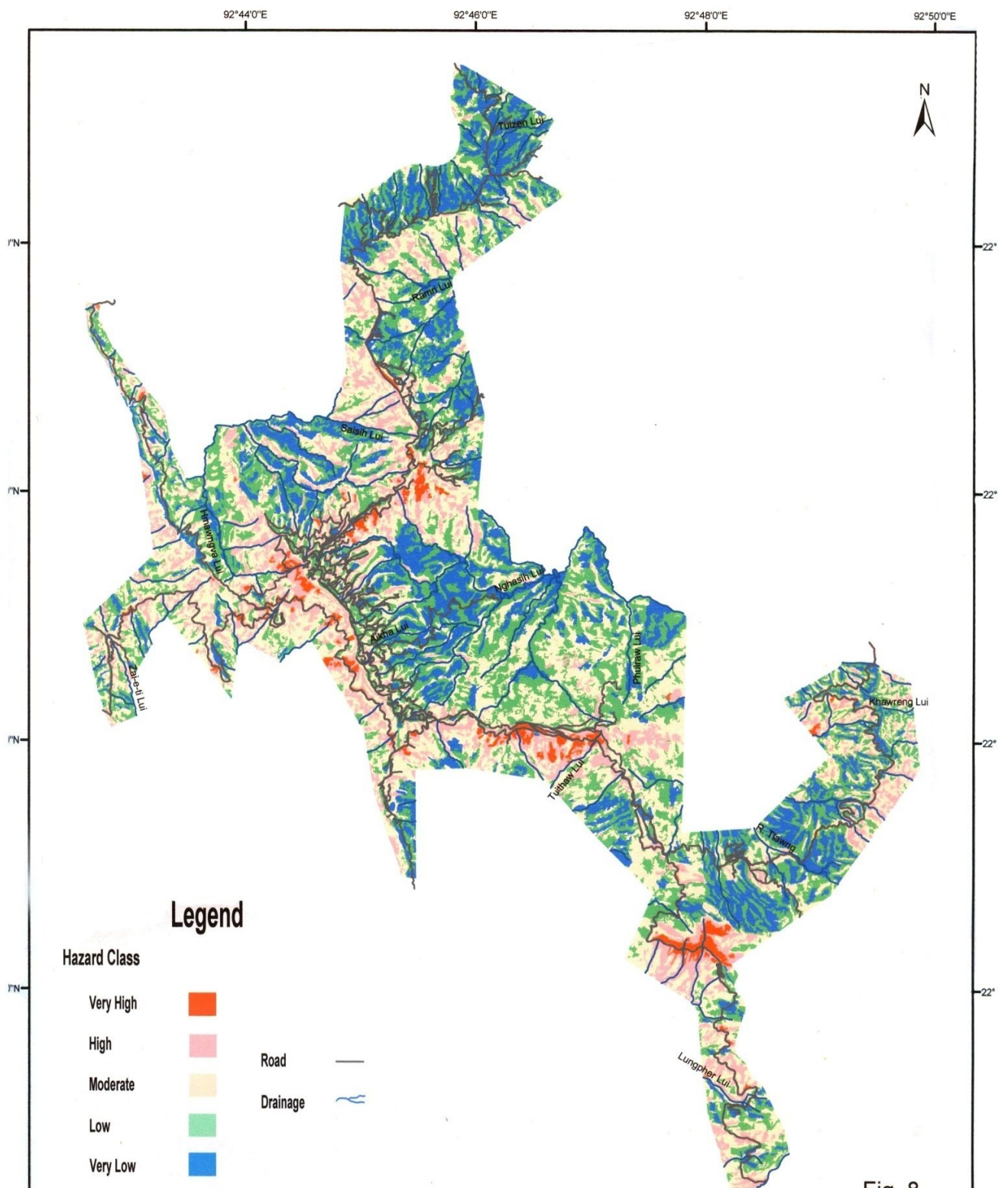
**3.37 VERY HIGH HAZARD ZONE:** This zone is highly unstable, and is at a constant threat of landslides, especially during and after an intense spell of rain. This zone has steep slopes with loose and unconsolidated materials, and also areas where active landslides had occurred. This zone is dispersed in few places as found in eastern side of Bazar Veng along Parallel road, part of Zohnuai and Serkawn area, Zotlang (below Tourist Lodge) and Rahsi Veng – Sazaikawn road below Chanmari and Lunglawn. The Lower part of Theiriati locality along Aizawl road also falls within the Very High Hazard Zone. It includes areas where unplanned quarrying, such as Vawngzawl quarry, road cutting and other human activities are actively undertaken. In addition, it is also found along streams where toe-erosional activities are constantly taking place also in other parts of the town area in small pockets. The vegetation in this zone is generally scarce. The rocks exposed are characterized by numerous bedding and joint planes which facilitate the chance of sliding down along the slope. This zone constitutes an area of 1.01 sq. km and forms 1.84% of the total town area.

As this zone is highly susceptible to landslides, it is recommended that no human activity be undertaken in this zone. The area is already degraded; it is practically difficult to evolve socio-economically acceptable remedial

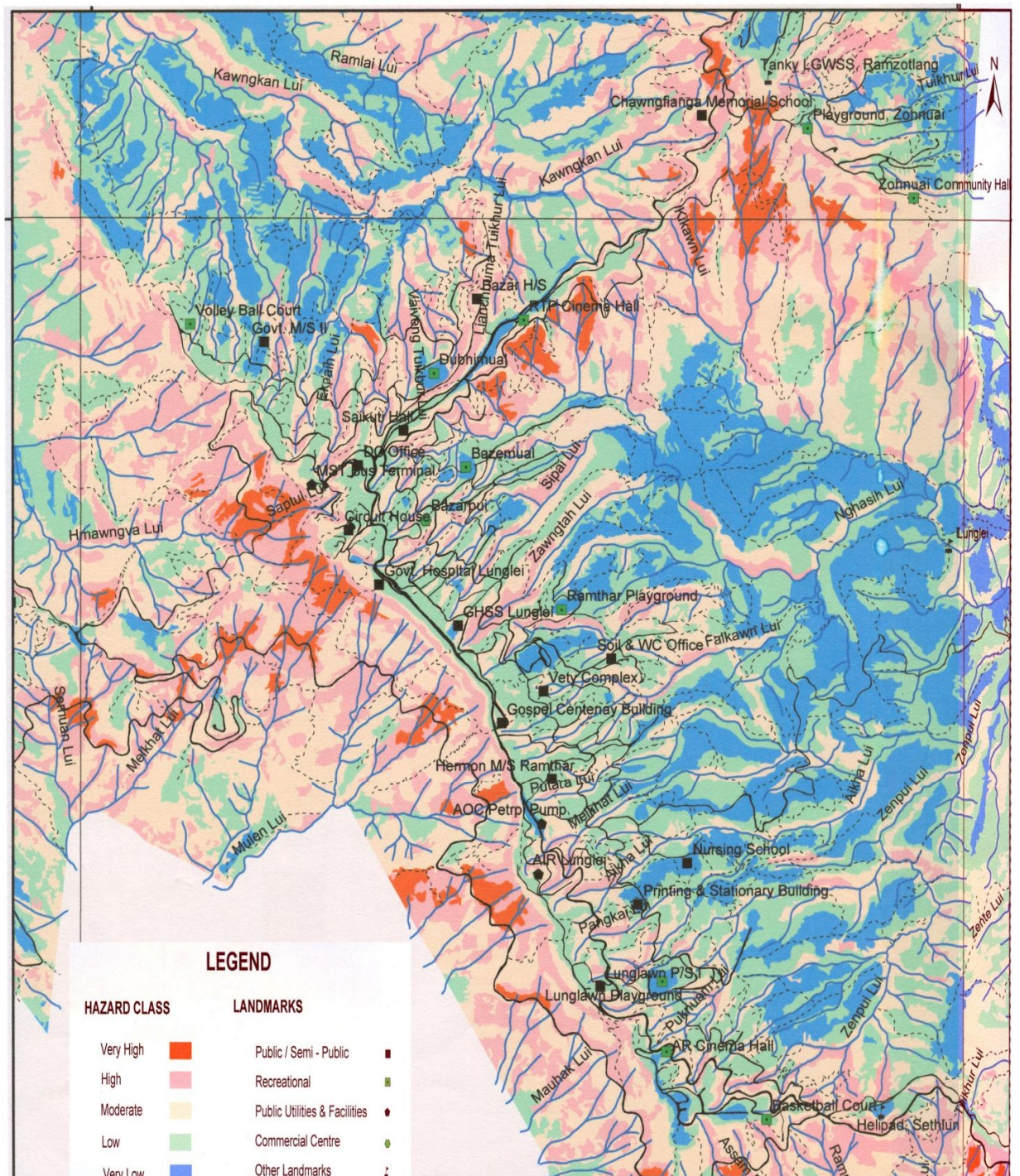
measures which can prevent recurrence of landslides. The area has to be entirely avoided for settlement or other construction works, and should be left out for regeneration of natural vegetation to attain natural stability during the course of time through the physical processes active in the area.

**3.38 HIGH HAZARD ZONE:** This zone includes areas where the probability of sliding the debris is at a high risk due to weathered rock and soil debris covering steep slopes which when distributed are prone to landslides. Many of the pre-existing landslides occurred within this zone. Besides, this zone includes some areas where the dip direction and slope direction, which are usually very steep, are the same. This rendered them susceptible to sliding along the slope. Several lineaments fractured zones and fault planes also transverse the high hazard zone. Areas, which experience constant erosion by streams because of the soft nature of the lithology and loose overlying burden, also fall under this class. Vegetation is generally either absent or sparse. The High Hazard Zone is distributed in many parts of the town area. It always surrounds the Very High Hazard Zone. This zone is found in Rahsi Veng, College Veng, Hauruang, Theiriati, eastern side of Bazar Veng, etc. The High hazard Zone is also found along the intersection of steep slope with road cutting. This zone occupies an area of 7.67 sq. km which is 13.92% of the total town area.

The High Hazard Zone is also geologically unstable, and slope failure of any kind may be triggered particularly after a heavy rain. As such, allocation and execution of major housing structures and other projects within this zone should be discouraged. If construction is to be done within this zone, due precautions should be taken in consultation with engineers, geologist and other experts. It is recommended that a thorough geotechnical investigation of the sub-surface geology and hydro geological condition of the area be undertaken before any construction work. Wherever possible, afforestation scheme should be implemented within this zone. Plantation of those species that help in stabilizing the soil is recommended. To avoid soil erosion, proper canalization of the streams and improvement of the drainage should be undertaken along the streams where toe-erosional activities are maximum. The settlement, as far as possible, is to be avoided, and should be permitted only in localized safe areas.



## LANDSLIDE HAZARD ZONATION MAP OF LUNGLEI TOWN



## MICRO HAZARD ZONATION MAP OF LUNGLEI TOWN

### CHAPTER - IV

#### PROBABLE DISASTER AND CRISIS CONTINGENCY PLAN

**4.1 TYPES OF DISASTER:** Disasters are a combined result of hazards and vulnerabilities. They occur when the adjustment capacity of the affected communities and individuals exceeds their ability to cope with a crisis. It is an extreme state of everyday life in which the continuity of community structures disrupts temporarily but trailing behind it a long term infrastructure, economic development to maintain normalcy for years together.

#### **Types of Disasters: (Experienced in the District)**

Natural Disaster	Man Made Disasters
Earthquake	Forest Fire
Landslides	Accident-Road
Cyclone (Thlipui)	Urban Fire
High Speed Wind	Illicit Liquor Consumption
Hail Storm	Spurious Liquor Consumption

Draughts	Village Fire
Bamboo Flowering (Mautam)	Electrical Disaster
Floods	
Clouds Burst	

#### **4.2 RISK ANALYSIS:**

<b>S/n</b>	<b>Type of Hazards</b>	<b>Potential Impact</b>	<b>Vulnerability</b>	<b>Vulnerable Areas</b>
1	Cyclone	Loss of crop, infrastructure, human and bovine life, livelihood system, houses, private and public properties etc., cattle, livestock.	Communication network, shelter, infrastructures, power system, water supplies, transport system, human beings, livestock. Agriculture, educational institutions.	Whole district
2	Flood	Loss of crop, agricultural produce disrupted, spread of diseases, epidemics.	Agriculture, embankments, livelihood and livestock.	Some parts of the district
3	Drought	Failure of farming, loss of crops, scarcity of water supplies, livestock.	Crops, irrigation sources, livestock and drinking water supplies.	Whole district
4	Earthquake	Loss of crop, infrastructure, human and bovine life, livelihood system, houses, private and public properties etc., cattle, livestock.	Communication network, shelter, infrastructures, power system, water supplies, transport system, human beings, live stocks. Agriculture, educational institutions.	Whole district

5	Fire	Huge loss of property, forest area, loss of medicinal plant and forest resources	Human beings and livestock, forests, environment, loss of properties and valuable assets.	Whole district
6	Landslide	Loss of crop, infrastructure, human and bovine life, livelihood system, houses, private and public properties etc., cattle, livestock.	Agriculture and forest resources, communication and transport network, water supplies, irrigation, livestock and institutions.	Some parts of the district

### **4.3 PROBABLE DISASTER FROM VARIOUS HAZARDS:**

S/n	TYPES OF HAZARDS	MONTH OF OCCURENCE											
		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	Cyclone				◄—————►								
2	Flood							◄————►					
3	Drought			◄————►									
4	Earthquake	◄—————►								—————►			
5	Fire	◄————►											
6	Landslide				◄—————►					—————►			

**4.4 EARTHQUAKES:** Earthquake is also known as 'Seismo' and it is taken from Greek word 'Seio' which literally means 'to shake'. Is the shaking of places from a focus point also known as 'Epicenter'. Earthquakes are the most feared natural hazards, as they occur without any recognizable warning, are unpredictable in space and time and inflict heavy losses in less than a minute duration.

Mizoram falls under Zone V of the Very High Damage Risk Zone. If an earthquake occurred in Mizoram, it could be a magnitude of 7.5 and above on the richter scale. Accordingly, earthquakes occur at intervals ranging from 35-40 years. The last major earthquake occurred in the north east was in the year 1950. As such, a major earthquake can be predicted in the NE India, particularly in Mizoram. As we already know, Mizoram is steadily developing state and there is extensive organization. However, we do not have any guideline, rules, regulations or bye-laws for earthquake resistant buildings. In fact, Mizoram was shaken by tremors measuring 5.1 R.c. on 4.3.2001. Though it may not have caused any extensive damage, it could well have been a warning to major earthquake in the near future.

#### **MANAGEMENT OF RESPONSE OPERATIONS IN LUNGLEI DISTRICT:**

It is the responsibility of the District Administration to organize the response activities very quickly on occurrence of a disaster so as to limit casualties, alleviate hardship and suffering, to restore life support and community system, to mitigate further damage of loss and to provide the donation for subsequent recovery. Clear cut identification of response activities in Lunglei District are broadly identified in this section. In the event of a disaster like earthquake, it is the local community that gets involved in the search and rescue operations even before the government agencies reach the spot.

**Search and Rescue:** Local communities and neighbourhood will provide search and rescue services in the event of any disaster. In the case of an

earthquake, additional support from MAP, Fire Service and NCC will be provided at the earliest and PWD will be required for clearing debris in order to rescue people trapped in collapsed buildings. The man-power of Police Department may also supplement the man-power resources of local community and neighbourhood.

**Medical Relief:** Victims of disasters like earthquake required immediate medical care. The Health and Family Welfare Department will be responsible for providing necessary medical services to the victims. It also has to be seen that precautionary actions to prevent the outbreak of epidemics is taken as the risk is normally very high. ASHA, local medical practitioners, other Hospital and Community volunteers could support the efforts of the Health and Family Welfare Department. The Chief Medical Officer, Lunglei could act as the Head of Combat Agency.

**Evacuation & Shelter:** Evacuation may be required to avoid loss of human life from after-shocks (especially in a disaster like earthquake). Traditionally, the Home guards perform the responsibilities of evacuation with support from other government agencies. In Lunglei district (Not only in Lunglei District, but also in the whole of Mizoram), a major role will have to be played by NGOs, especially the biggest NGO in the State-Young Mizo Association. Provision of shelter to the evacuated people and to those who have been rendered homeless is another important requirement. Here, the joint efforts of the government agencies as well as local communities and NGOs will be required. Temporary shelters will have to establish and the DC will assign duties to the Officers from welfare departments for running and maintaining these shelters.

**Restoration of life-Line Facilities:** Another important response activity is the prompt restoration of vital life-line facilities. Bringing such life line facilities like water and power supply is the responsibility of Technical Department like PWD, PHED and Power & Electricity Department. We also have to see that Public Distribution System of Food & Civil Supplies is also regulated.

**Law and Order and Security of Properties of Affected Population:** In the event of a disaster, many people are compelled to leave their homes and properties. Simultaneously, law and order conditions tend to deteriorate. It is the responsibility of the Police Department to maintain law and order as well as provide security to the properties of affected population.

**Mitigation Measures:** Mitigation measures are very important as they reduce the impact of hazards if not eliminate them. Disaster mitigation is several types and could be broadly classified into structural and non-structural measures. Structural measures are undertaken to strengthen of weak existing buildings, life lines and infrastructure such as strengthening of weak existing building and re-enforcing water and electricity supply lines. Non-structural measures, on the other hand, emphasize on proper land-use planning sustaining awareness and discrimination of information on do's and don'ts at the time of disaster.

1. **Structural Mitigation Measures:** Most of the buildings in Lunglei District are non-engineered and Kutcha and will have low seismic resistant capacity. These buildings are liable to get damage even at low intensity earthquake. A detailed assessment of buildings, which are vulnerable and may cause loss of life should be made giving public buildings like Hospitals, Community Halls, Churches, Schools and colleges first priority as they are lesser in number and are the place where people shelter during a disaster. Second priority will be given to other types of buildings like houses, hotels, offices, go downs and factories.

2. **Non-Structural Measures:** The following aspects required to be looked into for the purpose of non-structural mitigation:

- a. **Land-Use Planning:** i) which area should be spared for human settlement, agriculture, forestation etc. ii) hazard zoning of areas. iii) areas where new roadways and infrastructure should be avoided.
- b. **Building improvement Programme:** buildings should be improved in terms of making them earthquake resistant.

The rapid urbanization is leading to the increase in housing and buildings are primarily responsible for damage and loss of lives, it is extremely important to have a systematic building bye-laws which is, nowadays, not imposed in the whole of Mizoram. Also, as man-made

features and systems are responsible for devastation, the loss can be minimized by reducing congestion in urban areas. This can be done by decentralizing infrastructure and facilities.

