

DISTRICT DISASTER MANAGEMENT PLAN

**KOLASIB DISTRICT
2009**

Prepared by the Office of the Deputy Commissioner

Kolasib District : Kolasib

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PREFACE

I have great pleasure to present the District Disaster Management Plan for Kolasib District prepared by the District Administration. The District Disaster Management Plan (DDMP) outlining the measures to be taken in the event of any natural or man made disaster in the entire District prepared basing on the past experiences. The plan is prepared with a view to help the District Administration to focus quickly on the essentials and crucial aspects of both preparedness and response.

It is hoped that the District level Officials who are in-charge of different departments will carefully go through the DDMP and remain alert

to emergent situations that may arise in course of the year. The DDMP seeks to serve as a useful handbook of operational guidelines for the Officers of the District Administration.

I thank all the district level officials, DM&R Branch, Agencies, Government & Non-Government Organisations who have put their utmost efforts in bringing out this operational plan on Disaster Management.

(DAWNGLIANA)
Deputy Commissioner
Kolasib District : Kolasib

DISTRICT PROFILE AT A GLANCE

Area(Sq. Kms)	: 1472.12
Population(as per census 2001)	: 65960
Male	: 34562
Female	: 31398
No of Villages	: 45
Bilkhawthlir RD Block	: 29
Thingdawl RD Block	: 16
No of Schools/College	
Primary School	: 102
Primary with Upper Primary	: 16
Upper Primary	: 70

Higher Secondary School	: 2
College	: 1
Literacy Rate	: 91.38%
Administrative Divisions	
Sub-Divisional	: 3 Namely:
i) Kawnpui Sub-Division,	
ii) Vairengte Sub-Division	
iii) Kolasib Sub-Division	
Block	: 2
No. of Hospitals	: 7
Government Hospital	: 6
Private Hospital	: 1
CIJW	: 1

DISTRICT PROFILE AT A GLANCE

No. Of Household	: 14053
Average Rainfall mm	: 2537
Fish Ponds Area	: 671.75
Road Length (PWD) Kms.	: 370.18
Surface Kms.	: 245.14
Unsurface Kms.	: 125.04

Road density	: 3.73
No. Of Police Station	: 4
No. Of Out Post	: 1
No. Of Gas Agency	: 1
No. Of Petrol Pump	: 2

IMPORTANT TELEPHONE NUMBER IN KOLASIB

Name	Place	Office	Residence	Others
Hospital Casualty	Kolasib	220047	221930	220787
Fire Service	Kolasib	220847	220847	101
Police Station	Kolasib	220050/220100	220948	221054
Police Beat Post	Kolasib	220060		
Electric Complaint	Kolasib	220054		
EOC	Kolasib	221999	220001	220002

HEAD OF OFFICES WITH PRESENT INCUMBENT IN KOLASIB DISTRICT

Sl.No.	Designation of the Officer	Name of incumbent	Phone No.	
			Office	Residence
1	Deputy Commissioner	Dawngliana	220001	220002
2	Supt. Of Police	Lallianmawia	220948	221054/ 9436140003
3	Commandant 1st IR Bn.	Dingluaia	266626/ 266545	266544
4	P.D.,DRDA	Lianhmingi Pachuau	221203	221205

5	Director,SIRD	Lalrempuii Fanai	221523/ 221521	221522/
6	E.E.,PWD	V.Lalpanliana	220038	220039
7	E.E.,PHE	Lalrinsanga	220622	220621
8	E.E.,PHE, Sewerage & Drainage East Divn., Tuikhuahtlang.	C.Zirkhuma	2324459	9436147167(r
9	E.E.,P & E	Thanglawra	220083	220003 9436146072(r
10	E.E.,P&E Serlui 'B'	Er.P.Samuel	221356	221377
11	E.E., P& E Serlui 'B' Dam Divn. Bilkhawthlir	C.Lalsawmliana	265186	9436141269(r
12	E.E., P& E Thermal Divn.,Bilkhawthlir	Lalbiaksanga	265506	943640932(n
13	Jt.Director,ICAR	Dr.K.A.Pathak	220041/ 220560	220041
14	D.L.A.O	S.T.Lalhmingmawia	220315	220178 9436140011(r
15	A.S.O-II	L.Th.Buangpui	221062	220247
16	D.A.O	Lalrinliana	220024	220508 9436141250(r
17	D.H.O	Mrs.Zosiamliani	220272	9436195506(r
18	D.S.O	R.Vanlalvuana	220321	9436143494(r
19	E.E.(MI)	P.A.Thomas	220301	9436143274(r
20	Prog. Co-ordinator (K.V.K)	R.L.Thanzuala	220360	220169 9436143047(r
21	D.O., S & WC	K.Kapthuama	220546	220179 9436143264(r
22	D.V.O	Lalnuntluanga Kawlai	220014	220644 9436143926(r
23	D.F.O	Vanlalsawma,IFS	220033	220373
24	C.M.O	Dr.Zahmingthanga	220046	220787
25	Dist.Medical Supdt.	Dr.B.Lalramzauva	221930	
26	D.E.O	B.Lianthlira	221506	221506
27	S.D.E.O	Lalrambuatsaiha	220312	9436143314(r
28	D.P.C.,SSA	Laldingliana	220842	94361440'
29	Principal,DIET	C.Vanlalmawia	221822	9436159560(r