**Mitigation measures in Lunglei District:** The District has not been hit by a major earthquake in recent history. The building techniques adopted in the District also do not conform to safety as well as standards of quality. Actually, there are no rules, regulations or bye-laws to ensure that any form of construction abided by guidelines and pre-set standards. This increased the risks as well as hazard factors should any disaster occur in Lunglei District. The older tradition kutcha houses and Assam type houses mainly made up of timber and asbestos components are safer than the growing modern re-enforced cement concrete structures. The District being located in the hilly region, these modern RCC constructions may not be able to withstand strong tremors. Therefore, there is the urgent need for the State Government and other relevant agencies to seriously contemplate a comprehensive building regulation.

**Damage Assessment:** Damage, in the event of an earthquake, is concentrated to buildings; damage to buildings is caused by such factors like building configuration, structural elements, and earthquake severity and construction materials used. A rapid damage assessment should be made to examine extent of damage for mobilization of rescue and relief activities. Here, demographic details must be inventory and behavior of buildings at the time of earthquake must be carefully studied. Apart from concerned departments and governments agencies, local persons having good knowledge of the locality should be associated. Rapid Damage Assessment leads to the second phase known as building safety evaluation where buildings are identified under various damage grades. Finally, Detailed Damage Assessment has to be made. This assessment is made at the recovery stage and requires skilled personnel of engineering background. The aims of this assessment are: (i) To estimate the detailed building damage, (ii) To estimate economical and financial aspect of damage and, (iii) To propose retrofitting for re-strengthening.

Replacement of destroyed buildings and infrastructure and the re-construction of damaged communities should strive to make the new community safe against the repetition of the disaster in future. In the

aftermath of an earthquake, the replacement of large section of cities and town and the rehabilitation of a major section of the community gives or creates the opportunity to bring changes that will reduce the impact of the next earthquake.

**Local resources available to Combat Disaster:** During the post disaster rescue and relief operation of a devastating January 26 Gujarat quake, there was no dearth of NGOs and other charitable Institutions involving themselves in the disaster management rendering great services to the need and suffering people. In Mizoram too, we have Young Mizo Association, the most comprehensive and dominant social institution with enormous influence on the society which aimed to preserve and perpetuate the Mizo ethos (Tlawmngaihna) which urges people to do human duty without any expectation of raising status or earning applause. Commitment of the YMA to the cause of suffering people, bereaved families and the people in distress is time tested and they could be link between the District machinery and the people. In psychological relief, counseling trauma cases, there can be no match to them. Ensuring good community behaviour, encourage people to stay calm and teach them exercise for evacuation and lead an injured persons side by side with the Medical teams may be assigned to the YMA.

**4.5 LANDSLIDE:** Land slide are a serious geological hazard common in the hilly regions like Mizoram. It is among the most frequently occurring environmental hazards that cause considerable loss of life and property especially in mountainous regions. The term 'landslide' is generally used to cover a wide range of rapid mass movement of earth, rock or a combination of the two under the influence of gravity. The types of mass movement include rock fall, rock slide, earth slide, earth slump, mud flow, earth flow debris avalanche, etc. Such mass movement may vary widely in the amount of materials and extent of displacement involved and also in the rate of movement.

The causes of landslide are diverse. By nature all slopes are under stress due to force of gravity. When the forces acting on a slope exceed the existing strength of material that form the slope, the slope will fall and movement will occur. The balance of forces are affected by several factors such as steepness of slope, compactness of rocks, extent of weathering

fracturing and erosion, ground water regime, vegetation cover, seismicity of the area and finally the human activities that directly affect all these factors. Although landslides are natural phenomena and are a normal feature of landscapes experiencing dissection their geographical distribution, frequently and magnitude are considerably modified human intervention. The factors that initiate or trigger mass movements include heavy and prolonged rainfall, cutting or deep excavations on slopes and earthquake shocks.

Landslide range from insignificant minor features to destructive high magnitude events which may caused destructions of buildings, roads, agricultural crops and natural forest, loss of human and animal lives, disruption of communication, blocking of streams and flooding and silting of reservoirs down stream.

**Causes of Landslide in Lunglei District:** From the studies carried out by various agencies on the individual occurrences and the field observations carried out, the following conclusions have drawn regarding the causes of mass movement in the entire District.

1. Almost all the landslides in the district have been cause by the combined effect of two or more factors:-

- Steep Slopes with loose overburden consisting of clayey and silky materials.
- Heavy rain and occasional could burst, resulting in percolation of water into the loose overburden and along tension cracks.
- Soil erosion and head ward erosion by streams.
- Disturbance of the slope by excavation for construction of buildings and roads.
- Loading of vulnerable slopes by concrete building and structures.

2. Though removal of natural vegetation for jhum cultivation is considered as a cause of slope failure such instances are very few in Lunglei District

3. A potential source of future landslide in the dumping of debris from rock quarries along steep hill slopes which may result in destruction of vegetation cover leading to slope erosion and ultimately to slope failure

**Recommendation for preventive and remedial measures of landslide in Lunglei District:**

1. The principal cause of initiation and acceleration of slope failure in water as is evident from the fact that most of the major landslides in Lunglei District had occurred following heavy rains. The physio-chemical nature of the dominant lithology (viz. clay-shale) is responsible for absorption of huge amount of water, thus, increasing the pore water pressure in the loose materials on the slopes resulting in reduction of inherent strength of these materials. This is compounded by disturbance of these slopes by excavation for road construction, rock quarrying and building foundations, thus prevention of water seepage into hill slopes and quick discharge of surface run-off is of paramount importance. The following measures are recommended to achieve this-
  - (a). Measures for channelizing run-off, especially during monsoon by providing better surficial drainage system, road-side drains, feeder, drains, contour drain trench drains, chutes, culverts, etc. at appropriate areas and locations.
  - (b). Monitoring the tension cracks on vulnerable slopes, especially above the existing slides and sealing them by appropriate methods to reduce seepage of water into them.
2. Provision of various retaining structures such as breast wall, retaining wall, toe-wall, parapet wall, etc. to restore the stability of the hill slopes which are already under threat.
3. Provision of vegetation cover on the slopes to reduce erosion of exposed slopes by rain and flowing water. This may include plantation of grass and fast spouting bush.
4. Since road construction is an essential development activity especially in hilly and inaccessible regions, it can not be stopped or reduced even

though such activities trigger landslides. But it is necessary to take care not to disturb the slopes too much. The slopes both above and below the road cutting should be modified to increase stability. Common methods of increasing slope stability are grading (construction of benches), reduction of load at the head and enlargement of toes. In addition at the locations where indications of slopes failures are evident retaining structures should be constructed.

5. There should be complete ban on construction of multi-storied buildings or heavy structures on hill slopes. Even for small buildings and houses, the foundation should be on the bed-rock rather than on the loose overburden.
6. Where the head ward erosion of stream is active on slopes, the natural drainage in the upslope should be modified in such a way that the surface flow of water is diverted away to prevent it from entering these streams.
7. Where two erosions by streams cause instability of the slopes by under cutting, diversion structures may be constructed to divert the stream flow.
8. Stone quarrying along road sides and dumping of debris on slopes should be curtailed.
9. People should be educated on the sensitivity of the slopes so that they take proper care while constructing houses, in leaving drainage water on the slopes and avoid excavation activities along slopes.

#### **4.6 CYCLONES:**

Cyclones are intense low-pressure system that develops in the oceanic area surrounding Indian Sub-Continent. In Mizoram, there are two cyclone seasons, the first is pre-monsoon seasons, (April and may) and the second is post-monsoon seasons (October to December). The cyclones of the post-monsoon season are more intense than those of the pre-monsoon seasons.

Cyclones are associated with strong winds torrential rains and storm surges. Among these, storm surge (abrupt rise of sea level at the time of storm crossing the coast) is the most destructive form of cyclone.

#### **Cyclone in Lunglei District:**

The impact of cyclone is annually in Lunglei District though, fortunately, the impact has not yet been devastating, it has often led to loss of properties and even lives. The impact of cyclone also often led to power line cut-off, blockade of roads, damage to crops and plantations, loss of live stocks, etc.

Since, Mizoram does not have any coast line; the probability of the occurrence of cyclone especially with storm surge does not pose a threat. But due to its position in climatic zone, cyclone in the form of strong winds and torrential rains may colossal devastation for Lunglei District. Therefore, the need for emergency management plan to deal with the occurrence of disastrous cyclone is of utmost importance.

### **Hazards Analysis:**

Unstable loose soil, steep slope and fragile terrain conditions of Lunglei District is not able to sustain for long any kind of strong winds and torrential it results in landslide/rock slides which in turn leads to uprooting of trees, damage to agricultural crops, blocking of streams and roads, thereby often disrupting transportation and relief supply measures.

Most of the houses in rural areas are poorly constructed using local materials like bamboo, thatch and low quality timber; therefore, they are unable to withstand cyclonic winds and torrential rains.

The impact of cyclone leads to damage to cantilever structures such as electric poles, telephone poles and transmission line towers which may disrupt transmission of power as well as communication.

### **Role of District Administration in Lunglei District:**

The role of District Administration in the event of cyclone disaster is based on two norms:

1. Deputy Commissioner should be familiar with the measure to be taken in the event of a disaster.
2. Action to be taken by various administrative wings in the event of a cyclone should be clearly defined through issue of orders.

The District Administration has lot of responsibilities before and after the cyclone.

**A. Before Cyclone:**

- (a) District Administration should review and co-ordinates regularly the measures necessary to face cyclone threat.
- (b) District Administration should make arrangements for ensuring the following items in the cyclone shelters-
  - i. Storage of food items essential commodities (with the help of F&CS Dept.)
  - ii. First-Aid Kits (with the help of H&FW Dept.)
  - iii. Availability of water (with the help of PHE Dept.)

District Administration should ensure wide publicity of cyclone warnings through local mass media including AIR and DDK.

**B. After the Cyclone:**

- (a) The District Administration should arrange for construction of temporary shelters and provide water proof plastic sheets (silpoulin) as and when necessary (with the help of DM&R Department)
- (b) Supply of all essential commodities and petroleum products should be ensured to all the habitats in the disaster affected areas
- (c) Supply of electricity must be restored by carrying out repair work to dismantle wires and uprooted and damaged transformers
- (d) Minimum communication in the affected district should be restored immediately
- (e) District Administration should keep vigil on the possible outbreak of epidemics. Appropriate measures for inoculation and vaccination must be undertaken to prevent the outbreak of epidemic
- (f) District Administration can also take help from voluntary organizations like the YMA, which is having mass support for maintaining relief operation

**4.7 DROUGHT:** Drought is a slow onset natural hazard and it offers time and opportunity to mitigate its impact. Drought connotes a situation of scarcity and distress usually caused by prolonged failure of rains affecting agricultural activities adversely, leading to loss of production and employment, drinking water shortages, deficiency of fodder supply, etc.

There was a long spell of drought right from October 1998 to the end of April 1999 causing colossal loss of agricultural crops during kharif season in Lunglei District. Many streams dried up and paddy as well as other serial seeds dribbled in jhum areas could not germinate. Preparation of land cultivation in WRC areas also had to be delayed. Drought was so serious that drinking water also becomes a problem.

**Causes of Drought:** Most of the agricultural land in Mizoram is rain-fed except for some areas assured irrigation. It received rainfall under the influence of the monsoon which starts in May and ceases in late October in normal years with monsoon becoming more and more erratic, drought situation poses a serious threat each year, the impact of drought is severely felt in hilly areas where the drainage of water on the hill slopes are very fast.

**Indicator of Drought:**

- i) Low storage in reservoirs.
- ii) Poor recharge of ground water (measured by water in wells and tube wells).
- iii) Wilting of crops.
- iv) Meteorological drought-inadequate rainfall, uncertainly, long dry spells and unequal distribution.
- v) Hydrological drought-Water scarcity, lowering of the ground water table, depletion of water resources, drying up of tanks, wells and reservoirs.
- vi) Soil moisture drought-Run-off, seepage, evaporation and transpiration.
- vii) Agronomic drought-damage to the environment due to the factors mentioned above.

**Factors to be Drought proofing:**

- i) Looking for a pattern occurring in the past-when drought has occurred in the district, what was the intensity, and which are the affected areas in the District
- ii) Refer those reports-acts on the lesson from the past.
- iii) Keep the reservoirs, dams, water, harvesting structures, etc. filled up with available water. Teach the people not to waste.
- iv) Made the department/agency concerned responsible to do drought proofing and effectively monitor.
- v) Release of water to irrigation and drinking to be done economically and to reduce transmission loss.
- vi) Drinking water should get precedence over agriculture.
- vii) If the water supply is from reservoirs, regulate supply to enable it last till the monsoon comes.
- viii) Launch awareness drive; build on traditional practice for economic use of water.
- ix) Make use of the media and spread the message of Do's and don'ts by the community.
- x) Repair, maintenance and improvement of irrigation and water supply schemes, tanks, hand pumps, dug wells, tube wells, bore wells, and planning for water harvesting structures to be done well in advance.

**Conclusion:** The impact of the 1998-1999 droughts was felt more intensely in the rural areas where the only source of income is from agricultural products and livestock. Mizos are non-vegetarians and their staple diet comprises of rice and meat. Almost every family rears pigs and poultry and fed with green crops/leaves/horticultural waste and to some extent grains also. Due to failure of agricultural and horticultural crops, there was an acute shortage of animal feeds and fodder for cattle and poultry with the result that numbers of cattle, pigs and poultry perished.

#### **4.8 FOREST FIRE:**

**Status of Forest in Mizoram:** As per State of Forest Report 1997 of the Forest Survey of India, actual forest cover of Mizoram is assessed at 18775

sq. km. reckoning to 89 % of the geographical area of the State. Dense forest extends cover 4348 sq. km. (20.63%) while open forests occupy 14427 sq. km. (68.44%), scrub forests cover 937 sq. km. (6.49%). Most of the jhum land approximately 6000 sq. km. is covered under open forest category.

In Mizoram, forest fires occurred as an annual feature mostly coincides with the jhum burning season. The loss sustained due to fire hazard is immense and irreparable influencing the flow of surface run off during monsoon and are the root cause for landslides and floods. Forest fire totally eliminated the woody vegetations with grasses or bamboo as a secondary growth on abandoned jhum land. The steep slope bereft of vegetation only accelerates the spread of fire due to smooth surface without barriers of shrubs and trees.

Forest is of paramount importance to the people of the state as they provide food, shelter and water. Dependence on forests by the tribal population has been inherited since ages and will continue forever. Obviously the protection of forests is a sacred deed and that all are bound by the ethics to protect the forests and save precious vegetation and animal life.

### **Main causes of forest fire in Lunglei District:**

#### **Man-made Fires:**

- (i) During jhum burning highly inflammable bamboo flakes and kindling charcoal makes way through wind velocity to adjoining area and sets fire to dry grass and leaf litter. Neglect on the part of the farmers to extinguish and control to the fire flames causes the spread of fire outside the jhum lands.
- (ii) Non clearance of safety zone around the jhum land before the commencement of jhum burning.
- (iii) Carelessness to put off the fire during the annual road side clearing spreads fire into the adjoining forests and plantations.
- (iv) Usually the grazers in order to obtain new flush of grass burn the forest floor intentionally and such repeated burning in the same locality ultimately eliminates the woody plants and even the palatable grasses, thus decreasing the forest value by declining productivity of fodder.
- (v) Neglect in extinguishing charcoal kilns inside clear forests.

- (vi) Burning the forest floor by the hunters to obtain clear visibility of wild animals.
- (vii) Carelessness in control of burning operation during site preparation and annual fire-line tracing.
- (viii) Burning cigarettes stub by passer-by is sufficient to ignite the grass and leafy matter during summer.
- (ix) Wood gatherers and wood cutters also cause fire damage due to carelessness.

**Objectives of the Fire Protection Measures for Lunglei District:**

- (i) To effectively control forest fire in order to protect natural and man-made forest, bio-diversity and agricultural crops.
- (ii) To deploy modern fire fighting equipments, to promptly suppress fire with effective fire control techniques devised recently in fire prone state of U.P and Maharashtra.
- (iii) To detect occurrence of fire incidents quickly by installing watch towers at strategic points.
- (iv) To develop efficient communication network for early detection of fire and prompt prevention, control and suppression.
- (v) To create mass awareness among public to curb fire hazard by the citizens as a moral obligation towards the State and Society for a better quality of life.
- (vi) To set up adequate numbers of Forest Protection committees to motivate peoples participation with the involvement of villages, NGO's, schools and institutions.
- (vii) To set up jhum burning monitoring committees to prevent spread of fire in the adjoining area.
- (viii) To save the valuable forest resources and to aim at increasing the productivity of forests in order to provide ecological security to the people of the state

**Justification of the fire Prevention Scheme:**

Annually, a large forest area is burnt due to extensive fire causing heavy loss of precious flora and fauna, besides destruction of

valuable trees and bamboos. The fire affected area is easily susceptible to soil erosion, loss of soil fertility, low productivity, and poor natural regeneration, retarded growth of tree plantations change in climate, low water table, and suet deterioration. Thus rapid decline in the growth and stocking of wooded forests. Repeated fire incidence accelerates the process of landslides and at places floods make headway disrupting the normal life and loss of public property. The intensity of forest fire damage in the last four years alone reveals the gravity of the problem in the state. Besides the forest area, the fire incidence outside the forests in bamboo area, jhum area and un-classed forests being a regular phenomenon contributes to similar adverse impact on the environment and ecology of the state. Although the state is endowed with rich and bio-diversity, the fire hazard is a retrograde to the fragile tropical ecosystem of the Territory. In view of the seriousness of the problem arising from the annual fires the proposed fire protection scheme is inevitable presently and in long term for conserving the biological resources, increasing the Bio-Mass, water and soil conservation and maintenance of ecological balance.

**Strategy to control forest fire In Lunglei District:**

- (i) Identify vulnerable forest areas prone to fire damage annually and prepare a fire damage map.
- (ii) Prepare Fire Treatment Map based on danger ratings for various localities.
- (iii) Clearance of fire lines which are absolutely necessary by controlled burning along the highways, village roads, foot-paths, plantations, regeneration areas, protected areas and electricity transmission lines, etc.
- (iv) Constitution of Village Fire Protection Committee, Sub-Divisional and District Level Fire Protection Committees. All these committees shall be of permanent nature.
- (v) Establishment of green belt of evergreen tree species to serve as brake for fire spread in the critical areas where fire occurs repeatedly as a part of normal afforestation programme.
- (vi) Effective communication system for early detection of fire incidence through fire watchers and carrying out intensive patrolling during dry season.

- (vii) Educating the grazers and villagers on the detrimental effect of fire hazard by holding public meetings, distribution of leaflets, display of banners and awareness through different media.
- (viii) Deployment of modern fire fighting device to prevent and suppress forest fire.
- (ix) Observing Fire Prevention Week/Day to create mass awareness among the public.
- (x) Imparting training to staff and villagers for fire fighting with modern equipment and capacity building.
- (xi) Appointment of fire watchers in the village/district amongst the Ex-Servicemen or unemployed youths.
- (xii) Strict enforcement of existing fire protection regulation Act.

### **Precautionary Measures:**

- **Fire Prevention:** Precautionary steps for prevention of fire in the forest area well in advance of the onset of dry period are inevitable. Annually fire lines are to be traced at strategic and fire prone sites such as road sites, footpaths, forest plantations, natural vegetation areas and protected areas. The fire line tracing involves manual clearance of dry grass, dry annuals, leaf litter, dry branches, twigs and burning the debris to prevent spread of fire.
- **Fire Suspension:** At the commencement of dry season detection of fire in and around the forests and plantations need to be meticulously watched. Generally, after detection of fire further spread of fire in the adjoining areas need to be contained by deploying modern fire control methods by using different types of cutting and scrapping tools for spreading the earth as well as spraying the water in the extreme cases. In order to ensure effective patrolling and to mobilize the village force prompt for fire fighting, the use of two wheelers will be quite effective.
- **Awareness Programme:** Prevention of fire in the forest areas could be effectively achieved by educating the public and younger generation by projecting the detrimental effect of fire hazard to the common man. Annually, the awareness campaign need to be

commenced at the village level through NGOs, VCPs, Schools and Colleges by organizing public meetings, press release through AIR Lunglei, Doordarshan and other publicity means. Observance of State/District-wide fire protection week/day for mass awareness and involvement of the people will be effective in fire control programme.

**Setting up of Forest Fire Protection Committees:**

**1. District Level Fire Protection Committee:**

Chairman	:	Deputy Commissioner, Lunglei
Member Secretary	:	DFO, Lunglei
Members	:	S.P., Lunglei
		DLAO, Lunglei
		ASO-II, LR&S
		Heads of Colleges and Schools
		Presidents, Jt. YMA, MUP, MHIP
		Presidents, Branch YMA, MUP,
		MHIP, VC

**2. Sub-Division/Block Level Fire Protection Committee:**

Chairman	:	SDO/BDO
Member Secretary	:	R.O., Forest
Members	:	Presidents, Branch YMA, MUP,
MHIP		
		Head of Schools

## VCP

### 3. Village Level Fire Protection Committee:

Chairman	:	VCP
Member Secretary	:	R.O/Beat Officer (if any)
Members	:	Presidents, Branch YMA, MUP, MHIP
		Head of Schools
		VC Members & Secretary
		Church Leaders

**4.9 MAUTAM:** In Mizoram, there have been periodic cycles of famine viz. Mautam and Thingtam. Mautam in the 30<sup>th</sup> year after Thingtam and Thingtam in the 18<sup>th</sup> year after Mautam. The effects of the two famines are however different in magnitude and Mautam is considered to more devastating than Thingtam. Mautam is associated with the flowering Mautak (Medocane Bambusoides), which is found in abundance in the state while the particular species of bamboo viz. Bamboos a tulda with which Thingtam is associated as scarce.

Bamboo forest area occupies 6446 ha of total geographical area i.e. about 31% of total area. Gregarious flowering of bamboo Baccifera (Mautam) is a well known phenomenon in Mizoram occurring every 48 years. This leads to explosion of rodent population and devastate standing crops and stored grains leading to famines. While there is no known method of preventing flowering, the following action is recommended to combat Mautam Famine:

- (i) Promotion of bamboo sector as a substitute to wood.
- (ii) Promotion of awareness of bamboo as 'Green Gold' among farmers, traders and industry to galvanize full utilization in the rural industrial sector.
- (iii) Harvesting of existing bamboo resources.

- (iv) Effective exploitation of the economics potential of bamboo before the impending 'Mautam'.
- (v) Establishment of linkages between Bamboo Plantation Growers and Bamboo Enterprises, industry and craft centers.

State Government has also finalized an ambitious plan for taking up bamboo cultivation. Two ha of land will be allotted per family for 3 years period. Land certificate would be issued if the land is found to be properly utilized. For allotment of lands, Agriculture Land Allotment Advisory Committees have been set up by the State Government to cover all the villages in the State. Role of banks in the plan is yet to be defined. A tissue Culture Laboratory to generate improved varieties of bamboo seeds for replacement of the existing variety is also proposed to be set up during 2004-05 by the State Government.

#### **Mitigation measures recomded by Rodent Control Committee:**

As precautionary measures for combating the impending Mautam, there has been an urgent need to conduct an intensive survey for location flowering/fruited bamboo areas which will increase rodent population substantially. Hence a Rodent Control Committee has been set up under the Chairmanship of Commissioner, Agriculture. This Committee has come up with a Plan which broadly reproduced as follows:-

- (i) **Survey:** In order to get base-line information on bamboo flowering, immediate survey is necessary. Till date, sporadic flowering of bamboo has been reported from all over Mizoram. However, extent of lowering and the area covered cannot be ascertained as survey has not been done. It is proposed that survey teams comprising of functionaries from the state department of Agriculture and Forest may undertake the survey works. It will be very difficult for the teams to haphazardly

search will have to concentrate on areas from where reports have been received with the help of Village Council functionaries.

- (ii) **Survey of Rodent Population:** This survey is proposed to carry out in cultivated areas like jhum, WRC and other plantations. There are more than 700 villages in Mizoram and 12 surveys; one for every month will be carried out by the technical staff of Agriculture Department.
- (iii) **Purchase of Rat tails:** Purchase of rat tails is propose to be taken up in all the 22 Rural Development Blocks of Mizoram. Gradually purchase centers will be opened in the 8 Civil District Headquarters, 22 Block Headquarters and also in 41 Agricultural Circles. It is expected that at the rate of 43000 rat tails per Village, a total of 30,10, 000 rat tails could be collected within one year in the whole of Mizoram.
- (iv) **Public Awareness:** The impending rodent menace required creation of public awareness as well as reliable information on precautionary measures. The Government of Mizoram proposes to organize Rodent Control Operations in such a away that there is maximum involvement of the people including women. Radio broadcasts will be planned and documents of rodent control in jhum fields as well as homesteads will be prepared and telecast through various media. The Government also proposed to conduct training at the Block Headquarters where 10 representatives from each Village will participate. It is projected that training will continue for 5 years benefiting at least 47200 farmers.

The Government has also fabricated different kinds of rat-traps which are to be distributed free of cost, as an incentive measure. The use of safer rodenticides will be done through the Village Council functionaries who will organize baiting operation in campaign basis. Each campaign will also be evaluated.

#### 4.10 INFRASTRUCTURE VULNERABILITY AGAINST HAZARDS

<i>Sl.no</i>	<b>Vulnerability</b>	<b>Vulnerability Against Each Hazard</b>				
		<b>Cyclone</b>	<b>Landslide</b>	<b>Fire</b>	<b>Earth-quake</b>	<b>Wind</b>
		<b>Area</b>	<b>Area</b>	<b>Area</b>	<b>Area</b>	<b>Area</b>
1	Road Ways	Whole District especially rural areas	Whole district, especially Dawn and Zobawk areas	Town areas, rural areas	Whole district	Whole District especially rural areas
2	Water Supply	Whole District especially urban areas	Town and block water pipelines	Water distribution system in town areas	Whole district	Whole District especially urban areas
3	Hospital	Lunglei and other hospitals in the districts	Lunglei and other hospitals in the districts	Lunglei and other hospitals in the districts	Whole district	Lunglei and other hospitals in the districts
4	Food Stocks & Supplies	Stock centers in rural areas	Supplies centers in rural areas	Supplies centers in rural areas	Whole district	Supplies centers in rural areas
5	Communication System	Whole district	Whole district	Whole district	Whole district	Whole district

#### 4.11 ALTERNATE ROUTE STRUCTURE

S/n	Vulnerable Areas	Main Route	Alternate Route
1	Dawn village	Lunglei to Aizawl Road NH-54	Lunglei to Aizawl from Pukpui via Haulawng
2	Zobawk, outskirt of Lunglei	Lunglei to Aizawl Road NH – 54	Lunglei to Aizawl from Pukpui via Haulawng

#### 4.12 RESOURCE INVENTORY

PHC/ PHC NEW

S/n	PHC/PHC New	Name of the Block (Location)	Staff Available
1	Hnahthial CHC	Hnahthial	31
2	Pangzawl	Hnahthial	11
3	Chhipphir	Lunglei	13
4	Cherhlun	Hnahthial	13
5	S.Vanlaiphai	Hnahthial	13
6	Tawipui ‘S’	Lunglei	10
7	Lungsen	Lungsen	11
8	Haulawng	Lunglei	12
9	Buarpui	Lunglei	16
10	Tuichawng	Lungsen	-

11	Tawipui 'N'	Lunglei	-
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#### 4.13 **POLICE STATIONS:**

S/n	Police Station	Name of the Block (Location)	Staff Available
1	Lunglei	Lunglei	40
2	Hnahthial	Hnahthial	23
3	Thingsai	Hnahthial	12
4	Lungsen	Lungsen	13
5	Tlabung	Lungsen	18
6	Bunghmun	Bunghmun	13
7	S.Vanlaiphai OP	Hnahthial	4
8	Hrangchalkawn OP	Lunglei	8

#### 4.14 **SUB-POST OFFICE:**

S/n	Sub-Post office	Name of the Block (Location)	Staff
1	Lunglei Post Office (MDG)	Lunglei, Venglai	19
2	Zotlang SPO	Lunglei, Diakkawn	6

<b>Sl. No</b>	<b>Particulars</b>	<b>Lunglei RD Block</b>	<b>Hnahthial RD Block</b>	<b>Lungsen RD Block</b>	<b>Bunghmun RD Block</b>	<b>Total for District</b>
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3	Lungsen SPO			Lungsen, Vengthlang		6
4	Hnahthial SPO			Hnahthial, Electrick veng		7
5	Bunghmun SPO			Bunghmun Dak In veng		5

#### **4.15 FIRE STATION INFORMATION SYSTEM**

<b>S/n</b>	<b>Name of Fire Station</b>	<b>Name of the Block)</b>	<b>Telephone No.</b>	<b>Disposition of Vehicles and Pumps</b>	<b>Disposition of Man-Power</b>
1	Lunglei Fire Station	Lunglei RD Block	101	Two fire tenders	
2	Tlabung Fire Station	Lungsen Rd Block		One fire tender	

#### **4.16 Number of Household and Population:**

1	2	3	4	5	6	7
1	No. of Households	4341	3983	7282	3838	<b>19444</b>
2	Population :					
	- Male	10201	10292	17785	9904	<b>48182</b>
	- Female	9884	10178	16880	9271	<b>46213</b>
	- Total	20085	20470	34665	19175	<b>94395</b>
3	No. of Job Card Holders	4238	3893	6653	3438	<b>18222</b>

#### **4.17 Number of Household by Main Occupation:**

Sl. No	Particulars	Lunglei RD Block	Hnahthial RD Block	Lungsen RD Block	Bunghmun RD Block	Total for District
1	2	3	4	5	6	7
1	Regular salary/wage from Government	560	535	621	342	<b>2058</b>
2	Regular salary/wage from Private/NGO/Church	26	30	80	46	<b>182</b>
3	Business	124	156	226	43	<b>549</b>
4	Farming (Agri./Horti.)	2858	2146	4398	3139	<b>12541</b>
5	Industries	27	19	32	2	<b>80</b>
6	Animal Husbandry	36	5	3	-	<b>44</b>
7	Sericulture	1	7	-	11	<b>19</b>
8	Pisciculture	4	-	7	-	<b>11</b>
9	Daily labour	690	1064	1889	233	<b>3876</b>
10	Others	15	21	26	22	<b>84</b>

#### **4.18 Housing Status:**

Sl. No	Particulars	Lunglei RD	Hnahthial RD Block	Lungsen RD	Bunghmun RD Block	Total for District
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		<b>Block</b>		<b>Block</b>		
1	2	3	4	5	6	7
1	No of families dwelling in:					
	a) Own House	3792	3505	6860	3654	<b>17811</b>
	b) Rented House	419	378	288	96	<b>1181</b>
	c) Quarters	130	100	134	88	<b>452</b>
2	No. of Houses by type:					
	a) Katcha House	627	333	5398	2282	<b>8640</b>
	b) Semi Pucca House	1725	1970	1354	698	<b>5747</b>
	c) Pucca House	1989	1680	530	858	<b>4757</b>

#### **4.19 Basic Facilities:**

<b>Sl. No</b>	<b>Particulars</b>	<b>Lunglei RD Block</b>	<b>Hnahthial RD Block</b>	<b>Lungsen RD Block</b>	<b>Bunghmun RD Bock</b>	<b>Total for District</b>
1	2	3	4	5	6	7
1	No of household by main source of drinking water:					
	a) Spring	3024	1952	3088	2874	<b>10938</b>
	b) Pipe water	1263	1850	3636	697	<b>7428</b>
	c) Rain water	54	73	37	28	<b>192</b>
	d) Others		108	521	257	<b>886</b>
2	No. of families by main source of fuel for cooking:					
	a) Wood	3638	3544	6749	3774	<b>17705</b>
	b) K-Oil	7	8	36	13	<b>64</b>
	c) LP Gas	683	426	474	51	<b>1634</b>

	d) Charcoal (meihawl)	13	5	23	-	<b>41</b>
3	Location of toilet:					
	a) Inside the house	1342	1163	326	238	<b>3069</b>
	b) Outside the house	2999	2820	6956	3600	<b>16375</b>

#### **4.20 Ownership of Productive Assets:**

Sl. No	Particulars	Lunglei RD Block	Hnahthial RD Block	Lungsen RD Block	Bunghmun RD Bock	Total for District
1	2	3	4	5	6	7
	Number of Household Possessing:					
1	Tractor	1	2	1	5	<b>9</b>
2	Power Tiller	12	4	1	5	<b>22</b>
3	Cattle for Ploughing	7	9	195	32	<b>243</b>
4	Rice Huller	125	82	127	106	<b>440</b>
5	Sugercane crusher	25	10	24	24	<b>83</b>
6	Juice Extracting Machine	2	1	-	-	<b>3</b>
7	Saw Mill	45	46	13	16	<b>120</b>
8	Jeep/Gypsy	61	38	26	31	<b>156</b>
9	Bus	8	4	1	-	<b>13</b>
10	Maxi Cab	18	21	15	6	<b>60</b>
11	Two Wheeler	516	326	209	247	<b>1298</b>
12	Television	2068	1685	1440	855	<b>6048</b>
13	Refrigerator	883	792	665	274	<b>2614</b>
14	Washing Machine	231	298	94	41	<b>664</b>
15	Mobile phone	5099	4311	3486	2126	<b>15022</b>

### **CHAPTER V**

## **ROLE & RESPONSIBILITIES OF DIFFERENT ACTORS [Political/Administration/NGOs] IN PLANNING, TRAINING & AWARENESS PREPAREDNESS, RESPONSE, RESCUE & RECOVERY,**

In the Disaster Management System Actors from different fields such as Political, Administrative, Non-Governmental sectors have their own role and responsibilities starting from IEC to rehabilitation. These Disaster Managers are assigned with specific responsibilities to avoid overlapping confusion in discharging their duties at the time of need. The very purpose of this chapter is coordinating their services for smoother delivery of timely action and goods to the people at the time of their worst suffering.

### **5.1 ROLE OF DEPUTY COMMISSIONER IN DISASTER MANAGEMENT**

1. Convener and Chairman of the District Disaster Management Committee.
2. Incident Commander and Supervise the overall management.
3. Established coordination with all line departments and other private agencies.
4. To oversee overall disaster management activities.
5. Update the Resource Inventories at Indian Disaster Resource Network.
6. Prepare disaster mapping on different aspects viz., Vulnerability, Safe, Resource and Social mapping.
7. Detailment of man powers at various site operation centers.
8. Assign roles and responsibilities of all line departments.
9. Preparation of the Disaster Management Action Plan for the District.
10. To implement the disaster management action plan.
11. Setting up the District Control Room and making it function effectively.
12. To liaise with the Government periodically about the disaster and the action taken.
13. Make the district machinery to equip and to be prepared before the disaster.
14. Setting up relief camps and transit camps.
15. Conducting relief and rescue operations.

16. Corresponding with the Defense Ministry Personnel.
17. To interact with the donor agencies for relief and rehabilitation.
18. Organizing Training and mock drills.
19. Providing information at district level, local level and disaster prone areas through appropriate media.
20. Brief the media of the situations and day to day reports during the disaster.

**To make arrangement for:**

1. Cordoning off the area affected by the earthquake.
2. Evacuation of people from the effected area.
3. Recovery of the dead bodies and animal carcasses and their disposal.
4. The medical care for the injured.
5. Supply of food and water and restorations of water supplies.
6. The constructions of temporary shelters, such as tents, metal sheets.
7. Restorations of lines of telecommunication and information flow.
8. Restoration of transport communications.
9. Cordoning off severely damaged structures liable to collapse during and after shocks.
10. Temporary shoring of certain precariously standing buildings to avoid collapse and damage to other adjoining buildings.
11. Immediate actions to prevent certain chain-reactions from developing such as, release of water from the reservoir behind a damaged dam to flooding of areas if the dam fail.

**To ensure:**

1. Control rooms have been made functional immediately at the District level, block level and sites level. (Immediately make public the phone numbers and the names of officers handling the control room).
2. Search and rescue operations, activation of public shelters, etc. have commenced.
3. The process of gathering information about the extent of damage caused by the earthquake.
4. Arrangement has been made for periodic press release.
5. Liaison with particularly army/paramilitary forces (to minimize possibility of looting, ground control) done.

6. Opening of relief centers and supply of food and other basic requirements
7. Round the clock site control room has been set up, with officers in rotation.
8. Restriction of entry into affected area by public (issue pass).
9. Restoration of minimum communication network.
10. Quick relief operations.
11. Operationalization of shelters-established public shelters and new emergency shelters.
12. Distribution of relief supplies.
13. Health surveys-preferably by Village Officials.
14. Provision of medical services particularly for the injured.
15. Establishment of hygienic and sanitation conditions in the relief villages (use bleaching powder).
16. Restorations of basic transport facilities (movement of at least two wheelers).
17. Setting up of District level relief and rehabilitation cell with government and non-government representatives.
18. Exercise for rapid damage assessment.
19. Announcement of relief and rehabilitation policy/package.
20. Full restoration of transport and communications network.
21. Restoration of structural integrity of built environment, particularly roads, slopes, etc.