30	Principal,G.K.C	TBC.Liandala	220027	220073
31	Principal,C.Z.S College	Lalngihllova Chinzah	220089	221335
32	Principal,JNV	D.Gunase Kharan	221975	
33	Supdt. Of Excise & Narcotic	Lalhmingliana Fanai	221005	220861
34	Supdt. Of Dist.Jail	Kapchhuanthanga	220734	9863362230(r
35	Supdt.of Taxes	Roduhsanga	220021	
36	DIPRO	Lallianpuui	220075	
37	D.C.S.O	C.Khawlliana	220058	220619 9436143304(r
38	B.D.O.,Thingdawl	Jacob Lalawmpuia	268504	9436142703(r
39	B.D.O.,Bilkhawthlir	Ethel Rothangpuui		9436142676(r
40	C.D.P.O,Thingdawl	C.Duhveli	268527	268649
41	A.R.C.S	F.Kapliana	220497	221005
42	S.D.E.(Gr.),BSNL	Rajiv Ranjan Tiwari	220000	220008
43	D.T.O	Lalrinawma	221568	9436143691(r
44	Station Supdt.of M.S.T	Chakraborty	221436	
45	S.D.I.O	K.Siamhlira	221223	
46	Dist.K.V.I.O	Zoremsanga	222012	
48	Dist.Treasury Officer	Lianzuala	220053	
49	Librarian	Felix Laltanpuia	220639	9862536608(r
50	D.S & Y.O	R.Lahluna	221149	
51	Post Master		220030	
52	Manager, S.B.I	D.Borah	220042	220604
53	Manager,Apex Bank	Lalmuanpuui	220081	9436154694(r
54	Manager,Rural Bank	Thansanga	220114	221193
55	Manager,Rubber Board		220357	
56	Manager,Tourist Lodge	Lalchhingpuui	220067	
57	Manager,Rural Bank (N. Br.)	H.K.Lalchhuanawma	221818	
58	Station Officer,Fire Service	S.C.Dey	220847	
59	Insp.Legal Metrology	Zohmingmawia	221438	
60	Sr.L.O., Coffee Board	D.H.Sreenivas	220270	9436158344(r
61	Manager,Govt. Press	Lalremsiama	2315189(Azl)	

62	Manager, MIZOFED LPG	Duhawmi	220020	9436158869(r
63	Manager,MIZOFED POL	Lalrinnunga	220142	
64	Addl.S.P.	Lalthafamkima Jongte	221181	98629146(r
65	S.D.P.O	Paul Thangzika	220055	94361582(r
66	Dist.Fishery Dev.Officer	C.Laldawngliana		
67	Civil Judge, Kolasib Aizawl Judicial District	HTC.Lalrinchhana		9436158610(r

CHAPTER - I

OBJECTIVE AND PRINCIPLES OF DISTRICT DISASTER MANAGEMENT PLANT

1.1 INTRODUCTION :

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 a recognized fact 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 disaster 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 our country, 139 districts have been identified to be multi-hazard prone. A centralized disaster management plan is difficult to arrive at, considering the nature, and frequency of disasters. A decentralized, participative, people oriented and transparent disaster management system including not only the post-disaster response but also pre-disaster prevention and preparedness actions could play a greater role in reducing the disasters and their impact.

The districts are the administrative units for administration and the District Disaster management Committees headed by the Deputy Commissioner of the Districts would eventually have to manage the disasters. It is, therefore, imperative to equip and train the Collectors of the Districts, the Disasters Management Teams and the people.

Public awareness would have to be also created through the NGO's, apart from the local administration. It should be the combined effort of the Government at the Centre, the State, the District, and the Panchayats, NGO's 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 any disaster management programme.

1.2. WHY IT IS

At the outset of the Planning it can be referred to the preface given by District Collector that District Disaster Management Plan is inevitable. The only 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.

1.3. OBJECTIVES

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. There is a saying that a friend in need is a friend indeed. The DDMP like a true friend will obviously guide the entire machinery engaged for relief operation and input courage among the community to face the eventuality boldly.

Every planning has its own aims and objectives. Although the features of all districts in Mizoram are not much different, there are certain peculiar characteristics that make the district unique. In the very fact, the planning of any activity in the district shall be specific and down to earth. For a better development and sustainability of growth a better planning is required.

The Basic objective of the District Management Plan of Kolasib District is to protect all its residents and every kinds 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

1.4 DISASTER MANAGEMENT CYCLE :

Four phases of Disaster Management are :- Mitigation, Preparedness, Response and Recovery.

MITIGATION : It refers to activities which actually eliminate or reduce the vulnerability or chance of occurrence or the effects of a disaster. Mitigation phases 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.

PREPAREDNESS : It is planning how to respond in case an emergency or disaster occurs and working to increase resources available to respond effectively. Disaster preparedness in a state of being ready to react prompt and effectively in the event of disaster. It measures depend upon the analysis of hazards and vulnerability.

RESPONSE : 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 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 Kolasib 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 Organisation 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.

RECOVERY PHASES :

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.

LIFE CYCLE OF DISTRICT DISASTER MANAGEMENT PLAN :

As planning is continuous process, any plan, to be effective, must be regularly checked, tested and revised. It should be updated as the condition changed. Responsibility in this regard lies with the Planning Committee and a plan review schedule be worked out. At least one annual revision must be done.

Any amendment to plans will be necessary where deficiencies in operational systems and procedures are revealed. This is a result of review meetings, exercises, change in hazards and environment.

A proper implement plan review schedule ensure that plans are living document. Plan maintenance is vital so that there is a clear indication of the effective of the plan. Any deficiency can revised and strengthened to meet possible future emergencies.

1.5 PRINCIPLES OF KOLASIB DISTRICT EMERGENCY MANAGEMENT PLAN

(1).Plan must be clear and practical : Plan must be developed in the language known to the people in clear and precise words stating exactly the procedures to follow in case of emergency and goals should be stated for all phases of the anticipated event, preparedness, relief and rehabilitation and recovery.

(2).Good Management Information System : A comprehensive collection of facts and datas is the pre-requisite for the development of an effective Disaster Management Plan. Contingency plan must also include arrangement for collecting, analyzing, storing and disseminating information and thereby one of the functions of the District Emergency Control Room has been identified as Information management.

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

(4).Plan must be well-organised : Assigning specific responsibilities and accountabilities to the different agencies, Government or otherwise is important. The District Emergency Control Room established should-(i) give timely warning to the people, (ii) initiate and supervise activities done at different levels, (iii) every information about the District should be available with the Control Room. Exchange of information will also be effectively possible through the Control Room.

(5).Incorporation of Departmental sub-plans : The main plan should be supported by departmental plans which are more specific for the concerned organizations and makes the departmental sub-plans are incorporated in this main plan with the same objective.