## **5.2 Responsibilities of Nodal Officer (DM & R):**

The Nodal Officer (DM & R) will act as the overall in-charge of emergency preparedness and operation. He will coordinate in the following activities:

- Liaison with all the concerned depts. / officials of the dist. in conducting Disaster Management/Natural Calamity Committee meeting to be conducted twice in a year, i.e. May and November.
- Supervise the activity of Dist. Control Room and communicate the information to the District Collector,

- Co-ordinate the programme during preparedness, disaster and natural calamity, rescue operation, relief operation, resettlement and rehabilitation,
- Monitor the programme during relief operation, rescue operation etc.
- Evaluation of the operation process,
- Report return and forward to dist. Collector for approval, sanction and onward action.

### **5.3 Roles and Responsibilities of Emergency Officer:**

- The Emergency officer will be the in-charge of the Dist. Control Room.
- His role and Responsibilities will be to monitor, Co-ordinate and implement the actions for disaster management.
- He should look after the safety and well keeping of the infrastructure available at Dist. Control Room.
- He should look at the facilities provided in D.C.R., which should always be in good working condition, and the Control Room should be manned round the clock.
- During the disaster response period he being the representative of the district Collector will have to play a pivotal role coordinating and managing the assets, resources, relief, etc among the agencies, Depts., Organizations and individuals.

#### **The responsibilities of the Emergency Officer are to:**

- Ensure that all warning and communication systems, instruments are in working condition.
- Receive information on disaster on a routine basis from the district departments on the vulnerability of the various villages through proper channel (Block).
- He will receive reports on preparedness from the relevant district level departments and other departments, as per information details. These will be forwarded to the Emergency Operations Centre, Special Relief Commissioner through Collector on fixed regular basis.

- Update data bank and maintain an inventory of resources half yearly as per the table given below heading Inventory of resources, materials and equipment accessible to EOC.
- Monitor preparedness measures, training activities including simulation exercise undertaken by various departments.
- Ensure proper dissemination of Dist. Disaster Management Plan at the district level, local level and disaster prone areas.
- Organize post-disaster evaluation and update Dist. Disaster Management Plan accordingly.

#### **5.4 Roles and Responsibilities of Superintendent of Police:**

The Superintendent of Police in the district will get in touch with the District Collector for assistance in rescue, evacuation and emergency relief measures under intimation to the State Relief Commissioner. As disaster and natural calamities can occur at any point of time hence Army may be called up on to assist the civil authorities in rendering rescue and relief operation.

##### **The responsibilities of the Superintendent of Police:**

- The Superintendent of Police must work in close co-ordination with the District Collector on receipt of a warning or alert on an emergency situation.
- The Superintendent of Police must designate three senior officers of the district Collector for co-coordinating the activities of the police Department in the District Control Room.
- These senior officers deputed by the Superintendent of police for the District Control Room will work in three shifts in the control Room.
- During normal times, the police department under the Superintendent of Police must assess the preparedness level and report the same as per format (Preparedness Checklist for police as given below) to the District Control Room every six months.
- They should have continues contact with the District Control Room over V.H.F during the crisis

- The Police Department under the Superintendent of Police must maintain a list of disaster prone areas in the district, along with the details of nearest police Stations and their contact phone numbers.
- The police Department under the Superintendent of police must organize training programmes on handling of hazardous chemicals for Police Officers in collaboration with Deputy Director of industrial Safety and health to facilitate more effective handling of road accidents involving hazardous substances.
- The Police Department under the Superintendent of Police must identify a police Station in the city, which can be used as a public information center for disseminating information to the public.
- Communicate with district headquarter and various centers for cooperation.
- Provide assistance to the authority in taking necessary action in solving the problems.
- Ensure security measures in the disaster affected areas.
- Provide security in the transportation of relief commodities.
- Maintain law and order coordinating with local NGOs.
- Control the mobs, onlooker crowding by cordoning the disaster area.
- Control vehicle movement and traffic system.
- Assess the situation of law and order and inform the district authority.
- Control the possible looting and pilfering of the relief supplies and private properties at the affected areas at the same time provision of safeguarding the stock centers, relief camps, food stores and distribution centers.
- Keep vigil of the activities of black marketers and check the misuse and diverting of the relief materials.
- Coordination with other line departments.

## **5.5 Roles and Responsibilities of Block Development Officers:**

1. Convener and Chairman of the Block Disaster Management Committee.

2. Incident Commander and Supervise the overall management in Block Level.
3. Prepare a Block Disaster Management Plan and set up Control Room equipped with modern facilities.
4. Established coordination with all line departments and other private agencies.
5. To oversee overall disaster management activities.
6. Update the Resource Inventories at Indian Disaster Resource Network.
7. Prepare disaster mapping on different aspects viz., Vulnerability, Safe, Resource and Social mapping.
8. Appraise community participation in disaster management at all levels.
9. Ensure linking of Block Control Room (Emergency Operation Centre) with other District Field Control Room (Emergency Operation Centre).
10. Capacity Building.
11. I.E.C. campaign.
12. Conduct mock drills.

#### **5.6 Roles and Responsibilities of Food & Civil Supply Officer:**

1. Public Distribution System may be kept actively working. Fair Price Shops should function well and allotment of Commodities and its lifting in time be ensured.
2. Functioning of Storage Agents should be closely watched and the stocks in the stores should be verified through Officers very often to ensure transparency.

#### **5.7 Roles and Responsibilities of District Fire Officer:**

1. He shall be in alert during Jan – June and his team is ready for action at short call. The drivers and the staff engaged with the Fire Brigade should not be allowed leave during this period.

2. Storing of fire extinguishers in an easy to access places.
3. Training volunteers on use of fire extinguishing materials.
4. Sending of important equipments to various field operation sites.
5. Maintain communication channel all the times.
6. Arrange fire tender duties with standby motors.
7. Main actors in search and rescue operation.
8. Identify water point for emergency use.
9. Co-operate other line departments.
10. Coordinate with police and NGOs for quick response.

### **5.8 Roles and Responsibilities of DIPRO:**

1. He must make arrangement for release of news bulletin to the press and media regarding rain fall, weather. Preventive measures taken and all other activities, the district administration is taking to mitigate the distress of the people.
2. He must keep close liaison with Nodal Officer (DM & R) / District Emergency Officer and the Collector for the purpose.
3. Incase of calamity occurred in the district or any part thereof, authentic news must be provided by the Information Officer at the earliest to the public by the Information Officer in order to evade from unreliable rumors.

### **5.9 Roles and Responsibilities of EE. Power and Electricity Department:**

1. He is (Nodal Officer) appointed as overall in charge of disaster management.
2. Provide uninterrupted power supply.
3. Arrange alternate source of power supply.
4. Arrange power supply to the relief camps and temporary shelter camps.
5. Spread awareness in economic use of electricity.
6. Communicate with field operation centers to ensure power condition.
7. Trimming and cutting of tree branches to avoid power shortage and electrocution.

8. Provide assistance to other line departments.
9. Appreciate participation of community and provide necessary back up.
10. Generate power as soon as possible to normalize the situation.

#### **5.10 Roles and Responsibilities of Chief Medical Officer:**

1. He is (Nodal Officer) a Supreme Incident Commander.
2. Ensure good communication link with all field centers.
3. Stocks piling of life saving drugs and other medicines.
4. Disseminate awareness to the people about hygiene and healthy practices.
5. Set up the mobile medical unit and keep it ready for immediate action.
6. Activate linking with others line departments.
7. Arrangement of ambulance duty.
8. Deploy vehicles with medicines and man power to the site operation centers.
9. Check-list the stock of requirements and its distribution.
10. Survey the health condition and medicinal requirements at various relief camps.
11. Ensure provision of sanitary measures to the victims at shelter centers.
12. Establish easy to approach temporary health centers and hospital at disaster site.

#### **5.11 Roles and Responsibilities of E.E. PWD:**

1. Emergency repair of damaged road and bridges.
2. Communication with official at all levels viz., District, Block, Sub-Division and Village levels.
3. Detailment of heavy machines, earth movers, towing vehicle, cranes etc.
4. Contact private owners having earth moving machines.
5. Arrange alternate road for transporting relief and rescue materials.
6. Assess the infrastructure damage and plan quick restoration procedure.
7. Clearance of road block for easy transit of relief materials.
8. Keep a direct link to the control room,

9. Survey the disaster site and surrounding areas for structure collapse and check out buildings, bridges etc. which are at risk of collapsing.

#### **5.12 Roles and Responsibilities of E.E. PHE:**

1. Supply of drinking water to relief and shelter camps.
2. Provision for disinfecting water by bleaching, halogen tablets at the relief camps.
3. Assess the water line disruption and repair the damage.
4. Keep information to and fro from the control room.
5. Arrangement of vehicles for distributing water at relief camps.
6. Communication system to various site operation centers and headquarters should also be ensured.
7. Check the pollution of water.
8. Encouragement of proper sanitation at all relief camps.
9. Provision of water tanks and mobile water tanker.
10. Identification of water sources.
11. Report the situation update to the control room.

#### **5.13 Roles and Responsibilities of D.T.O. (Transport):**

1. Cross check the vehicle registration from response plan and make necessary requisition of transport materials.
2. Provide vehicular assistance for response activities.
3. Arrange vehicles for relief transportation and its distribution at various centers.
4. Help human transit to safe shelters.
5. Coordinate PWD to restore the transport system to normalcy.
6. Transport of relief materials and civil supplies to relief camps and other safe shelters.
7. Establishment of communication with district, block, sub- division and village level.
8. Moving the victims to hospitals and relief camps.
9. Work side by side with other line departments such as PHE, Health, Civil Supplies and NGOs.

#### **5.14 Roles and Responsibilities of DVO (AH & Vety):**

1. Record the livestock population.
2. Arrange field operation centers at various places.
3. Stock piling of medicine, water and animal feeds.
4. Assessing the number of animals injured.
5. Transport of injured animals for operation.
6. Check the spread of animal diseases.
7. Proper disposal of carcasses.
8. Storage and distribution center for animal feed and medicine.
9. Ensure good communication network at all levels.
10. Coordination with other line departments.

#### **5.15 Roles and Responsibilities of Telecom (Nodal Officer BSNL):**

1. Ensure uninterrupted communication system.
2. Arrange alternate system of communication, If needed.
3. Provision alternate power back up for communication system.
4. Linking of all site operation centers and control room.
5. Regular checking of lines and cables.
6. Staff briefing on the disaster management and importance of communication.
7. Emergency contact directory supplied to all control rooms and site operation centers.
8. Coordination with private communication agencies.
9. Relay transmission of information update and sent to authorities.

#### **5.16 Roles and Responsibilities of Rural Development (PD DRDA):**

1. Assist other line departments in the response mechanisms.
2. Qualitative implementation of employment generation schemes like NREGS should be ensured.
3. Disperse awareness about disasters to the community.
4. Retrofitting of rural infrastructure, like road, bridges etc. should be undertaken with nodal departments.
5. Keep vigil on the development works.

#### **5.17 Roles and Responsibilities of D.A.O:**

1. Assess vulnerability of agriculture crops and plantation.
2. Provision of irrigation to the deficient regions.
3. Transportation of seeds, fertilizers and implements to different areas.
4. Control of pest and spread of diseases.
5. Maintain weather report and inform to all site operation centers.
6. Desalination of soil and water logging problems to be solved.
7. Rainfall and temperature recorded.
8. Linking with nodal departments.

#### **5.18 Roles and Responsibilities of DLAO:**

1. Take active part in debris clearance in disaster.
2. Provision of community health and sanitary measures.
3. Provide assistance to the authority by contributing earth movers, concrete cutters and other equipments.
4. Help to prevent outbreak of diseases.
5. Coordination with other line departments.
6. Repair damaged roads and pavements.
7. Disseminate information to the site operation centers and vice versa.

#### **5.19 ROLES OF VILLAGE COUNCIL, YMA, MHIP, ETC IN DISASTER MANAGEMENT:**

The YMA, MUP or MHIP has their branches in all localities and villages throughout the district and they will be responsible for:

1. Maintaining of security and creating help-Centre at suitable place in the locality.
2. Maintenance of law and order during evacuations.
3. Helping in emergency evacuations.
4. Containing panic behavior, maintaining orderly movements towards community shelter and taking preventive steps to avoid injuries and accidents.
5. Encouraging self help.
6. Organizing recreational activities.
7. Contributing labourer (loading and unloading) of distribution temporary construction, materials, salvage and restoration of water supplies, feeding centers, relief camps.

8. Ensuing standards in sanitation and disposal of waste.
9. Counseling injured panic stricken people.

#### **5.20 FUNCTIONS OF LOCAL AUTHORITIES:**

1. For the purpose of disaster management, local authority shall, subject to such directions as the Authority may give and under the supervision of the D.C/BDO:

- (a) Assist the Authority.
- (b) Ensure that the VDMC are trained.
- (c) Ensure that all resources related to disaster management are so maintained as to be ready for use;
- (d) Ensure that all buildings and other structures in the local area comply with the specifications laid down in this behalf by the departments of Government and the Authority;
- (e) Carry out relief operations in the affected area subject to directions of the Commissioner;
- (f) Carry out reconstruction and rehabilitation activities in accordance with the guidelines framed by the Authority;
- (g) Prepare a disaster management plan setting out the following, namely:
  - The manner in which the concept and principles of disaster management are to be applied in local area;
  - Role and responsibilities of the local authority in the terms of the disaster management plan of the State;
  - Capacity of the local authority to fulfill its role and responsibilities.
  - Particulars of disaster management strategies and
  - Contingency strategies and emergency procedures in the event of a disaster, including measures to finance the strategies.
- (h) Coordinate the preparation and the implementation of plan with those of the organizations of the District and stakeholders;

- (i) Regularly review and update the plan.
  - (j) Conduct disaster management drills periodically; and
  - (k) Provide such assistance to the Authority and take such other steps as may be necessary for disaster management.
2. Each local authority shall submit to the Authority and the Commissioner a copy of its disaster management plan proposed and any amendment there to.
- (a) Anticipate the types of disaster that may occur in the village and their possible effects;
  - (b) Identify the communities and property at risk;
  - (c) Provide for appropriate prevention and mitigation strategies;

#### **5.21 ROLES AND RESPONSIBILITIES OF PUBLIC & PRIVATE INDUSTRIES AND CORPORATIONS:**

- Public and Private Industries and Corporation has their key role in rehabilitation programme apart from undertaking other relief operation in calamity stricken pockets. In the past events most of the PSUs have rendered their best efforts in restoring normalcy of the livelihood of the people with warm response.
- The services of PSUs/Industrial Units shall be sought for especially immediate post calamity relief operation and providing shelter for the distress both temporary and permanently by the District Administration and shall be implemented under the direct supervision of Project Director, DRDA.

**5.22 ROLES AND ESPONSIBILITIES OF ARMS &  
PARAMILITARY FORCES:**

The services of Armed and Paramilitary forces shall be best utilized for:

- Immediate restoration of roads, communications and clearing obstacle.
- To assists in rescue and evacuation of people and settlement in safer sites.
- To make best utilization of human resources relief & rescue operation.
- To assess and identify alternative route for transportation of relief articles.
- To assist in relief operation in maintaining law and order.

**5.23 DISASTER SPECIFIC MEASURES AND APPROACHES:**

SECTOR	MITIGATIVE MEASURES	AGENCY RESPONSIBLE
INFRASTRUCTURAL DEVELOPMENT	Improving Information Education Communication activities through walling, posters, street play, volunteer's train, and village task force training. Mass rallies during normal period	Leading NGOs, BDOs
	Repair/Restoration of vulnerable points on roads before unset of monsoon.	PWD, BRTF, BDOs, VCs

	Ensuring proper maintenance of shelter places constructed by default agencies.	Concern village committee and BDOs
	Ensure maintenance and proper functioning of electronic communication system.	BSNL/Police department BDOs
	Immediate response for repair/replacement of pipe water supply system.	PHED, BDOs and CBOs
	Proper maintenance of VHF system installed by police department.	Head of office of the concerned location (Police wireless)
HEALTH/ ANIMAL HUSBANDRY	By way of IEC activities through walling posters, street play, village task force/volunteers training, during normal period.	By leading NGOs, DM&R, BDOs
	Adequate stock piling of vaccines should be ensure for vaccination before disaster.	CMO, DVO, BDOs
	Training Programme of common people should be programmed for Health care, sanitation and first aid from village level to district level.	CMO, DVO, BDOs
LIVELIHOOD SECTOR	By way of IEC activities through walling posters, street play, village task force/volunteers training, during normal period.	CMO, DM&R, BDOs lead NGOs
	To reduce adverse impact on AGRICULTURE farmers should be advised alternating cropping pattern/flood	DAO, DHO and BDOs.

	resistance crops. Drought resistance short duration paddy seeds are made available to farmers. Ensuring crop insurance.	
	Rising of Nursery in the horticulture farms & insurance coverage of horticultural products.	DHO, BDOs and NGOs.
INSURANCE	By way of IEC activities through walling posters, street play, village task forces/volunteers training, during normal period.	CMO/DVO/NGOs/DM&R
	Emphasizing on insurance coverage of live stock, crops, industry, workshop, etc.	DAO, BDOs and NGOs
	Creating awareness among general public. During normal time to insured human life.	Leading NGOs, BDOs

## **CHAPTER VI**

### **STANDARD OPERATING PROCEDURES**

Emergency Support Functions (ESFs) are intended to help the Incident Commander at the time of emergency for restoring normal life. The ESF is an organized system of District level departments and agencies, which are to be worked under a structured pattern for response and recovery in accordance with the National Disaster Management Guidelines.

The Standard Operating Procedure (SOPS) for ESFs explains about the operations and responsibilities of the leading and supporting agencies that are to be involved in the ESF system. The document also outlines the purpose and scope for each function of operation that is to be followed by the respective ESF agencies when the Incident Commander activates the response plan during the emergency period.

### **SOP FOR EMERGENCY SUPPORT FUNCTIONS**

The major functions of the incident command systems are summarized as follows. Nevertheless, they are to be released in cooperation of all the ESFs and participating agencies in disaster management. The Incident Commander is given with full control and command over the entire teams in district level.

#### **6.1 COMMUNICATION:**

**Background:** The communication ESF is primarily responsible for restoration of communication facilities. The ESF on communication should ensure the smooth flow of information that can cater to the outreach in a time-sensitive manner at state level in response efforts.

#### **Situation Assumption:**

1. There would be a congestion in the network because of increased calls to control rooms due to panic created in the community.
2. The initial reports on damage may not give a clear picture of the extent of damage to communication network
3. The affected site may cut off from the state control rooms and the official on the site and find difficulty in communicating to the District/State EOC

**Nodal Agency:** Bharat Sanchar Nigam Limited (BSNL)

**Supporting Agencies:** NIC, MPRO and I&PR

**SOP for Nodal Agency:**

- Team Leader (TL) of communication EFS will activate the ESF on receiving the intimation of occurrence of disaster from the District EOC.
- TL would inform Nodal Officers (NOs) of support agencies about the event and ESF activation.
- TL would establish contact with the district EOC for First Information Report.
- TL request for reports from local ESF contact persons (this would be the local office of ESF Nodal Agency) to understand the current situation and action taken.
- Based on information given by the supporting agencies, TL decides on the need to launch an assessment mission to estimate the extent of damage to telecom services and network as well as to come up with possible arrangements to establishing reliable and appropriate network.
- TL communicates situation to supporting agencies and also request to provide details on the status of equipment and infrastructure in the affected area(s).
- TL informs the Incident Commander on the status of telecom services.
- TL works out a plan of action for private telecom companies and convenes a meeting of all ESF members to discuss and finalize the modalities.
- TL issues order to establish systems and reports to District EOCs on the action taken. New phone numbers and details of contact persons would also be communicated. If required mobile exchanges would be deployed.
- TL gets the temporary telephone facilities established for the public. Prior information on this would be announced through media.
- TL sends the District Quick Response team at the affected site with the required equipments and other resources.

**SOP for Quick Response Team on Communication:**

- The QRT (Quick Response Team) members will reach to the nodal office as soon as they will get instructions from the TL.
- Once the QRTs receive the intimation from the nodal officer to reach at the site they would rush to the site.
- At the emergency site QRT members will take stock of the situation from the IC and would also know about their counter parts.
- QRTs would assess the ground situation and would send sectoral report to the District ESF agency.
- A sectoral would contain the following :
  - i) An assessment of over all damage, listing specifically.
  - ii) Overhead road damage (in miles/kilometers)
  - iii) Cable damage (in yards/meters)
  - iv) Specific equipment damaged
  - v) Established a temporary communication facility for use by the public
  - vi) Identify requirements of man power, vehicles and other materials and equipments. Give priority and concentrate on repairs and normalization of communication system at disaster-affected areas.
- Begin restoration by removing and salvaging wires and poles from the
- Roadways with the help of casual labourers
- Carryout temporary building repairs to establish a secured storage area for
- The equipments and salvaged materials
- Report all activities to head office
- Begin restoration by removing and salvaging wires and poles from the
- Roadways through recruited casual labourers
- Establish a secure storage area for incoming equipments and salvaged
- Materials

## **6.2 EVACUATION:**

**Background:** The ESF on evacuation is primarily responsible for establishing evacuation plans, identification of fastest evacuation routes and alternate routes and coordinating evacuation logistics during field operations.

### **Situation Assumptions:**

1. Most of the buildings would be damaged and would not remain serviceable.
2. Many structures would be damaged and there would be an urgent need to evacuate.

**Nodal Agency:** Office of the Deputy Commissioner, Lunglei.

**Supporting Agencies:** Police, NCC and home guards.

**SOP for Nodal Agency:**

- Team leader (TL) of evacuation ESF would activate the ESF on receiving the warning of the disaster from the District EOC.
- TL would inform Nodal Officers (NOs) of supporting agencies about the event and ESF activation.
- TL will direct the QRTs to be deployed at the affected site.
- TL will gather information on availability of predefined evacuation routes.
- Where the predefined evacuation routes are not available, the nodal officer would coordinate through District EOC with other ESFs nodal officers and the support agencies about clearing of routes and identifying alternate routes.

**SOP's for Quick response Team on Evacuation:**

- The QRT members will reach the nodal office as soon as they get instructions to do so from the TL.
- Once the quick response team receives an order from the nodal officer for reaching the site they would rush to the site.
- On reaching at the site the QRT members will take stock of the situation from the Incident Management Team at the site and their counter parts.
- The quick response team with the help of local task forces will start evacuating peoples to safe shelters or open areas.
- The QRT members should concentrate more on evacuation in areas that have been worst affected by the disasters.
- Reporting about all activities to head office.

### **6.3 SEARCH AND RESCUE:**

**Background:** Search and rescue operations are one of the primary activities taken up in a post disaster situation. The promptness in these operations can make a remarkable difference in the amount of loss of life and property.

#### **Situation Assumptions:**

1. local community task forces will initiate search and rescue at residential level
2. Spontaneous volunteers will require coordination
3. Access to affected areas will be limited
4. Some sites may be accessible only through air routes only

**Nodal Agency:** MAP

**Support agency:** Police, 4<sup>th</sup> AR, 136 BSF Health Dept. and YMA.

#### **SOP for Nodal Agency:**

- IC will call the TL of the primary agency and get the ESF activated
- TL of primary agency will call nodal officers of supporting agencies
- TL would activate the District Quick Response Team
- Quick Assessment of the S&R operations through surveys
- Assessment of the specific skill sets and the other equipment required
- Using IDRN network to check and map the availability of resources in and round the disaster site

#### **SOP for Quick Response Team on Search and Rescue:**

- Assessment of damage(locations, no. of structures damaged, severity of damage)
- The QRTs will be deployed at the affected site
- Enlisting the types of equipment required for conducting the S&R
- QRTs will report the situation and the progress in response activities to the respective EOCs

### **6.4 LAW AND ORDER:**

**Background:** The ESF on Law and Order maintains the law and protects the property and valuable commodities. It is mainly responsible to control crowd and avoid riots situations.

**Situation Assumption:**

1. There would be panic and people would gather at a place
2. The crowds may go out of control
3. Riots may also take place

**Nodal Agency:** Police

**Support Agency:** Home Guards.

**SOP for Nodal Agency:**

- IC will call the TL of Primary Agency and get the ESF activated
- TL of primary agency will call nodal officers of supporting agencies
- TL would activate the District Quick Response Team
- The QRTs will be deployed at the affected site
- Cordoning of area to restrict movement of onlookers, vehicular and pedestrian traffic should be done
- Any additional requirements at site to be taken care of

**SOP for Quick Response Team on Law and Order:**

- Quick assessment of law and order situation in affected areas
- Support and coordinate with Local Administration
- Prepare updates the law and order situation every 4-6 hours and brief the authorities
- Controlling situations like rioting and looting, and cordon of sensitive areas QRTs will guide property and valuables in affected areas
- Control and monitor traffic movement
- QRTs will provide diversion of traffic on alternate routes as and when it is necessary especially heavy traffic or congested roads
- The QRTs will also provide information about traffic flow along various corridors
- QRTs will communicate to police control rooms, details on the field activities including deployment and reinforcement of staff and resources and communicate nature of additional requirements

## **6.5 MEDICAL RESPONSE AND TRAUMA COUNSELING:**

**Background:** The ESF on Medical Response and Trauma Counseling will look after emergency treatment for the injured people immediate after the disaster take place.

### **Situation Assumptions:**

1. Emergency Medical services will be required by affected the disaster
2. Like outbreaks of epidemic diseases after the disaster
3. Hospital services would be affected

**Nodal Agency:** Health Department

**Support Agency:** NSS, MHIP, MUP and SWD

### **SOP for Nodal Agency:**

IC will call the TL of Primary Agency and get the ESF activated. Team Leader (TL) of primary agency will call nodal officers of supporting agencies.

- In coordination with the transportation ESF, it will ensure a critical number of medical professionals to be reached at the site including specialists from other districts.
- If temporary housing arrangements are being made for the affected population, the ESF must ensure high standards of sanitation in settlements in order to reduce epidemic outbreak.
- Ensuring the provision and continuous supply of medical facilities. (medicines, equipments, ambulances, doctors and manpower etc.) required at the disaster affected site and the hospital health centers catering to the disaster victims.
- In case of orthopedic care required in disaster like earthquakes the immediate response would have to be complimented by a follow up treatment schedule for a majority of the patient in/near their place of residence.
- Trained professional should be mobilized by psychosocial support.
- Ensuring setting up of temporary information centers at hospital with the help of ESF through help lines and warning dissemination system.

- TL will coordinate, direct, and integrate state level response to provide medical and sanitation health assistances.
- On the recommendations of the EOC, the TL also responsible to:
  - Send required medicines, vaccines, drugs, plaster, syringes, etc.
  - Arrange for additional blood supply, send additional medical personnel equipped with food, bedding and tents etc.
  - Send vehicles and any additional equipment.

### **SOP for Quick Response Team (QRT) on Medical Response and Trauma Counseling:**

- QRTs will provide situation and progress reports on the action taken by the team to the respective EOCs.
- QRTs will assess type of injuries, number of people affected and possible medical assistance needs.
- QRTs will ensure timely response to the needs of the affected victims such as:
  - Establishing health facility and treatment centers at the disaster sites.
  - Providing medical services as reported by the District Civil Surgeon with District EOC and State EOCs
  - Procedures should be clarified in between-
    - Peripheral Hospitals
    - Private Hospitals
    - Blood Banks
    - General Hospitals and Health services establish at transit camps, relief camps and affected villages

QRTs should maintain check posts and surveillance at all entry and exit points from the affected area, especially during the threat or existence of an epidemic.

## **6.6 WATER SUPPLY:**

**Background:** The ESF on drinking water and supply 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.

**Situation Assumptions:**

- Existing water storage bodies will be damaged and unuseable.
- There should be an urgent need of water to assist victims in rescue operation.
- Break down of sanitation system.
- Contamination of water due to outflow from sewers or due to breakage of water pipelines.

**Nodal Agency:** PHE

**Support Agency:** LAD

**SOP for Nodal Agency:**

- Team Leader (TL) of ESF on Water Supply will activate the ESF on receiving the intimation of the disaster from District EOC.
- TL would inform Nodal Officers (NOs) of support agencies about the event and ESF activation.
- TL will ensure special care for women with infants and pregnant women.
- Provide for sending additional support along with food, bedding, and tents.
- Send vehicles and any additional tools and equipments needed.

**SOP for Quick Response Team (QRT) on Water Supply:**

- QRTs will ensure that supply of drinking water is made available at the affected site and relief camps.
- QRTs will ensure the temporary sewerage lines and drainage lines are kept separate.
- QRTs will report the situation and the progress on action taken by the team to the EOC.
- QRTs will intimate their TL of the additional resources needed.
- Carry out emergency repairs of all damages to water supply systems.
- Assist health authorities to identify appropriate sources of potable water.

- Identify unacceptable water sources and take necessary precautions to ensure that no water is accessed from such sources, either by sealing such arrangements or by posting the department guards.
- Arrange for alternate water supply and water storage in all transit camps, feeding centers, relief camps, cattle camps, and also the affected areas, till normal water supply is restored.
- Ensure that potable water supply is restored as per the standards and procedures laid down in “Standards for Potable Water.”
- Plan for emergency accommodations for staff from outside the area.
- QRTs will ensure timely response to the needs of the affected victims.
- QRTs will set up temporary sanitation facilities at the relief camps.

## **6.7 RELIEF (FOOD AND SHELTER):**

**Background:** In the event of a disaster there would be a need of disbursing relief materials due to massive destruction of life and property taken place. The ESF on relief should ensure coordination of activities involving with the emergency provisions of temporary shelters, emergency mass feeding and bulk distribution of relief supplies to the disaster victims as also the disaster managers and relief workers.

### **Situation Assumption:**

1. Probably of shortage of a critical resources
2. Immediate assistance to the community at the time of resource shortage particularly when affected area is larger

**Nodal Agency:** Department of Food and Civil Supplies

**Support Agency:** NGOs

### **SOP for Nodal Agency:**

- TL will activate the ESF on receiving the information of the disaster from District EOC.
- TL would inform the Nodal Officers (N.Os) of support agencies about the event and the ESF activation.
- TL will coordinate with all state and district level suppliers as identified with under IDRN.

- TL will coordinate with other ESFs related to transportation, debris road clearance to ensure quality supply chain management of relief materials.
- Ensuring composite relief with availability of complimentary relief material.

#### **SOP for Quick Response Team (QRT) on relief:**

- QRTs will report to site of the relief camps
  - QRTs will be responsible to management and distribute relief items to the affected victims
  - QRTs will be responsible for supporting the progress on action taken by the team to the EOC
  - QRTs will provide information to their TL about the need of additional resources
  - Clearing of the areas to establish relief camps
  - Setting up relief camps and tents using innovate methods that can save time
  - Assist local authorities to set up important telecom and other service related facilities
  - Initiate, direct and market procurement of food available for different inventories and ensuring food supplies to the affected population
  - Preparing take-home food packets for the families
  - Ensuring distribution of relief material to the all the people including vulnerable groups of the target area such as women with infants, pregnant women, children, aged people and handicapped
  - Ensuring support to Local Administration
  - Local adequate relief camps based on damage survey
- 
- Develop alternate arrangement for population living in structures that might be affected even after the disaster

#### **6.8 EQUIPMENT SUPPORT, DEBRIS AND ROAD CLEARANCE:**

**Background:** The importance of this ESF emanates from the fact that most large scale hazards such as earthquakes, cyclones, and floods primarily affect the building structures.

**Situation Assumptions:**

1. Access to disaster-affected area would depend upon the re-establishment of ground and water routes.
2. Early damage assessment may be incomplete, inaccurate and general. A rapid assessment may be required to determine response time.
3. Engineers and masons may be required in large scale for the inspection of present buildings.

**Nodal Agency :** PWD

**Support Agency:** LAD

**SOP for Nodal Agency:**

- Team Leader (TL) will activate the ESF on receiving the information of the disaster from District EOC.
- TL would inform Nodal Officers (NOs) of supporting agencies about the event and ESF activation.
- TL will coordinate with the supporting agency to mobilize equipments from the warehouses through IDRN database.
- The respective supporting agencies will contact their respective personal to move the equipments to central warehouse.
- The equipments like JCB, concrete cutters identified as per the need will be transported to the site.
- As per the information the Nodal Officer of Debris clearance will make an assessment on of the damages of roads and built structures at the site and surrounding areas.
- The Nodal Officers of Supporting Agencies will immediately start debris clearance operation to enable movement to the affected site.
- Review of the current situation is taken up by the nodal agency to update the support agencies and to delegate their respective personnel to take precautionary measure to plan de-routes for the transportation ESF's to be operational.
- All supporting agencies will inspect the road and rail network and structures within the disaster site and surrounding.

- TL will also ensure proper corpse disposal and post mortem by coordinating with ESF on medical response.

### **SOP for Quick Response Team on Equipment Support, Debris and Road Clearance:**

- Damage assessment including locations, number of structures damaged and severity of damage.
- The QRTs will be deployed at the affected site.
- Enlisting the types of equipments as compiled from IDRN resource inventory required for conducting the debris clearance.
- And relief camps, and medical facilities for disaster victims.
- The QRTs will report the situation and the progress in response activities to the respective EOCs.
- Undertake constructions of temporary roads to serve as access to temporary transit and relief camps, and medical facilities for disaster victims.
- Repairing of all paved and unpaved road surfaces including edge metalling, pathole patching and any failure of surface, foundations in the affected areas by maintenance engineer's staff and keep monitoring their conditions.

### **6.9 HELP LINES, WARNING DISSEMINATION:**

**Background:** The ESF on help lines and warning dissemination should process and circulate information about the welfare of citizens of affected area and managing the tremendous flow of information. The help lines will be responsible for providing, directing and coordinating operations.

#### **Situation Assumptions:**

1. There may be a flood of information and confusion about the injured population
2. The communication with affected area may be partially impaired

**Nodal Agency:** D.C. Lunglei.

**Support Agency:** MPRO, NIC, NGO representative and I&PR

**SOP for Nodal Agency:**

- IC will call the TL of Primary Agency and get the ESF activated.
- TL of primary agency will call nodal officers of supporting agency.
- TL would activate the District Quick Response Team.
- The QRTS will be deployed at the affected site.
- QRTs will report the situation and the progress in response activities to the respective EOCs.
- Sending flash news of latest updates/donation requirements for disaster area all over the state.
- Assisting the EOC in providing updated information to national as well as at the District level.
- Setting up of toll free numbers for emergency information assistance.

#### **SOP for Quick Response Team on Help Lines, Warning Dissemination:**

- The QRT members will reach to the Nodal Office as soon as they will get instructions.
- QRT teams would reach to the site immediately after receiving instructions from the nodal officer
- On the Site QRT members will take stock of the situation from the IC at the site and their counter parts.
- The QRTs will coordinate, collect, process, report and display essential elements of information and facilitate support for planning efforts in response operations.

#### **6.10 ELECTRICITY:**

**Background:** The ESF on electricity will facilitate restoration of electricity distribution system after a disaster. In the event of a disaster there would be major electricity failure and many power stations damaged.

#### **Situation Assumptions:**

1. Prolonged Electricity failure.
2. The affected victims may be panicked.
3. Halt of all activities specially jamming communication-networking systems in the affected site.

**Nodal Agency:** P&E

**Support Agency:** NGOs

### **SOP for Nodal Agency:**

- IC will call the TL of Primary Agency and get the ESF activated
- TL of primary agency will call nodal officers of supporting agencies
- TL would activate the District Quick Response Team
- The QRTs will be deployed at the affected site
- TL will dispatch emergency repair teams equipped with tools, tents and food

### **SOP for Quick Response Team on Electricity:**

- The QRT members will reach the nodal office as soon as they receive instructions to do so from the TL.
- QRT members would reach to the site immediately after receiving instructions from the nodal officer.
- On the site QRT members will take stock of the situation from the IC at the site and their counterparts.
- The QRTs will coordinate, collect, process, report and display essential elements of information and facilitate support for planning efforts in response operations.
- Begin repairing and re-construction work.
- Assisting hospitals in establishing an emergency supply by assembling generators and other emergency equipments, if necessary.
- The members of QRTs will establish temporary electricity supplies for other key public and private water system.
- The members of QRTs will establish temporary electricity supplies for transit camps, feeding centers, relief camps, District Control Room and on access roads to the same.
- The members of QRTs will establish temporary electricity supplies for relief material go downs.
- Compile an itemized assessment of damage, from reports made by various electrical receiving centers and sub-centers.
- Report about all the activities to the head office.

## **6.11 TRANSPORTATION:**

### **Background:**

The ESF on Transport should ensure smooth transportation links at state and district level. Within the disaster context, quick and safe

movement of material and humans are a priority. It should coordinate the use of transportation resources to support the needs of emergency support forces requiring transport capacity to perform their emergency response, recovery and assistance missions.