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

1.6. 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 longterm 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
HailStorm	Spurious Liquor Consumption
Draughts	Village Fire
Bamboo Flowering (Mautam)	Electrical Disaster
Floods	Chemical & Industrial Disaster
Clouds Burst	

1.7 FORMATION OF THE DISTRICT DISASTER MANAGEMENT COMMITTEE: ITS COMPOSITION

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

Sl. No.	FUNCTIONERIES	DESIGNATION
1.	Deputy Commissioner	Chairman
2.	Assistant to Deputy Commissioner	Nodal Officer
3.	Additional Deputy Commissioner	Member
4.	S.P. Kolasib	Member
5.	SDO (Sadar) - Member	
6.	E.E., P & E, PWD & PHE	Member
7.	All other Heads of Offices	Member
8.	Principal/Headmasters, HSS and Govt. High Schools	Member
9.	President M.J.A., Kolasib	Member
10.	Presidents, Joint YMA, MHIP and MUP or their representatives	Member
11.	Prominent citizens- as may be co-opted by the chairman from time to time	Member
12.	All President, Village Council within Kolasib Town	Member
13.	All Presidents, Branch YMA within Kolasib Town	Member
14.	Commandent, 1 st IR BN. Mualvum	Member
15.	President, Kolasib Sub-Hqrs. YMA	Member
16.	B.D.O., Thingdawl and Bilkhawthlir	Member
17.	Sub Devisional Engineer (BSNL)	Member
18.	DIO (NIC), Kolasib	Member

Designated Meeting Venue: In the event of a major disaster with catastrophic consequences affecting Kolasib or other parts of the District, when there is total disruption of communication system, all members of the Disaster Management Committee 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., Kolasib
- 2) D.C's Rest House
- 3) Taitesena Hall

If the Chairman is unable to preside over the meeting or fails to attend such meetings for any reason, the SDO (Sadar) or Superintendent of Police will take the Chair. If the SDO(S) or S.P. 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.

Organisation Structure : For the purpose of facilitating quick decisions, timely operational directions and effective coordination of issue of warnings, proper execution of rescue, relief and recovery operations, there should be a secondary committee under District Disaster Management Committee to be known as District Standing Committee on Disaster Management.

a)**Responsibilities of the DSCMD :** The responsibilities of this Committee would, inter alia, include :-

- 1) On the spot decision making
- 2) Control and coordination of response and recovery activities in the district
- 3) Resource mobilization and replenishment
- 4) Monitoring of overall response and recovery activities
- 5) Preparation of reports for submission to the State Government

b) Composition of the DSCDM :

- Convener : D.C., Kolasib District
Members : 1) SDO (Sadar), Kolasib
2) S.P Kolasib
3) Chief Medical Officer , Kolasib
4) E.E., PWD
5) EE., P & E
6) DLAO, LAD
7) Presidents, Jt. YMA, MUP, MHIP
8) DIPRO, Kolasib

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

- Chairman : BDO
Member Secretary : SDM/CEO/Headmaster Local High School
Members : 1. SDPO
2. Medical Officer
3. EE/SDO, PWD/PHE/P&E
4. CEO (Edn.)
5. Representative of YMA, MHIP, MUP
6. Representative of local Churches
7. President, V.C
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-

- i) To plan, organize and render relief in accordance with provisions of the District Plan
- ii) To directly monitor the progress of relief operation at Sub-Division/Block headquarters in rendering relief before, during and after the Disaster

- iii) To coordinate the efforts of the Govt. Departments and NGO's
- iv) To suggest measures for further improvement of relief operation
- v) To supervise various efforts or relief services at the village level

d) 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. Gram Sevak if any
	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) To plan, organize and render relief in accordance with the provisions of the scheme
- 2) To coordinate efforts of Government Department, Non-government organizations in connection with relief operations
- 3) To suggest measures for improvement of relief operations.
- 4) To advise on any measures necessary for relief operations

1.8 OPTIMUM STRATEGY

Optimum strategy is to be maintained by framing a District Disaster Management Plan to minimize loss of life and property. Officials from District Administration, Public., NGO's, VC's, and interest groups are

monitored to stand in interaction with a view to play a major role in Disaster Mitigation. Broadly it has been divided into three major strategies :-

- i) **PRE DISASTER**
- ii) **DURING DISASTER**
- iii) **POST DISASTER**

PRE DISASTER i.e. Preparedness in “No-Disaster Situation”

1. Formulation of District Disaster Management Committee
2. Formation of District Disaster Management Plan for the current year
3. Hazard Analysis & Resource Inventory
4. Allocation of responsibilities to the individuals/group/institutions/organizations/voluntaries
5. Broadly defining the responsibilities and operational functions
6. IEC Programme
7. Training and capacity building
8. 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/VHF, HAM-Radio, V-Sat, Light vehicle, Fire Brigades, Bull Dozers etc.

DURING DISASTER

1. Functioning of District Control Room (DRC) & 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 abatement 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 & Paramilitary 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

POST DISASTER

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. Collection of information by a core group of DAC headed by DM/ADM/SDMs/BDOs and submission of daily situation report to Govt.
17. Documentation of the entire event-Black & White/Audio & Video

1.9 DISTRICT CONTROL ROOM/EMERGENCY OPERATION CENTRE(EOC)

Kolasib District shall have an exclusive District Control Room/Emergency Operation Centre(EOC) at the Office of the Deputy

Commissioner, Kolasib District. This shall be around the clock set up with sufficient man power and most modern 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 for the Disaster Management in 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 Deptts.
- iv) LAD

The D.C will spell out priorities and policy guidelines and will coordinates 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.

Role of Emergency operation Centre in Normal Time

The Deputy Commissioner of Kolasib 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

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 DDMC, Kolasib
3. Hospitals in the disaster area
4. State Relief Commissioner
5. Emergency Operation Centre in the neighboring districts
6. National/State Emergency Operation Centre
7. People's representatives from the district

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.

1.10 DISTRICT CONTROL ROOM AND LINKAGES WITH OTHER CONTROL ROOMS

Coordination 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 Rev. Control

		Room/SRC/etc.
4.	Post crisis	Helping the people
		vacuees 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 Rev. Control Room/SRC/etc

1.11 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.

ESF	FUNCTION	NODAL AGENCY	SUPPORTING AGENCIES
EFS-1	Communication	BSNL	NIC/MPRO
EFS-2	Evacuation	D.C.	POLICE/HOME GUARD/IR/NCC
EFS-	Search and Rescue	Police, Fire Service	Police, NCC,

3			Department of Health
EFS-4	Law & Order	POLICE	Home Guard, IR
EFS-5	Medical response & Trauma Counseling	CMO	NSS/MHIP/MUP
EFS-6	Water Supply	PHE	NGOs
EFS-7	Relief	F&CS	NGOs
EFS-8	Debris and road Clearance	PWD	LAD
EFS-9	Help lines, Warning dissemination	D.C.	MPRO/NIC/NGO Reps
EFS-10	Electricity	P&E	NGOs
EFS-11	Transport	DTO	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.