**Situation Assumptions:**

1. The State Civil Transportation infrastructure will sustain damage, limiting access to the disaster area.
2. Access will improve as routes are cleared and repaired.
3. The movement of relief supplies will create congestion in the transportation services.

**Nodal Agency:** Transport Department

**Support Agency:** PWD

**SOP for Nodal Agency:**

- TL of Transportation ESF will activate the ESF on receiving the intimation of the disaster from District EOC.
- TL would inform Nodal Officers (NOs) of support agencies about the event and ESF activation.
- TL establishes contact with the district EOC for FIR.
- TL requests for reports from local Transportation ESF contact person.
- TL communicates situation to support agencies and request for detailed information on the status of transportation infrastructure in the affected area(s).

**SOP for Quick Response Team on Transport:**

- The QRT members will reach to the nodal office as soon as they will get instructions to do so from the TL.
- As quick response teams will receive instructions from the nodal officer they would reach to the site immediately.
- QRTs would report the situation and the progress on action taken by the team to the respective EOCs.

- QRT will send a requirement schedule for the different modes of transportation e.g. trucks, boats, helicopters to be put on stand-by.
- QRTs will ensure timely re-establishment of the critical transportation links.
- The members of QRTs will establish temporary electricity supplies for relief material go downs.
- Compile an itemized assessment of damage, from reports made, by various electrical receiving centers and sub-centers.
- Reporting about all activities to the head office.

## **CHAPTER VII**

### **ACTION PLAN FOR EMERGENCY SUPPORT FUNCTIONS**

#### **7.1 SHORT TERM RESPONSE PLAN:**

Short term response plan contains the actions to be taken immediately after a disaster. Once an information has been reached the district EOC or any of the Disaster Managers in the district either from authentic or unauthentic sources, it has to be verified soon for authenticity. Once the information is found correct, it has to be reported to the incident Commander via fast communication system. The Incident Commander shall take the following actions:

1. Disseminate warning/alert to the potential victims
2. Disseminate information to vertical and horizontal EOCs
3. Disseminate information to vertical and horizontal Administrators and DMTs
4. Declare Disaster based on the severity/vulnerability  
Rescue Operations

Immediately after a disaster the Deputy Commissioner shall act as the District Magistrate and Incident Commander and take over disaster management. He/she shall coordinate the rescue operations with the help of

the Working Group for relief and rehabilitation and the Emergency Support Functions. Along with the rescue operations the incident Commander shall do the following measures:

1. Activate the Incident Command System
2. Call meeting of Crisis Management Group
3. Coordinate the ESFs in disaster management
4. Set up Site/Onsite Operation Centers and activate relief camps
5. Collect preliminary assessment report from the onsite EOCs
6. Activate the pre-contract vendors and collect relief materials for distribution
7. Brief the situation to the higher authority as well as to press/media people
8. Ensure basic logistic arrangements for disaster managers and the Operation Centers
9. Mobilize resources/call assistance from various stake holders

### **Relief Operations**

Once the rescue phase is over, the district administration shall provide immediate relief assistance either in cash or in kind to the victims of the disaster. The DDMA shall enter in to pre-contract well in advance and procure materials required for life saving. The office of the Deputy Commissioner is responsible for providing relief to the victims of natural and man made disasters like fire, flood, draught, earthquakes, riots, terrorist attacks, accidents etc. The relief shall be provided as per the scale fixed by the government.

### **Rehabilitation**

In short response rehabilitation is the final step. The Incident Command System shall be deactivated as the rehabilitation phase is over. Thereafter the normal administration shall take up the remaining reconstruction works in the disaster affected areas. These activities shall be performed by the Working group for relief and rehabilitation under the directions of the DDMA.

## **7.2 LONG TERM RESPONSE PLAN:**

The long-term response plans are related with recovery and reconstructions activities on one side and institutionalizing disaster management in district administration on the other side. There are Standard Operation Procedures (SOPS) for the Emergency Support Functions. In long term measures the following actions shall be undertaken duly.

1. Constitution of Emergency Support Functions (ESF), Disaster Management Teams, Quick Response Teams, Fields Response Teams
2. Refreshers trainings for all such teams in regular interval of time and exercise of Mock Drills
3. Continuous of awareness/sensitization programme for the stakeholders and the general public
4. Getting pre-contract with venders and merchant establishment to procure relief materials in times of disaster.

Most of the line Department in the District, Autonomous bodies and Organizations are part of the ESF. The actions Plans for ESFs for disaster management are discussed below. The DDMA shall ensure these action plans are updated by annually and practice dough mock drills in the district.

### **7.3 ACTION PLAN FOR POLICE:**

#### **Response Activation:**

1. The Nodal officer from the Police will activate the Quick Response teams
2. The Quick Response Teams will be deployed at the Onsite EOCs
3. As per the information from IMTs, more officers may be sent at site

#### **Actions to be taken:**

1. If felt, cordoning of area to restrict movement of on lookers, vehicular and pedestrian traffic should be done
2. Quick assessment of law and order situation in affected areas
3. Prepare updates on the law and order situation every 2-3 hours and brief the Incident Commander
4. Arrangement for controlling situations like rioting and looting

5. QRTs will guard property and valuable in affected areas
6. Control and monitor traffic movement
7. QRTs will provide diversion of traffic on alternate routes as and when it is necessary
8. the QRTs will also provide information about traffic flow along various corridors, especially heavy traffic or congested roads
9. QRTs will communicate to police control rooms, details on the field activities including deployment and reinforcement of staff and resources and communicate nature of additional requirements

**Equipments to be brought:**

1. Search Lights
2. Electric generators
3. Crane-Heavy Duty, Fork Type
4. Recovery Van
5. Stretchers
6. First Aid Kits
7. Vehicles: Mini Buses, heavy truck, light ambulance vans, mobilization trucks
8. Water tanker
9. Any other

**7.4 ACTION PLAN FOR FIRE SERVICE:**

**Response Activation:**

1. As soon as the Nodal Officer gets information about the disaster, he should reach the EOC
2. The Quick Response Team will be deployed at the Onsite EOCs
3. As per the information from IMT, more officers may be sent at site

**Actions to be taken:**

1. At the site, QRTs should contact the local volunteers and local people together information about vulnerable areas so that search and rescue operation can take place through a proper channel in heavily dense

areas, large buildings, community center, hotels, hospitals, public buildings and any other area having large gathering.

2. Locate the damaged and collapsed structures and rescue the population buried and trapped in rubble.
3. The injured people should be taken out of damaged buildings etc. with utmost care.
4. Special care to women and children group should be given as they are expected to be more affected and helpless incase of any emergency situation.
5. Coordinate with the transportation ESF if a large number of medical professionals need to be sent to the affected sites and/or a large number of victims need to be transported to health facilities.

**Equipments to be brought:**

- i) Water tenders
- ii) Ladder Platforms
- iii) Haz Mat Van
- iv) Concrete Cutter

Other equipments necessary for Search and Rescue Operations, depends upon need.

**7.5 ACTION PLAN FOR HOME GAURDS:**

**Response Activation:**

1. As soon as the Nodal Officer gets information about the disaster, reach the EOC.
2. The Quick Response Teams will be deployed at the three sites.
3. As per the information received from IMT, more officers may be sent at site

### **Actions to be taken:**

1. Support and coordinate with the Incident Command System for Law and Order, Search and Rescue and medical response and Trauma Counseling functions.
2. Locate the damaged and collapsed structures and rescue the population buried and trapped in rubble.
3. The injured people should be taken out of damaged buildings etc. with utmost care.
4. Special care to women and children groups should be given as they are expected to be more affected and helpless incase of any emergency situation.
5. First Aid should be provided along with the members of ESF on medical response
6. Demonstrate Search and Rescue.

### **Equipments to be brought:**

- i) Extension ladders
- ii) Sledge Hammers
- iii) Lifting Tackles
- iv) Stretchers
- v) Tarpaulins
- vi) Any other

## **7.6 ACTION PLAN FOR POWER AND ELECTRIC DEPT:**

### **Response Activation**

1. Get the power ESF activated.
2. Nodal officer of primary agency will call nodal officers of supporting agencies
3. As per the information from IMTs, the nodal officer of primary agency will activate the State Quick Response Teams at field level.
4. The Quick Response Teams will be deployed at the affected areas.

**Actions to be taken:**

Team Leader will dispatch emergency repair teams equipped with tools, tents etc.

**Equipments to be brought:**

All Equipments required to restore failure in network at stations should be available.

**7.7 ACTION PLAN FOR BSNL:**

**Goal:** The BSNL is primarily responsible for restoration of communication facilities. The BSNL should ensure the smooth flow of information that can cater to the outreach in a time-sensitive manner at state level in response efforts.

**Response Activation:**

- Soon after receiving information about disaster (from any source), Nodal Officer will contact State/District Emergency Operations Centre.
- The Nodal Officer from BSNL will activate the Quick Response Teams.
- The Quick Response Teams will be deployed at the Incident Sites.
- As per the information from Incident Management Team, more teams may be deployed.

**Actions to be taken:**

- Communicate Situation to support agencies and request for detailed information on the status of equipment and infrastructure damaged in the affected areas.

- Launch assessment mission to understand better the nature of damage telecom services and network.
- Ensure possible arrangements for establishing reliable and appropriate network.
- Work out a plan of action for private telecom companies and convene a meeting to discuss and finalize the modalities.
- Compile and communicate Action Taken Reports to District and State Authorities.
- New numbers and details of contact persons to be communicated to Emergency Operations Centre (District/State).
- Mobile exchanges should be deployed as alternative mode of communication for authorities and general public.
- Establish telephone facilities for the public and information on this should be announced through media.
- Monitor the situation and arrange for emergency staff required to operate systems established.
- Inform district/state authorities on debris clearance of the work required.
- Initiate temporary rehabilitation work required.
- Launch rehabilitation work and arrange for repairs and relocation, if required.
- Other necessary equipments to restore communication network/set-up alternative emergency communication.

**Equipments to be brought:**

- Make available various types of equipment/material/technical manpower and services, if requested.

**7.8 ACTON PLAN FOR LAD:**

### **Actions to be taken:**

- LAD will bring debris of heavy RCC structures (having beams/columns) and put dummies beneath the debris. This will facilitate demonstration of search and rescue operations. Soon after search and rescue team leave the site, LAD will mobilize equipments for debris clearance.
- LAD will assume main role in Equipment support, debris and road clearance, on receiving the intimation of the disaster from state EOC.
- LAD will coordinate with the supporting agency's officers to mobilize equipments.
- From the ware houses.
- The respective supporting agencies will contact their respective to move the equipments to central warehouse.
- The equipments like JCB, concrete cutters identified as per the need will be transport to the site.
- On receiving intimation of the intensity of the damages of structure, the nodal officer will make an assessment of the damages of roads and structures reported at the site and surrounding areas.
- The Supporting Agencies Nodal officers will call for personal immediately start debris clearance operation to enable movement to the affected site.
- All supporting agencies will inspect the road/rail network and structures within the disaster site and surrounding.
- LAD will also ensure proper corpse disposal and post mortem by coordinating with ESF on medical response.
- Assessment of damage (locations, no. of damaged, severity of damage)
- The QRTs will be deployed at the affected site.
- Enlisting the types of equipments as compiled from resource inventory required for conducting the debris clearance.
- The QRTs will report the situation and the progress in response activities to the respective EOCs.

- Undertake constructions of temporary roads to serve as access to temporary transit and relief camps, and medical facilities for disaster victims.
- Undertake repair of all paved and unpaved road surfaces including edge metal ling, pothole patching and any failure of surface, foundations in the affected areas-by maintenance engineer's staff and keep monitoring their conditions.
- Ensure a critical number of medical professionals to reach the site including specialist from outside the state.
- If temporary living arrangements are being made from affected populace, the LAD must ensure high standards of sanitation in settlements in order to prevent the multiplicity of the disaster.
- It should also ensure the provision of medicine and other medical facilities required at the disaster site and the hospital health centers catering to the disaster victims.
- In case of orthopedic care required in disasters like earthquakes the immediate response would have to be complimented by a follow up treatment schedule for a majority of the patients in/near their place of residence.
- Compiled an itemized assessment of damage, from reports made by various receiving centers and sub-centers.

#### **Equipments to be brought:**

1. JCN, Concrete breakers, Cranes, Grader, Gas cutter, Jack hammer, Tripper, Folkanes, Dumper , Aromatic Hammer for debris /road clearance, supporting rescue operations.
2. Vehicles (Trucks)
3. Earth movers, rescue equipments.
4. Mobile medical vans.
5. Other disaster management related equipments.

#### **7.9 ACTION PLAN FOR PWD:**

**Actions to be taken:**

- The above agencies will bring debris of heavy RCC structures (having beams/columns) and put dummies beneath the debris. This will facilitate demonstration of search and rescue operations. Soon after search and rescue team leave the site, will mobilize equipments for debris clearance.
- Assume role in equipment support, debris and road clearance, on receiving the intimation of the disaster from State EOC/Nodal Officer of LAD.
- Coordinate with the LAD officers to mobilize equipments from the warehouse.
- The equipments like JCB, Concrete Cutters identified as per the need will be transported to the site.
- On receiving intimation on the intensity of the damages of structures, the nodal officer will make an assessment on the damages of roads and structures reported at the site and surrounding areas.
- The Nodal Officer will call for personnel to immediately start debris clearance operation to enable movement to the affected site.
- A review of the current situation should be taken up by the nodal agency to update the support agencies to delegate their respective personnel to take precautionary measure to plan de-routes for the transportation ESF's to operational.
- All supporting agencies will inspect the road network and structure within the disaster site and surrounding.
- Ensure proper corpse disposal and post mortem by coordinating with ESF on medical response.
- Assessment of damage (locations, no. of structures damaged, severity of damage).
- The QRTs will be deployed at the affected site.
- Enlisting the types of equipments as compiled from resource inventory required for conducting the debris clearance.

- The QRTs will report the situation and progress in response activities to the respective EOCs.
- Undertake constructions of temporary roads to serve as access to temporary transit and relief camps, and medical facilities for disaster victims.
- Undertake repair of all paved and unpaved road surfaces including edge metal ling, pothole patching and any failure of surface, foundations in the affected areas by maintenance engineer's staff and keep monitoring their conditions.
- Ensure a critical number of professionals to reach the site including specialist from outside the state.
- If temporary living arrangements are being made from the affected populace, the agencies must ensure high standards of sanitation in settlements in order to prevent the multiplicity of the disaster.
- Coordinate, direct, and integrate response to provide equipments Supports, relief camps establishment, and sanitation health assistances.
- Mobilizes different modes of transportation e.g. Truck, etc to be put on stand-by.
- Assist timely re-establishment of the critical transportation links.
- Establish temporary electricity supplies for relief material go downs and relief camps.
- Compiled an itemized assessment of damage, from reports made by various receiving centers and sub-centers.
- Other disaster management related equipments. JCB, Concrete breakers, cranes, Grader, Jack Hammer, Tipper, Folkanes, Dumper, Aromatic Hammer for debris/road clearance, supporting rescue operations.
- Vehicles (Truck), Earth Movers, Mobile medical vans.
- Other disaster management related equipments.

#### **7.10 ACTION PLAN FOR HEALTH SERVICES:**

### **Response Activation:**

- Nodal Officer will call nodal officers of supporting agencies.
- In coordination with the transportation ESF, it will ensure a critical number of professionals to reach the sites including specialists.
- If temporary living arrangements are being made from the affected populace, must ensure high standards of sanitation in settlements in order to prevent the multiplicity of the disaster.
- Also ensure the provision of medicine and other medical facilities required at the disaster site and the hospital health centers catering to disasters victims.
- In case of orthopedic care required, immediate response would have to be complimented by a follow up treatment schedule for a majority of the patients in/near their place of residence.
- Trained professional should be mobilized by psychosocial support.
- Ensure setting up of temporary information centers at hospital with the help of ESF on help lines and warning dissemination.
- Coordinate, direct, and integrate state level response to provide medical and sanitation health assistances.

### **Actions to be taken:**

- Ready all hospitals (including private hospitals) for managing large no. of casualties and severely injured population.
- Sufficient stock of required medicines, vaccines, drugs, plasters, syringes, etc.
- Provide systematic approach to patient care (Mass casualty management).
- Triage done to determine who needs to be taken to a medical facility on a priority basis and who can be treated on-site.
  1. First –aid provided as required
  2. Patients stabilized before transport
  3. Patients transported to nearest available medical facility having the required facilities.

4. Trauma counseling provided to the victims and their relatives at the site and in the hospital.
  5. In the hospital emergency department, triage carried out again to prioritize treatment, and appropriate care provided.
  6. Maintain patient tracking system to keep to record of all patients treated.
  7. Deploy mobile hospital as needed.
- Arrange for additional blood supply: organize blood donation camp for additional blood requirement.
  - Provide for sending additional medical personnel equipped with food, bedding and tents.
  - Send vehicles and any additional medical equipment.
  - QRTs will report the situation and the progress on action taken by the team to the respective EOCs.
  - QRTs quickly assess type of injuries, no. of people affected, and possible medical needs.
  - QRTs will ensure timely response to the needs of the affected victims.
  - Establish health facility and treatment centers at disaster sites.
  - The district Civil Surgeon with district/state control room should coordinate the provision of medical services.
  - Procedure should be clarified between.
    - Peripheral hospitals
    - Private hospitals
    - Blood banks
    - General hospitals and
    - Health services established at transit camps, relief camps, and affected villages.

QRTs should maintain check posts and surveillance at all entry and exit points from the affected area, especially during the threat or existence of an epidemic.

**Equipments to be brought:**

- Mobile medical vans (clinic) with paramedical staff as well

- Mobile radiology unit, pathology test arrangements
- Vehicles for carrying severely injured
- Stretchers, life saving drugs, blood etc.

Other resources required during emergency for setting up medical camps.

## **7.11 ACTION PLAN FOR PHE:**

### **Response Activation:**

- Upon receipt of notification about disaster, PHE nodal officer will activate quick response teams.
- The quick response teams will be deployed at the sites.

### **Actions to be taken:**

- Quick assessment of water line damage and contamination.
- Supply of water tankers to disaster affected communities.
- Deploy response teams to repair and restore water supply lines that may be damaged after disaster.
- Quick assessment of water contamination levels and taking steps to restore clean drinking water.
- Provide information to IMT, district EOC and state EOC about extent of damage.

### **Equipments/materials to be brought to site**

- Water Tankers

## **7.12 ACTION PLAN FOR DEPARTMENT OF TRANSPORT**

### **Response Activation:**

- Team Leader will activate ESF on receiving information of the disaster from State EOC
- Team Leader will inform Nodal Officers of support agencies about the event and ESF activation

**Actions to be taken:**

- Team Leader communicates situation to support agencies and requests for detailed information on the status of transportation infrastructure in the affected area(s).

The head of each department who is the team leader of each ESF and the nodal officers of the supporting agencies are responsible to prepared for potential hazards that might impact the district severely. These departments/agencies have clearly identified roles and functions in accordance with the National Response plan (NRP). They have been grouped in as ESFs as per their nature and type of assistance they can provide. When the team leader of these ESFs is located in the EOC, they would function for the overall District response.

## **CHAPTER VIII**

### **QUICK RESPONSE MECHANISM IN CASE OF DISASTER IN LUNGLEI DISTRICT:**

In order to cope with various kind of disaster involving high casualties, Standard Operating Procedures (SOP) for Task Force comprising various departments is incorporated in this Sub-Plan. In the event of road disaster, these SOP will help ensure quick and effective performance of functions and will act as an easy reference for co-ordination of response action.

**8.1 Civil Administration:** The Deputy Commissioner/District Magistrate of District Disaster Management Authority will be over-all in

charge of the activities for management of disaster, as soon as the authority receive occurrences of such disasters, the concerned Sub-Divisional Officers/BDO will reach the place of disaster for coordinating relief operations. They will also maintain close contact with the District Control Room through any means of communication available on the spot and coordinates responses of different agencies on need basis.

**8.2 Police Department:** Under the operational control of District Magistrate/Chairman, Disaster Management Authority and supervision of Superintendent of Police in the District, Police Department will follow the under mentioned procedures. On receipt of information regarding road accident, a responsible police officer with adequate personnel will immediately rush to the place of accident, and:

- a. Look for the survivors and rescue the injured or those trapped under the vehicle.
- b. Initiate Codal formalities/legal proceedings required under law-like inquest, sending of dead body for postmortem, etc.
- c. Arrange first-aid to the injured people in the absence of Medical Relief Team.
- d. Ensure security of the properties of the victims and maintenance of law and order
- e. Take up traffic management at the place of accident.
- f. Start investigation of offences, if any.

**1. Operation Co-ordination:** The Superintendent of Police, Lunglei will immediately instruct all the Police Stations of the District to communicate the message to the Police in their respective areas. A radio announcement for the same can also be done for effective communication. The District Superintendent of police will also work out a deployment plan for the Polices keeping in view the disaster situation and will make arrangements for the transport of the Police to their duty point.

**2. Direction and Co-ordination:**

- a. On receiving the alert message for readiness from the district control room, SP, Lunglei will immediately put on alert the Police on duty and the key officials of his agency. Security of property, wireless communication availability, immediate assessments of the situation are to be done immediately.

- b. Once the combat operations have started, the District S.P. would be required to assess the activation and operational procedure followed by the department.
- c. The senior most executive Magistrate present on the spot will take decisions regarding assignment of task to police team for various operations in the effected areas.
- d. The police team will send task completion report to the District Magistrate through District Control Room as soon as the task is over. The task completion report will indicate the number of injured people and the number of people still trapped inside the debris.

On completion of all tasks relating to search, rescue and evacuation assigned to the Police by the District Magistrate, the S.P., and Lunglei will take a briefing session and submit a briefing report to the District Magistrate.

**8.3     Medical Services:** As soon as they received information about occurrence of road accident involving high casualties, doctors, nurses or paramedical staff of the nearest health centre should rush to the place of accident to discharge the responsibilities for providing the immediate medical relief. At the same time, ambulance should be made available for transportation of victims from the side of accident to the nearest Hospital and these ambulances should also be equipped with the basic life maintenance support drugs and equipments. All the staff of medical services engaged in relief operation will seek instruction from District Magistrate/District Control Room through Chief Medical Officer.

**8.4     Information and Public Relation Department:** Under the supervision of District Magistrate or Chairman, DDMC, Information and Public Relations Department shall be the main source of information/feeder where in all necessary assistance in connection with information about victims receiving treatment, their whereabouts, list of the dead etc. will be collected and disseminated. The department will also make P.A. system available at all times during relief operation and other departments having radio communication like PHE, P&E, PWD, etc. will also pass latest information in liaison with the Control Room.

**8.5     Transport Department and Infrastructure Department:** Transport department will provide additional requirements of transportation in case the number of casualties is high. The nodal officer responsible to this

kind of accident should also make available list of passengers with full particulars, etc. Besides, other infrastructure department like PWD will send machineries like JCB, excavator, recovery van, mobile crane, etc. to support search and rescue operation, if and when called for.

**8.6      NGOs/Voluntary Organizations:** It has been experienced in the past that in the event of fatal accident, members of NGOs like YMA used to carry highly commendable service to the victims and the relatives even before the Civil Administration come up for relief operation. As usual practice, in the event of fatal accident, members of NGOs will quickly send necessary information about the accident to the nearest Civil Administration, nearest Police Station and Health Centre through any means of communication available with them so that Civil Administration with NGOs will be able to keep in touch each and every members or relief team the Civil Authority for effective relief operation.

**8.7      Health & Family Welfare Department:** Major disaster like earthquakes results in injuries to people or may cause epidemics. The Health & Family Welfare Department is responsible for not only preventing the outbreaks of epidemics but also for providing immediate medical relief to the affected people in a disaster. The department works under some constraints even during normal times because of the population pressure, poverty and the resource crunch with the department. Therefore, the Standard Operating Procedure for the department seeks to ensure that departments are able to discharge the responsibilities for providing the immediate medical relief and for preventing outbreak of the epidemic in the affected areas despite resource constrains experienced by it during normal times.

**Preparedness Action:** The department will ensure that all the medical doctors are aware about the responsibilities of the department in case of a disaster and all the men power of the department, including paramedic staff, are sensitized regarding the need for maximum efficiency during disaster situation. This should be achieved by organizing orientation training for the staff every year.

The Department should also identify sources from which it can procure the additional equipment and materials on a very short notice to supplement its resources.

The inventory of all such resources should be maintained in the resource database. This database should be validated and updated every year.

The Department should train local volunteers in preventive medicine in the area identified as vulnerable to floods and in first-aid in areas identified as vulnerable to earthquakes.

Chief medical Officer (CMO) and Medical Superintendent (MS) of Lunglei District will send preparedness report to the District collector for rural areas. The Department is responsible for providing the medical relief to the people affected from flood or earthquake and is also responsible for prevention of outbreak of epidemics during preparedness.

- (i) Surgical packs should be assembled and sterilized. A large enough number should be sterilized to last four to five days. The sterilized surgical packs must be stored in protective cabinets to ensure that they do not wet. Covering the stock with polythene is recommended as an added safety measure.
- (ii) The emergency electrical generator should be checked to ensure that it is operational and that a buffer stock of fuels exists. If an emergency generator is not available at the Hospital, arrange for one on loan.
- (iii) All valuable instruments such as surgical tools, ophthalmoscopes, portable sterilizers, CGS, dental equipments, etc. should be packed in protective covering and stored in rooms considered being the most damage-proof.
- (iv) All fracture equipments should be readied, if surgery is to be performed following the disaster, arrange for emergency supplies of anesthetics gases (usually supplied on a daily basis).
- (v) Stocks of equipments and drugs which are likely to be most needed after the disaster should be checked. This can be categorized generally as:
  - a. Drugs used in treatment of cuts and fractures such as tetanus, toxoid, analgesics and antibiotics.
  - b. Drugs used for the treatment of diarrhea, water-borne diseases and flu (including oral dehydrating supplies).
  - c. Drugs required for treating burns and fighting infections.
  - d. Drugs needed for detoxication including breathing equipments.

The Department should identify the trained manpower, the equipment and the materials required for discharging the responsibilities assigned under the District Emergency Management Plan and prepare an inventory of the same.

It should also try to identify the external sources in the community and the market for procuring the same with the assistance of the District Standing Committee on Disaster Management. The CMO-MS should ensure compliance of all the points mention above and send a compliance report to the District Collector in May every year.

**Operational Tasks and Control:** The Department is responsible for the following:-

- (i) Providing efficient and quick treatment
- (ii) Preventing outbreak for epidemics

On receipt of a warning of an impending disaster from the District Control Room, the CMO-MS will immediately put his doctors and the paramedical staff on alert for preventing outbreak of epidemic. It will constitute medical teams for the survey in the effected area and for decontamination of drinking water sources.

In case of occurrence of an earthquake all the staff of the Department will immediately report for duty in the concerned hospital or health centre, as the case may be. The medical staff will immediately try to reach the effected area and provide medical relief. The CMO-MS will try to mobilize additional manpower from the area not affected by earthquake to supplement the local resources of the affected area.

In case of a disaster the CMO-MS can request the services of the medical officers working in Nursing Homes, private doctors and nurses and during the period of such requisition those medical officer/nurses can work under the administrative control of CMO-MS.

CMO-MS will receive the message from DCR and immediately put his doctors and the medical staff on alert. All the staff will seek instruction from D.C. through CMO-MS. The CMO-MS will call doctors using names and address list of doctors in his office. An announcement to this effect can be broadcast through PA system/FLS, etc.

**Direction and Co-ordination:**

- (i) Determine type of injuries/illness expected and drugs other medical items required, and accordingly ensure that extra supplies of medical items be obtained quickly. Provide information to all hospital staff about the disasters, likely damages and effects, and information about ways to protect life, equipment and property.

- (ii) Discharge all ambulatory patients whose release does not pose a health risk to them. If possible, they should be transported to their home areas.
- (iii) Non-ambulatory patients should be relocated to the safest areas within the hospital. The safest rooms are likely to be:
  - a. One ground floor
  - b. Room in the centre of the building away from windows
  - c. With concrete ceilings
- (iv) Assess the level of medical supplies in stock, including:
  - a. Fissure materials
  - b. Surgical dressings
  - c. Splints
  - d. Disposable needles and syringes
  - e. Plaster rolls
  - f. Local antiseptic
- (v) Request resources identified to immediately dispatch of supplies likely to be needed, to hospitals, on an emergency priority basis.
- (vi) Fill hospital water storage tanks and encourage water savings. If no storage tanks exist, water for drinking should be drawn in clean containers and protected.
- (vii) Prepare an area of the hospital for receiving large number of casualties.
- (viii) Develop emergency admission procedure (with adequate record keeping)

### **Task Allocation:**

CMO-MS will establish work schedule to ensure staff are available for in-patient needs. He will organize in house emergency medical teams to ensure that adequate staff is available at all times to handle emergency casualties. He will set up teams of doctors, nurses and dressers for providing services at disaster sites. Once the task is allocated, the team will follow below mentioned procedure.

Sorting of Casualties:

### **1. Quick sorting of Casualties (triage):**

- (i) Priority I-Needing immediate resuscitation
- (ii) Priority II-Needing immediate surgery
- (iii) Priority III-Needing first-aid and possible surgery
- (iv) Priority IV-Needing only first-aid

## **2. Action:**

- (i) Priority I will be attended to in the Emergency/Casualty Deptt.
- (ii) Priority II will be transferred immediately to OT
- (iii) Priority III will be given first-aid and admitted if bed is available
- (iv) Priority IV will be given first-aid and discharged

## **3. In some cases 'brought dead' cases are categorized as priority V.**

Materials and Equipments: In the absence of clear indication from the field, a minimum kit comprising of the following materials and equipments should be carried by the advance party to the disaster site:

- (i) Equipment for pediatric intravenous use
- (ii) Sensitometers for children and adults
- (iii) Assorted ferrules
- (iv) Rachael cannule
- (v) Set of laryngoscope for infants, children and adults I
- (vi) Endotracheal tubes, No 7 Murphy
- (vii) Endotracheal tubes, No 8
- (viii) Nasogastric probes
- (ix) Oxygen masks, for adults & children
- (x) Large scissors for cutting bandages
- (xi) Plastic linings
- (xii) Phonendoscopes

## **Sterilization Unit Supplies:**

- (i) Tracheotomy set
- (ii) Thorachotomy set
- (iii) Venous dissection set
- (iv) Set for small sutures
- (v) Bottles for drainage of thorax
- (vi) Hand scissors, No 4
- (vii) Syringes (disposable)x 2cc

- (viii) Syringes (disposable)x 10cc
- (ix) Syringes (disposable)x 50cc

### **Ambulance Fleet :**

The ambulance will carry the following equipment-

- (i) Oxygen, oxygen mask and manometer
- (ii) Stretchers and blankets
- (iii) Emergency first aid kit
- (iv) Suction equipment
- (v) Venoclysis equipment
- (vi) Supplies for immobilizing fractures
- (vii) Drugs for emergency use
- (viii) Minimal equipments for resuscitation maneuvers

Each ambulance should be staffed at least a physician, a nurse, a stretcher-bearer, and a driver. The medical and paramedical personnel should experience in procedures for the management of patients in intensive care units.

### **Operation Completion Report:**

The CMO-MS will send report to the District Magistrate through Disaster Emergency Control Room as soon as the task is over. The task completion report will indicate the number of injured people, the number of injured and dead.

On completion of all the tasks relating to Medical relief assigned to the Health Department by all the District Magistrate, the CMO will take a brief session with his doctors and submit a briefing report to the District Magistrate.

### **8.8 Public Works Department:**

The Public Works Department has the responsibility for the construction and maintenance of Government buildings, public roads and bridges in the State. The infrastructure is required for not only the general economic activities in the area, but also for the performance of the task functions of the Government. These search rescue and evacuation operations in case of disaster and for organizing medical relief and relief centers.

### **Preparedness Action:**

For ensuring the availability of these infrastructures even in case of a disaster, the PWD should ensure that the construction of all buildings, roads and bridges take into account the hazardous scenario mentioned in. Alignment of all the major roads of the district should be as far as possible outside the flood clout area so that these roads remain operational even during the floods. All the public buildings and bridges should conform to appropriate standards to ensure that they survive the possible earthquake in the district.

The department should take immediate measures for the retrofitting of all government buildings under its charge for making them seismic resistant. The department should ensure that all officers of the rank of SDOs or above are make familiar about the responsibilities of the department and the resources that may be required for discharging his responsibility in case of a disaster. This should be achieved by organizing orientation training to all such officers once every year.

The department should identify the equipment at the material that may require for discharging the responsibilities assigned to it in case of a disaster. It should also workout the availability of the same with the department and identify the external resources for the same and workout arrangement for procuring the same in case of a disaster.

The department should do a stock verification of the equipment and material available with it, require for its responsibility under the plan every year. It should validate and update the resource database also every year. It will also identify the source in the community and the local market from which additional resources may be obtained for performing the responsibilities of the department with the assistance of the Nodal Department (DM&R) and VC and work out the arrangements for procuring the same. The Executive Engineer should ensure compliance of all the points mentioned above and send compliance report to the DC in general every year.

### **Operational Details:**

The department will be responsible for performing the following tasks:

- (1) The department will take up temporary construction of diversion and other structures to ensure road communication in case of disaster for

- conducting search, rescue and evacuation operation and providing relief to the affected people.
- (2) It will establish temporary relief centers on the direction of the District Magistrate for the affected people.
  - (3) Debris clearance to support search and rescue operation.
  - (4) Identification of unsafe buildings.
  - (5) Assessment of damage to the buildings.

### **Operation Control:**

The Executive Engineers will immediately try to get information regarding the road communication available for reaching the search and rescue team and the relief material to the affected area and will take immediate action for construction of the diversion and other structures for communication of the affected area. The Executive Engineer will also constitute survey teams for identification of unsafe buildings both private and Government which need to be demolished in the interest of the public safety and send a report of the identified unsafe buildings to the Local Executive Magistrate through the local Police Station.

The Executive Engineers will also nominate SDOs for damage assessment of private buildings in consultation with the Deputy Commissioner.

### **Resource Available:**

The department will prepare the resource database for the essential manpower, equipment and material resources available with the department in the database after identifying the needs of the disaster time.

### **Activation Guidelines:**

In case of occurrence of disaster, all the officers of the department of the rank of SDOs and above will immediately report with the District Control Room (DCR) through the Executive Engineers and seek instruction.

### **Operation Completion Report:**

After completion of all the task assigned to the department relating to immediate response, the Executive engineer will take a briefing

session with all officers of the rank of SDOs and above and send a brief report to the D.C. which will also include an expenditure statement including the debris removal and establishment of the relief centres and construction of the diversion for ensuring communication in the affected areas.

The Executive will also prepare a preliminary proposal indicating estimates of different construction works for restoring the infrastructure in the affected area and send it to the department through the D.C.

### **8.9 Public Health Engineering Department:**

Public Health Engineering Department has the responsibility for the construction and maintenance of water supply in the state. This infrastructure is required for not only general economic activities in the area, but also for the performance of the task function of the government. These infrastructures will also be required for performing functions of water availability to the disaster affected area and relief centre.

#### **Preparedness Action:**

For ensuring the availability of these infrastructure even in case of a disaster, the PHED should ensure that the construction of all water supply infrastructure take into account the hazardous scenario in the District. The entire water supply infrastructure should conform to appropriate BIS codes ensuring that they survive the possible earthquake in the District.

The department should ensure that all officer of the rank of SDO or above are made familiar about the responsibilities of the department in the District Emergency Management Plan and the resources that may be required for discharging his responsibility in case of a disaster. This should be achieved by organizing orientation training to all such officers every year.

The department should identify the equipment and material that may require for discharging the responsibilities assigned to it in case of disaster. It should also work out the availability of the same with the department and identify the external resources of the same and work out arrangement for procuring the same in case of disaster.

#### **Operation Details:**

The department will be responsible for performing the following task:

The department will take up temporary restoration of water supply to affected area.

It will also establish electric supply at relief centers on the direction of the District Magistrate for the affected people.

#### **Operation Control:**

The Executive Engineer Immediately tries to get information regarding the electric supply to the affected area and will take immediate action for restoration of it. The Executive Engineer will also constitute survey teams for identification of damaged infrastructure.

The department will prepare the resource database for the essential manpower, equipment and material resources available with the department.

#### **Activities guidelines and task allocation:**

In case of occurrence of disaster, all the officers of the department of the rank of SDOs and above will immediately report with the DCR through the Executive Engineer and seek instructions.

The Executive Engineer will allocate the task after consultation with DDMA chairman.

#### **Operation Completion Report:**

After completion of all the tasks assigned to the department relating to immediate response, the E.E. will take a briefing session with all officers of the rank of SDO and above and send a brief report to the D.C. which will also include an expenditure statement including the debris case and establishment of the centres and construction of the diversion for ensuring communication in the affected areas.