1.12 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-inforcements 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 coordination. 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.

CHAPTER - 2

DISTRICT INFORMATION

2.1 ABOUT KOLASIB :

The administrative headquarters of the newly created District among 8(eight) Districts of Mizoram, Kolasib District is situated to the north of Aizawl District. Kolasib was initially created as the centre of Tribal Development Block on the day of the birth anniversary of the Father of the Nation in 1957 and was manned by Project Executive Officer. It was later upgraded to be administered by the area Administrative Officer. When Mizoram elevated to a Union Territory in 1972, Kolasib was upgraded as the Headquarters of the Sub-Division manned by Sub-Divisional Officer (Civil) on 5th May, 1975.

Being the seat of administration for more than three long decades its present status of District was created by the Government of Mizoram following the trifurcation of Aizawl District in 1998.

2.2DISTRICT PROFILE:

1	Name of the District :	Kolasib	
2	Geographical area Ha.	17,55,000 Ha./1472.12 Sq.Km	
	(a) No. of blocks	2(two)	
	(b) No. of villages (inhabited)	45	
	(c) No. of villages electrified	43	
	(d) No. of villages connected by all weather roads	30	
	(e) No. of villages having supply of potable water	19	
3	Rainfall (mm)	Normal 2200	Actual 2500
4	Population as per 2001 census		
	(a) Male	34562	
	(b) Female	31398	
	(c) Total	65960	
	(d) Population density/Sq.Km.	44 per Sq.Km.	
	(e) Population below poverty line	19.47% of total families	
5	Classification of workers (State Data)		
	(a) Cultivators	2,53,161	
	(b) Of :- (i)Small Farmers and (ii)Marginal Farmers	1,77,213 50,632	

	(c) Agricultural Labourers	27,494	
	(d) Artisans	NA	
	(e) House-hold Cottage Industries	6,572	
	(f) Allied Agro-activities	NA	
	(g) Other workers	1,82,370	
	Of which Women	63,211	
6	Land Utilisation		
	(a) Geographical area (ha)	17,55,000	
	(b) Net Sown area (ha)	25,066	
	(c) Forest (ha)	-	
	(d) Fallow land (ha)	7,41, 358	
	(e) Land not available for cultivation (ha)	16,88,576	
	(f) Cropping Intensity	NA	
	(g) Area brought under high yielding variety seeds (ha)	NA	
7	Size of Holdings	No ('000)	Area (Ha.) ('000)
	(a) Less than 1 ha.	52.15	26.08
	(b) between 1 and 2 ha.	14.90	20.86
	(c) above 2 ha.	7.45	62.58
8	Irrigation (in ha)		
	(a) Net irrigated area	856	
	(b) By channels	691	
	(c) By wells (DTW & STW)	-	
	(d) By other Sources (River LIS)	165	
9	Agriculture Support Facilities (State)		

	a) Seed	About 201 quintals of seeds were distributed in the district during. 2001-02 by Agriculture Office.
	b) Fertilizers & Pesticides depots	About 904 MT were distributed during 2001-02 from central Sales Depot, Aizawl.
	c) Rural Markets/Mandis	Sales Depot Aizawl
	d) Rural Godowns	Bairabi, Rengtekawn
	e) Cold Storage	Nos : 1 at Vairengte 5 to 10 MT Nos : 2 Total Capacity : 10 MT
10	Animal Husbandry	
	(a) Plough Animals	742
	(b) Dairy Animals	573
	i) Cattle (Cross-Bred)	2835
	ii) Buffaloes	19
	(c) Goats	1772
	(d) Poultry birds	76,848
	(e) Ducks	180
	(f) Pigs	12,171

2.3 SUPPORT REQUIREMENT FOR DEVELOPMENT OF WEAKER SECTIONS OF THE SOCIETY

Rural population of Kolasib comprises 60% of total population. About 97% this population is tribal and Christian. The sex ratio is 913 in the district as against the State's figure of 938 and all India figure of 933. Mizo women play important role in earning for the maintenance of their homes by running shops, tea-stalls, hotels and trading activities.

Sl.	Particulars	Male	Female	Total
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No.				
1	Literacy rate	90.49	89.37	91.50
2	Agriculturists	NA	NA	10,556
3	Service	NA	NA	NA
4	Other workers (State)	1,19,19	63,211	1,82,370
5	Marginal workers (State)	37,525	68,214	1,05,739
6	Non-workers (State)	1,95,621	2,25,840	4,21,461

2.4 Rural Human Resources Development – Problems and Prospects

Rural Health:

The average health of the people is quite good. In fact, as per the state-wise survey for ranking quality of life undertaken by the India Today magazine in August 2004, Mizoram tops the chart (among small states) on health. This is largely attributed to the traditional food habits of the Mizos. There is one 46 bedded Community Health Centre at the district headquarters along with 3 primary health centres and 2 sub-Health Centres in the district. However, medical facilities in the district are as yet inadequate and medical cases are often referred to the state capital or to other states.

Rural Housing:

There is no housing shortage in the district. The land for construction of house is allotted by the village council and houses are constructed using bamboo and other locally available material.

Rural Primary Education:

There are 78 primary schools and 22 private primary schools in the district as at 2001-02. Education is accorded high priority all over the State as well as in the district.

Rural Supply of Potable Water:

There are 347 public water points and 1058 water connections for supply of potable water in Kolasib.