The E.E. will also prepare a preliminary proposal indicating the estimates of different constructions works for restoring the infrastructure in the affected area and sent it to the department through the D.C.

#### **8.10 P&E Department:**

The Power & Electricity Department has the responsibility for the construction and maintenance of electric supply in the state. This infrastructure is required for not only the general activities in the areas, but also for the performance of the task functions of the Government. These

infrastructure will also be required for performing functions of electric availability to disaster effected area, relief centers.

**Preparedness Action:**

For ensuring the availability of these infrastructures even incase of disaster, the P&E Department should ensure that the construction of all electric supply take into account the hazardous scenario. The entire electric supply infrastructure should confirm to appropriate BIS codes ensuring that the possible earthquake in the District.

The department should ensure that all officers of the rank of SDOs or above are made familiar about the responsibilities of the department in District Disaster Management Plan and the resources that may required for discharging his responsibility in case of a disaster. This should be achieved by organizing orientation training to all such officers every year.

The department should identify the equipment and the material that may require for discharging the responsibilities assigned to it in case of disaster. It should also work out the availability of the same with the department and identify the external resources of the same and work out arrangement for procuring the same in case of disaster.

The department should do a stock verification of the equipment and material available with it. It should validate and update the resource database. It will also identify the source in the community and the local market from which additional resource may be obtained for performing the responsibilities of the department with assistance of Nodal Department (DM&R) and VC and work out the arrangement for procuring the same.

The Executive Engineer should ensure compliance of all the points mentioned above and send a compliance report to the D.C. in general every year.

**Operational Detail:**

The department will be responsible for performing the following tasks:

1. The department will take up temporary restoration of electric supply to affected area.
2. It will also establish electric supply at relief centers on the direction of the District Magistrate for the affected people.

### **Operation Control:**

The Executive Engineer immediately try to get information regarding the electric supply to the affected area and will take immediate action for restoration of it. The Executive Engineer will also constitute survey teams for identification of damaged infrastructure.

The department will prepare the resource database for the essential manpower, equipment and material resources available with the department.

### **Activities guidelines and task allocation:**

In case of occurrence of disaster, all the officers of the department of the rank of SDOs and above will immediately report with the DCR through the Executive Engineer and seek instructions.

The Executive Engineer will allocate the task after consultation with DDMA chairman.

### **Operation Completion report:**

After completion of all the tasks assigned to the department relating to immediate response, the E.E. will take a briefing session with all officers of the rank of SDO and above and send a brief report to the DC which will also include an expenditure statement. The E.E. will also prepare a preliminary proposal indicating the estimates of different construction works for restoring the infrastructure in the affected area and sent it to the department through the D.C.

## **CHAPTER IX**

### **COMMUNITY TASK FORCE / DISASTER MANAGEMENT TEAMS**

Community or the local functionary is the most important mechanism in disaster management. Community Based Disaster Management (CBDM) is the latest methodology that is successfully experimented in India. CBDM is basically concerned all about with community disaster awareness initiatives, which is a comprehensive method to inform and train the local residents about how to prepare to cope up with natural as well as human induced disasters.

### **9.1 FUNCTIONS AND DUTIES:**

1. **First Aid and Medical:** This team attends to all the casualties in the event of any disaster. They will be pro-vide with First Aid kits and they will be trained by Health Department.

2. **Search and Rescue:** This team will also perform evacuation besides search and rescue operation. They will undergo training on:

i) drowning, ii) Fire fighting and, iii) search and rescue of collapse building victims.

3. **Shelter Management:** This team will identify building for accommodation of shelter less people due to disaster.

4. **Food and Water Management:** 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.

5. **Relief Co-ordination:** This will operate collection and distribution of all other collection and distribution of all other collection and distribution of all other relief material except food and water supply.

6. **Information and Damage Assessment:** This team will act as a warning group for any eminent disaster. They will be trained to understand radio warnings and act fast to disseminate the same throughout the village. They will also conduct on the spot assessment of the damage sustained by the village and report their findings through a specified format to the VDCM who will in turn forward the same to the BDO/SDO/DC.

### **9.2 SOP FOR COMMUNITY TASK FORCES/DISASTER**

## **MANAGEMENT TEAM**

### **1. Warning and Communication Group:**

#### **Pre-Disaster**

1. Ensure that communication equipments are in working order.
2. Ensure an emergency contact directory with all relevant numbers.
3. Carry a hazard map demarcating the most vulnerable/safe areas and households.

#### **On receipt of warning**

1. Assemble in a central location and listen to radio together to determine the situation.
2. Pay attention to local warnings and their interpretation.
3. Crosscheck the warning received on radio, with the nearest control room.
4. Disseminate the warning using megaphones/mikes sirens etc., door-to-door.

#### **During Disaster**

Remain in the safe shelters and provide evacuates with the regular updates.

#### **After a Disaster**

1. Get the de-warning from District Control Room and announce the same.
2. Disseminate precautionary information on post disaster health hazards and remedies.
3. Give immediate assessment to the authority on damage, massive casualty etc.
4. Guide the search and rescue team with geographic information and high damage.

### **2. Evacuation and Temporary Shelter Management group:**

#### **Pre-Disaster**

1. Monitor the infrastructure needs of the community such as roads, schools etc.
2. Co-ordinate with the local authority to identify/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.
2. Move stocks of dry food, fuels and medicines to the shelter.
3. Organize space to house evacuee families.
4. Help the old, disabled, pregnant women, children etc. to settle in the shelter.
5. Ensure the strict sanitary practices are adhered to in the shelter.
6. Register the evacuees and give them identification slips/cards.

### **During Disaster**

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

### **Post Disaster**

1. To ensure that evacuees are fed and housed until the de-warning is received.
2. Organise tents and materials for constructions 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.

### **3 Damage Assessment Group:**

#### **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 assessment to the authority.
3. Guide the search and rescue team with geographic information.

### **4. Search and Rescue Group:**

#### **Pre-Disaster**

1. Familiarize themselves with existing response mechanisms of the government.
2. Arrange for the necessary S&R equipment for Govt. and Pvt. Agencies.
3. Use the equipment properly and maintain it well.
4. Have a detailed map of the community indicating vulnerable areas/safe areas.
5. Organize themselves into pairs (buddy system).
6. Prepare back up teams ready for rotation of personnel.

#### **On receipt of warning**

1. Organize a meeting of the S&R members.
2. Contact the administration for detailed information.
3. Identify the vulnerable areas in which their help is required and decide the action plan.
4. Gather the equipments required.
5. Assist the evacuation team in moving people to the safe shelter.
6. Co-ordinate with the First-Aid team to provide primary health care.
7. Shift the seriously injured persons to hospital/PHC.

### **Post Disaster**

1. Conduct a general hazard assessment to determine the possible hazards.
2. Make a quick head and maintain a list of missing persons.
3. Clear debris and fallen trees in order to reach trapped victims.
4. Communicate with the sub-division and District levels on additional assistance.
5. Coordinate closely with the first aid team for primary health care to rescued victims.
6. Coordinate with the evacuation team to shift rescued persons to open space/tents.

### **5 First Aid and Trauma Counseling Group:**

#### **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 (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 etc.

### **6. Relief Coordination Group:**

#### **Pre-Disaster**

1. Familiarize with damage and needs assessment formats.
2. Assess the estimated need of relief materials.
3. Stocks material like ropes, bamboos, tarpaulin etc in the safe shelter identified.
4. Mobilize stocks of grains and medicines from government, NGOs, etc.
5. Keep a record of 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 moving vehicles, stop and stay inside (in EQ).

### **Post Disaster**

1. Conduct a complete damage and need assessment.

2. Based on a preliminary need assessment as follows, communicate preferences to the District Control Room. The size, scope of the relief items required likely 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 begin distribution.
5. Ensure that food and other materials are distributed in an equitable manner.
6. Priorities the elderly persons, pregnant women, children etc.
7. Maintain a list of the households receiving assistance.
8. Work closely with the communication group to stay in touch with control room.
9. Organize a meeting to evacuate the experience, internalize learning.
10. Make a physical inventory of stocks when external assistance arrives.
11. Keep the undistributed relief material in a safe place/Godown and preserve it.

## **7. Water and Sanitation Group:**

### **Pre-Disaster Preparedness Activities**

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 prior awareness amongst the community about how to treat water sources.
6. Set a minimum standard in advance for distribution of water in emergency.
7. Ensure sufficient number of raised platforms, deep tube wells etc. constructed.
8. Stock long steel rods, kerosene and fuel wood to dispose corpus and carcasses.
9. Help of the local administration to construct temporary sanitary facilities.

10. Identify the tractors and labourers required for sanitation purposes.
11. 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. Organize 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 one's own 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 powder.
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 sources.
9. Coordinate with the local authority to construct sufficient bathing cubicles for female.
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 wastes such as needles, drugs etc. lying around.
13. Coordinate with the first aid team to inoculate against water borne diseases.
14. Construct temporary soak pits for onsite disposal of wastewater.
15. Coordinate with the search and rescue team for disposal of carcasses.
16. Ensure that dead bodies are registered and cremated after legal/religious formalities.

## **ANNEXURE I**

### **Do's and Don'ts**

#### **Operational Guidelines of What to do in the event of a Cyclone**

##### **Do's:**

1. Listen to the Radio/ TV / Public Addressing System for advance information and advice.
2. Allow considerable margin for safety.
3. A cyclone may change direction, speed or intensity within a few hours, so stay tuned to the radio / TV for updated information.
4. Tape up large windows to prevent from shattering.
5. Move to the nearest shelter or vacate the area if this is ordered by the appropriate government agency.
6. Stay indoors and take shelter in the strongest part of the house / society.
7. Open windows on the sheltered side of the house if the roof begins to lift.
8. Find shelter if you are caught out in the open.
9. If you have to evacuate, do not return until advice.

##### **Don'ts:**

1. Do not go outside or into a beach during a lull in the storm.
2. Be away of fallen power lines, damage bridges And structures.

3. Do Not go for side sight seeing.

### **Operational Guidelines of What to do in the event of a Heat Wave**

#### **Do's:**

1. Listen to the Radio/ Tv/ Public Addressing System for advance information and advice.
2. Finish the work at the morning or leave it to the evening.
3. Drink Sufficient Water & take Food
4. Keep your head away from the direct heat. Use Clothes, Cap, Umbrella or Glasses
5. Keep Stock water with you
6. Wear light dresses.

#### **Don'ts**

1. Avoid standing under direct sun.
2. Avoid Long Drives.

### **Operational Guidelines of What to do in the event of a Drought Situation**

#### **Do's:**

1. Save Water & Stock Water
2. Arrange for alternate cropping's.
3. Contact Nearest Agriculture Office

**Don'ts:**

1. Stop disutility of Water

**Operational Guidelines of What to do in the event of a Earthquake**

**Do's:**

1. Listen to the Radio/ TV/ Public Addressing System for advance information and advice.
2. Teach all members of your family how to turn off the electricity, water and gas supply.
3. Protect yourself by staying under the lintel of an inner door, in the corner of a room, under a table or even under a bed.
4. Keep away from Old, Tall or ditched buildings, electricity wires, slopes and walls, which are liable to collapsed.
5. Stop the vehicle away from building, walls, slopes, electricity wires and cables.
6. Live your badly damaged house.
7. Collect water containers, food items and ordinary and facial medicines.

**Don'ts:**

1. Do not run and do not wander round the streets.
2. Keep away from buildings, walls, slopes, electricity wires and cables & stay in the vehicle.

3. Do not rush to the doors or exits, never use the lifts keep well away from windows, mirrors, chimneys and furniture.
4. Do not rush to the doors or exits, never use the lift.
5. Avoid places where there are use electric wires and do not touch any metal object in contact with them.
6. Do not re-enter badly damaged buildings and do not go near damage structures.

### **SAFETY TIPS REGARDING FIRE ACCIDENTS:**

#### **A) High-Rise Fires:**

- Calmly leave the apartment, closing the door behind you. Remember the keys!
- Pull the fire alarm near the closest exit, if available, or raise an alarm by warning others.
- Leave the building by the stairs.
- Never take the elevator during fire!

#### **If the exit is blocked by smoke or fire:**

- Leave the door closed but do not lock it.
- To keep the smoke out, put a wet towel in the space at the bottom of the door.
- Call the emergency fire service number and tell them your apartment number and let them know you are trapped by smoke and fire. It is important that you listen and do what they tell you.
- Stay calm and wait for someone to rescue you.

**If there is a fire alarm in your building which goes off:**

- Before you open the door, feel the door by using the back of our hand. If the door is hot or warm, do not open the door.
- If the door is cool, open it just a little to check the hallway. If you see smoke in the hallway, do not leave.
- If there is no smoke in the hallway, leave and close the door. Go directly to the stairs to leave. Never use the elevator.

**If smoke is in your apartment:**

- Stay low to the floor under the smoke.
- Call the Fire Emergency Number which should be pasted near your telephone along with police and other emergency services and let them know that you are trapped by smoke.
- If you have a balcony and there is no fire below it, go out.
- If there is fire below, go out to the window. **DO NOT OPEN THE WINDOW** but stay nears the window.
- If there is no fire below, go to the window and open it. Stay near the open window.
- Hang a bed sheet, towel or blanket out of the window to let people know that you are there and need help.
- Be calm and wait for someone to rescue you.

**Kitchen Fires:**

It is important to know what kind of stove or cooking oven you have in your home – gas, electric, and kerosene or where firewood is used. The stove is

the No. 1 cause of fire hazards in your kitchen and can cause fires, which may destroy the entire house, especially in rural areas where there are thatched roof or other inflammable materials like straw kept near the kitchen. For electric and gas stoves ensure that the switch or the gas valve is switched off/turned off immediately after the cooking is over. An electric burner remains hot and until it cools off, it can be very dangerous. The oven using wood can be dangerous because burning embers remain. When lighting the fire on a wooden fuel oven, keep a cover on the top while lighting the oven so that sparks do not fly to the thatched roof. After the cooking is over, ensure that the remaining fire is extinguished off by sprinkling water if no adult remains in the kitchen after the cooking. Do not keep any inflammable article like kerosene near the kitchen fire.

### **Important Do's in the Kitchen:**

- **Do** have an adult always present when cooking is going on the kitchen. Children should not be allowed alone.
- **Do** keep hair tied back and do not wear synthetic clothes when you are cooking.
- **Do** make sure that the curtains on the window near the stove are tied back and will not blow on to the flame or burner.
- **Do** check to make sure that the gas burner is turned off immediately if the fire is not ignited and also switched off immediately after cooking.
- **Do** turn panhandles to the centre of the stove and put them out of touch of the children in the house.
- **Do** ensure that the floor is always dry so that you do not slip and fall on the fire.
- **Do** keep matches out of the reach of children.

### **Important Don'ts**

- **Don't** put towels, or dishrags near a stove burner.

- **Don't** wear loose fitting clothes when you cook, and **don't** reach across the top of the stove when you are cooking.
- **Don't** put things in the cabinets or shelves above the stove. Young children may try to reach them and accidentally start the burners, start a fire, catch on fire.
- **Don't** store spray cans or cans carrying inflammable items near the stove.
- **Don't** let small children near an open oven door. They can be burnt by the heat or by falling onto the door or into the oven.
- **Don't** lean against the stove to keep warm.
- **Don't** use towels as potholders. They may catch on fire.
- **Don't** overload an electrical outlet with several appliances or extension cords. The cords or plugs may overheat and cause a fire.
- **Don't** use water to put out a grease fire. **ONLY** use baking soda, salt, or a tight lid. Always keep a box of baking soda near the stove.
- **Don't** use radios or other small appliances (mixers, blenders) near the sink.

### **COMMON TIPS:**

- **Do** keep the phone number of the Fire Service near the telephone and ensure that everyone in the family knows the number.
- **Do** keep matches and lighters away from children.
- **Do** sleep with your bedroom closed to prevent the spread of fire.
- **Do** you know that you should **never run** if your **clothes are on fire** and that you **should** - **“STOP – DROP-ROLL”**

### **SAFETY TIPS LIGHTNING & THUNDERSTORM**

#### **Danger during thunderstorms**

**Lightning claims quite a few lives and injures many every year. Quite a large number of injuries from the electric shock received while using**

**fixed telephones during thunderstorms. Take these precautions during thunderstorms:**

**Take action now:**

- Consult an electrician for advice on lightning conductors required for your house.

**If caught outdoors:**

**If you hear thunder 10 seconds after a lightning flash, it is only about three kilometers away. The shorter the time, the closer the lightning, so find shelter urgently:**

- Seek shelter in a hardtop (metal-bodied) vehicle or solid building but avoid small open structures or fabric tents.
- Never take shelter under a small group of (or single) trees.
- If far from any shelter, crouch (low, feet together), preferably in a hollow. Remove metal objects from head / body. Do not lie down flat but avoid being the highest object.
- If your hair stands on end or you hear 'buzzing' from nearby rocks, fences, etc, move immediately. At night, a blue glow may show if an object is about to be struck.
- Do not fly kites during thunderstorms.
- Do not handle fishing rods, umbrellas or metal rods, etc.
- Stay away from metal poles, fences, clotheslines etc.
- Do not ride bicycles or travel on open vehicles.
- If driving, slow down or park away from trees, power lines, stay inside metal-bodied (hard top) vehicles or in a pucca building but do not touch any metal sections.
- If in water, leave the water immediately.
- If on a boat, go ashore to a shelter as soon as possible.
- Be sure the mast and stays of the boat are adequately secured.

**If you are indoors:**

- Before the storm arrives, disconnect external aerial and power leads to radios and television sets. Disconnect computer modems and power leads.
- Draw all curtains and keep clear of windows, electrical appliances, pipes and other metal fixtures (e.g. do not use the bath, shower, hand basin or other electric equipments)
- Avoid the use of fixed telephones. In emergencies, make calls brief, (do not touch any metal, brick or concrete) and do not stand bare foot on concrete or tiled floors.

**First Aid:**

- Apply immediate heart massage and mouth-to-mouth resuscitation to lightning victims until medical help arrives. (You won't receive a shock from the victim).

**Lightning facts and myths:**

- When struck, people do not glow or fry to a crisp but the heart and breathing are often affected.
- Only about 30% of people struck actually die, and the incidence of long-term disability is low, particularly when appropriate first aid is applied promptly.
- If your clothes are wet, you are less likely to be seriously injured if struck, as most of the charge will be conducted through the wet clothes rather than your body.
- Lightning can, and often does, strike more than once in the same place.

## Social Map of Lunglei District



## Health Centers I Lunglei District

### MAP OF LUNGLEI DISTRICT