2.5 RD BLOCK PROFILE:

Name of Village under Bilkhawthlir RD Block			Name of Village under Thingdawl RD Block		
Hmarveng	Venglai Klb	Diakkawn	Kawnpui N	Kawnpui S	Thingdawl
Vengthar	Saidan Klb	N.Diakkawn	Lungdai	Hlimen	Bukpui
Tumpui Klb	Builum	Bairabi	Zanlawn	Serkhan	Khamrang
Pangbalkawn	College Veng	Rengtekawn	Lungmuat	N. Chaltlang	Bualpui N
Bilkhawthlir S	Bilkhawthlir N	Vairengte-I	Thingthelh	Mualkhang	Hortoki
Vairengte-II	Buhchangphai	Phaisen	Nisapui		
N.Chhimluang	N. Chawnpui	Saipum			
Saihapui	N. Thinglian	Meidum			
Bukvannei	Saihapui 'V'	Phainuam			
Saiphai	S. Chhimluang				

Bilkhawthlir RD Block : 29
Thingdawl RD Block : 16
Total : 45

2.6 THINGDAWL RD BLOCK:

1. List of NGO:

Name of NGOs	Functionaries	Address for contact
YMA	Social Service	Thangchia Thingdawl, C. Kiamlova Lungdai

MUP	Social Service	Thanghluana Kawnpui, Lalzuala Thingdawl
MHIP	Social Service	Rengluti Kawnpui, Lalzuala Thingdawl
MZP	Social Service	B. Lalthakima Kawnpui

2. Identification of safe shelter with capacity:

Sl. No.	Kinds of Building	Capacity	Place	Address for contact	Phone Number
1	Pucca B.20	500	Thingdawl	V.Z. Kapmawia	268518
2	Pucca B.7	100	Bualpui	Rintluanga	9862316606
3	Pucca B.40	1000	Kawnpui	Selthuama	9436158730
4	Pucca B.15	400	Hortoki	Lalkima	292011
5	Pucca B.5	800	Zanlawn	Ngentluanga	203109
6	Pucca B. 5	750	Serkhan	Sangzela	9436193760
7	Pucca B.20	500	Lungdai	Lalthanpuia	9436153668
8	Pucca B. 6	100	Nisapui	Sanglura	292023
9	Pucca B.5	700	Lungmuat	Rolala	290026
10	Pucca B.10	2500	N. Chaltlang	Ramlawma	
11	Pucca B.8	2000	Bukpui	Rinawma	273208
12	Pucca B.8	2000	N. Hlimen	Tlanchhuaha	9436366103
13	Pucca B.5	700	Thingthelh	Lalnunmawia	
14	Pucca B.5	600	Khamrang	Muansanga	9862313129
15	Pucca B.5	650	Mualkhang	Phira	

3. Financial Institution:

Sl. No.	Name of the Institution (Bank, Post Office etc.)	Address	Telephone Number
1	MRB	Kawnpui	266460

2	Post Office	Kawnpui	266647
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4. Public Distribution (retailer):

Name of Block	No. of Retailer	Name of Retailer	Address	Telephone Number
Thingdawl	25	1. Vanneiha	Thingdawl	268549
		2. Lalnunsangi	Kawnpui	226393
		3. Thanghmingliani	Kawnpui	226503

2.7 LOCATION AND BOUNDARIES:

Kolasib District situated between 23 -70 degree and 24- 50 degree N Latitude and 920-50 degree W- 93degree E longitude. It is bounded by Cachar District and Hailakandi District, Assam on the north and north west respectively, on the south and east by Aizawl District, Mizoram and on the south west by Mamit District, Mizoram. The location of the district occupies an important sites as it is the main stream of road communication from other state of Mizoram. National Highway No.54 passes through the middle of the district from north to south direction. The only rail head in the state located at Bairabi. The only centre for Military Counter Insurgency & Jungle Welfare School in the country is located at Vairengte, which is the largest and well known to the whole of Asia as well as other countries of the world.

2.8 AREA AND POPULATION: The total area of the district is 1472.12 sq.km of which 70% of the total area of the District is under Forest cover Total number of villages in the district is 44, four sub-towns namely-Kawnpui, Bualpui, Bairabi, Vairengte and one full-fledged town, Kolasib.

The total number of population in the district as per Census 2001 is 65960 whereas 34562 are male while 31398 are female.

2.9 ADMINISTRATIVE DIVISIONS : For the purpose of general development administration, the district has been divided into 3(three) Sub-Divisions viz. Kolasib Sadar, Vairengte and Kawnpui and 2(two) R. D. Block, i.e. Thingdawl and Bilkhawthlir for the purpose of general and development administration.

2.10 OCCUPATION : About 75% of population entirely depends upon agriculture and allied activities. The District itself seems to be self sufficient from the product of WRC and shifting cultivation as the District covers low lying areas which is highly potential area of agriculture in Mizoram. Soil emotion is found suitable for varieties of crops.

2.11 FORESTRY : Forest covers more than 70% of the total District area. The hilly areas of the district ranging from north to south. Forest are crucial resource on which depends the livelihood of the majority of the population of the district. Tropical moist deciduous forest and bamboo forests are the commonest form vegetation. Numerous other trees, shrubs and herbs provide vegetables, fruits fuel (fire wood), dyes, medicines and fibres.

2.12 AGRICULTURE : Agriculture is the most important land use in the district, which is done through WRC and jhum or primitive method of cultivation (shifting) and about 75% of the total population depends upon agriculture. About 984.00Ha of land is recorded as irrigated land, 4752.01Ha (approx) of land is covered by WRC (developed and to be developed). Most of the cultivated area in the district is under cereal cultivation mainly rice, other crops includes pulses, fruits vegetables, arecanuts, etc.

2.13 IRRIGATION : Lack of irrigational facilities is their main constraintsof increasing agricultural production in the district. Through the district is agricultural potential area(WRC) in the state, ther has been a gradual increased in

irrigated land which does not permitted double cropping in the available land in many areas.

2.14 LIVESTOCKS : Rearing of livestock for an economic purpose has not yet become very popular in the district. Most of household owned some cattle, pigs and poultry for their own consumption.

2.15 LITERACY AND EDUCATIONAL FACILITY : The literacy rate in the District is 91.38 percent. Efforts are being made to provide primary and school education through Sarva Shiksha Abhiyan and to raise the standard of quality of education in the district. In Kolasib District, there are 1(one) college, 2(two) higher Secondary and High Schools (including privates), 40 middle schools including English Medium Schools and 102 Primary Schools (including Private Schools).

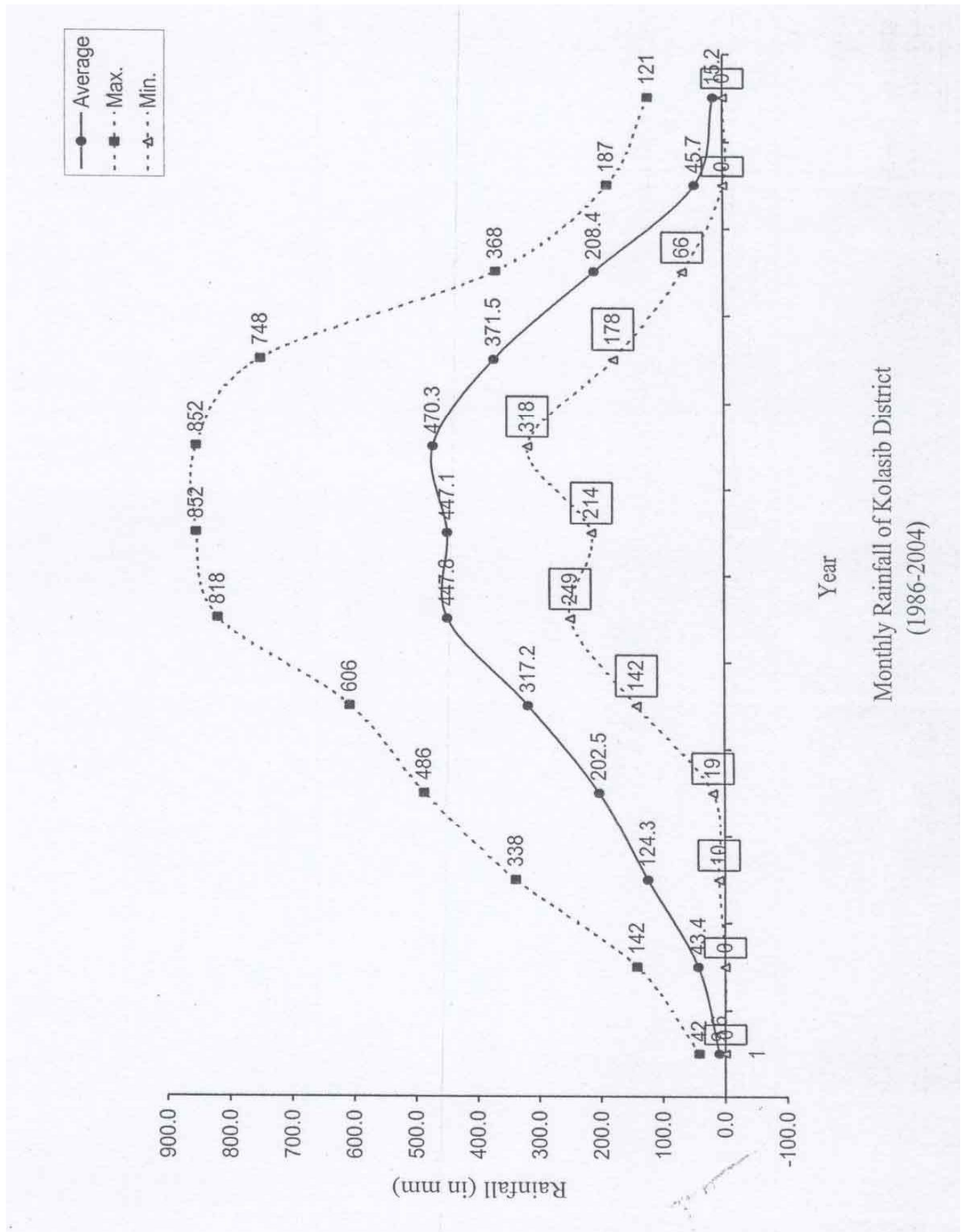
2.16 PUBLIC HEALTH AND HYGIENE : In Kolasib District, there are 1 (one) community Health Centre, 3 (three) Primary Health Centres viz. Bairabi, Bilkhawthlir, and Lungdai (10 beded each), and three Subsidiary Health Centres viz. Vairengte, Kawnpui, Bukpui (10 beded each). Health and Public welfare Programmes being run in the District are Malaria Eradication Programme, Leprosy Eradication Programme, TB Control Programme, Family Welfare Programme and other Health Programmes.

2.17 CLIMATE : Kolasib District comes under the tropical monsoon climate zone of India. It experiences direct impact of monsoon. The average annual rainfall is 197 cms., approximately. Except in low lying valley, the temperature fluctuation is low and the climate remains moderate throughout the year. Winter extends from November to February with temperature ranging between 12-23 degree C with valleys hotter and humid while the hill tops are cooler and pleasant.

A study from the daily rainfall reveals that the heavy outpour generally starts from the second quarter of May and this heavy outpour is usually subsides in the first quarter of October. Rainfall during May, June, July, August & September i.e. 5 months alone contributed 76% of the total annual rainfall. This is the season when the cyclone rains are often felt. The temperature remains high, but is kept down to a considerable extent by usual rains.

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1986	13	24	21	292	142	430	455	449	377	339	124	3	2669
1987	15	9	73	146	162	487	451	411	435	328	58	5	2580
1988	0	41	115	178	438	445	432	411	238	211	67	0	2576
1989	0	21	28	98	241	448	491	491	442	368	0	0	2628
1990	2	36	236	256	355	438	413	324	361	182	84	21	2708
1991	40	103	165	364	432	406	223	323	314	260	0	121	2751
1992	10	65	19	180	264	263	397	483	320	248	21	6	2276
1993	3	142	121	188	522	500	511	427	283	157	7	0	2861
1994	14	40	256	247	174	535	601	417	184	148	5	0	2621
1995	8	39	50	58	359	491	310	852	357	150	187	0	2861
1996	1	88	338	60	250	471	348	589	489	201	27	0	2862
1997	6	34	185	140	333	306	852	515	748	66	0	71	3256
1998	42	44	215	138	221	643	226	359	212	156	50	0	2306
1999	0	0	49	19	493	249	488	318	329	186	7	0	2138
2000	19	12	248	398	264	272	214	568	508	236	3	0	2742
2001	0	120	106	153	320	818	667	518	620	279	142	0	3743
2002	6	0	45	235	606	347	442	582	178	203	86	2	2732
2003	0	6	81	212	234	570	332	379	400	157	0	59	2430
2004	3	0	10	486	217	390	642	520	264	84	0	0	2616
Average	9.6	43.4	124.3	202.5	317.2	447.8	447.1	470.3	371.5	208.4	45.7	15.2	2703
Max.	42	142	338	486	606	818	852	852	748	368	187	121	
Min.	0	0	10	19	142	249	214	318	178	66	0	0	

Monthly Rainfall data of Kolasib District
(1986-2004)



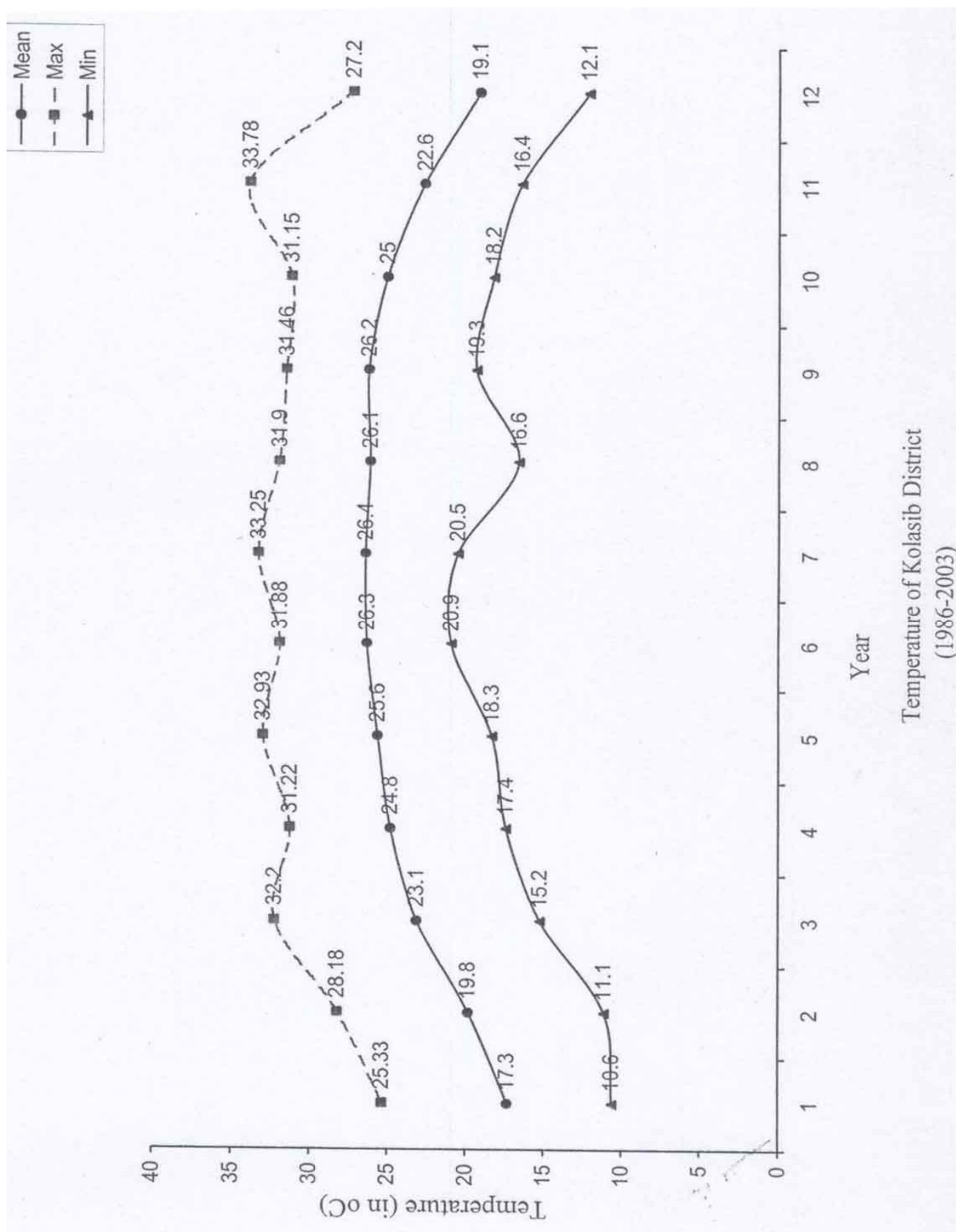
2.18 TEMPERATURE: The salient thermo-characteristics of Kolasib district is that temperature do not fluctuate much throughout the year. The highest temperature observed during the past decade was 35 degree C in the day of 16th July, 1999. June and July are the warmest months with mean daily maximum at about 26 degree C and the mean daily minimum at about 23 degree C. The temperature remains high, but thereafter the onset of Monsoon (Fur) brings down the temperature and hence we do not feel the hotness as much as it has been.

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 21.6 degree C and the mean daily minimum of 12.9 degree C. However, the lowest minimum temperature was recorded in January, 2000 at 10.6 degree C.

Year	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
1986	21.4	13.1	24.4	14.0	27.9	18.2	29.1	19.8	30.9	20.9	31.9	23.5	30.0	20.5	31.2	22.5	28.9	21.7	28.8	20.0	27.3	17.1	24.9	14.0
1987	25.1	12.2	27.9	14.8	27.8	17.4	28.3	20.1	30.9	21.2	30.5	22.8	31.1	22.7	30.1	22.4	29.8	22.4	29.3	20.4	27.5	18.1	24.9	14.0
1988	25.0	13.0	26.8	14.9	28.2	17.0	30.5	20.4	29.2	21.2	31.2	23.3	28.9	22.5	29.7	22.2	29.2	22.8	28.7	20.5	27.6	18.6	25.3	15.9
1989	20.7	12.4	22.7	14.3	27.1	18.4	30.6	20.0	30.4	21.5	28.7	22.1	29.5	21.8	30.2	19.2	30.8	21.3	28.6	21.8	25.2	18.1	22.4	13.9
1990	22.3	13.8	22.9	15.6	24.3	16.6	26.1	17.4	29.9	20.2	29.2	20.9	30.6	21.8	30.1	21.1	30.3	23.3	30.0	20.8	31.1	20.4	23.7	14.4
1991	19.8	11.6	24.1	15.8	29.7	18.6	26.7	20.4	24.8	20.6	28.6	22.4	33.3	22.8	27.9	23.8	27.7	23.0	26.8	21.3	24.2	18.4	22.1	13.8
1992	20.7	12.0	21.3	12.1	26.5	19.7	29.3	22.0	27.5	21.5	26.6	23.3	31.1	23.8	31.9	23.9	30.8	24.2	25.7	23.3	23.9	21.1	19.4	16.4
1993	18.7	15.0	21.9	18.4	24.2	20.8	27.3	23.2	26.1	22.9	27.1	24.5	27.9	24.9	27.7	24.8	27.7	24.5	26.3	22.4	23.8	20.0	21.2	17.4
1994	19.7	15.5	20.6	15.8	24.1	19.9	26.9	22.2	28.8	24.8	28.4	25.4	28.5	25.3	28.5	25.5	29.3	25.2	29.7	22.5	28.0	20.9	27.2	16.6
1995	20.5	14.3	21.3	16.5	27.6	21.3	29.4	23.9	29.7	25.4	29.2	25.7	29.2	25.4	29.4	24.4	29.4	25.1	28.0	23.4	26.0	20.5	23.0	14.0
1996	21.1	13.9	23.7	16.8	26.0	20.3	29.1	23.8	29.7	22.3	30.0	25.2	28.5	24.8	28.1	24.8	29.2	25.0	27.6	22.7	25.9	20.7	23.4	16.2
1997	22.6	11.8	24.8	15.7	31.2	18.7	30.0	18.2	31.5	22.3	30.6	21.6	30.0	21.5	29.7	22.6	28.2	19.8	27.3	18.2	25.3	16.5	21.2	13.1
1998	20.2	11.3	23.7	16.2	24.0	17.5	27.3	21.1	29.7	21.6	29.6	23.0	28.2	21.6	28.1	21.4	29.3	21.7	29.6	19.7	27.3	16.8	22.9	12.1
1999	22.4	11.1	28.2	16.0	29.5	17.7	30.7	21.4	29.3	22.7	30.7	21.3	29.8	21.9	28.6	22.9	29.0	23.0	29.2	19.5	15.7	26.8	12.4	25.2
2000	22.5	10.6	24.2	11.1	28.9	15.2	29.3	17.7	29.1	18.3	30.0	23.0	27.8	25.6	27.5	23.9	28.3	25.2	28.5	25.6	25.0	20.4	20.7	24.9
2001	18.4	12.9	23.9	18.2	27.5	22.4	29.8	22.1	29.7	23.6	28.0	24.3	28.7	24.5	29.5	24.8	28.8	24.7	28.2	24.5	26.5	16.4	23.4	13.9
2002	22.4	15.9	25.2	17.9	32.2	17.7	31.2	17.9	32.9	20.5	31.5	23.8	30.3	23.1	30.8	16.6	31.5	19.3	31.2	20.8	33.8	19.3	24.7	12.1
2003	25.3	11.6	26.6	15.8	28.4	17.7	28.7	20.1	27.6	21.6	26.9	23.9	27.8	24.8	28.0	24.9	27.0	24.5	26.4	23.2	22.4	18.5	19.2	16.8

Average	21.6	12.9	24.1	15.5	27.5	18.6	28.9	20.6	29.3	21.8	29.4	23.3	29.5	23.3	29.3	22.9	29.2	23.1	28.3	21.7	25.9	19.4	22.3	15.8
Mean	17.3		19.8		23.1		24.8		25.6		26.3		26.4		26.1		26.2		25		22.6		19.1	
Max	25.3		28.2		32.2		31.2		32.9		31.9		33.3		31.9		31.5		31.2		33.8		27.2	
Min	10.6		11.1		15.2		17.4		18.3		20.9		20.5		16.6		19.3		18.2		16.4		12.1	

Temperature data of Kolasib District (in °C)



2.19 RAINFALL: The entire state of Mizoram is under the direct influence of south west monsoon; hence Kolasib 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 first part of October. The average rainfall of Kolasib district is 2703 mm per annum and the highest rainfall received during a particular month was 852 mm record on August 1995 and also on July, 1997.

Precipitation is heavy during summer. This coincidence of the occurrence of south west monsoon and the summer makes the climate favourable for inhabitants of the Kolasib district since the temperature is kept down to a considerable extent by usual rains. Normally July and August are the rainiest

months while December and January are the driest months.

.20 MEAN MONTHLY WEATHER PARAMETERS OF KOLASIB DISTRICT FOR THE YEAR 2005

Month	Temperature (Degree C)		Relative Humidity(%)		Total Rainfall(mm)
	Min.	Max.	Min.	Max.	
January	14.82	19.88	58.23	70.32	0
February	18.38	23.74	52.21	63.14	0
March	19.39	24.83	49.52	59.10	325
April	23.31	29.45	57.39	71.32	228
May	32.34	28.80	64.29	77.04	419
June	25.81	31.66	64.07	80.77	177
July	24.12	30.25	63.35	79.55	848
August	23.92	29.69	62.26	82.90	494
September	23.48	30.67	62.67	78.53	619.6

October	23.87	28.82	68.68	82.06	137
November	21.16	25.40	69.13	78.50	0
December	18.08	23.41	63.74	78.58	0
Total					3247.6 Kolasib

The maximum average temperature (31.66 degree C) was recorded in the month of June and the minimum average temperature (14.82 degree C) in January 2005. The Maximum relative of 82.90% was observed in October and the minimum 49.52% was recorded in February. The total annual rainfall recorded during 2005 was **3247.6 mm** with a maximum of 848 mm in the month of July. No of rainfall was recorded in the months of November, December, January and February 2005.

2.21 WIND: The monsoon wind is the most important that prevails in Mizoram. During summer, the sub-tropical high pressure belt and the thermal equator are displaced northward in response to the changing pattern of solar heating of the earth. From the ocean, particularly from the north Indian Ocean or Bay of Bengal, they move towards the land mass and blow over the Asian continent. This south-west monsoon reaches Mizoram during second half of May and prevails up to the first half of October. The 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 cause sporadic rainfall especially in Mizoram and other north eastern states producing sometimes heavy cyclonic rains.

As evidence from the earlier records, Mizoram state is vulnerable to impact of tropical cyclone which develop 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 are associated with strong winds, torrential rains and storms. Though the impact has not yet been devastating, it has often led to loss of properties and even lives. The impact of cyclone has often led to

damages to houses, power line cut-off, blockage of road, damages to crops and plantations, loss of live stocks, etc. Generally, these winds comes from the north western part of the state as the winds originate from the bay of Bengal. According to the statistical reports on Vulnerability Analysis of Mizoram conducted by State Remote Sensing Centre, Mizoram, out of the fifty two(52) villages/wards, eleven (21.15%) villages/wards are classified under high vulnerable class, eighteen (34.62%) villages/wards under medium vulnerability class and twenty three (44.23%) villages/wards under low vulnerable class.

2.22 DRAINAGE SYSTEM: Kolasib district is drained by few rivers and a good number of streams and rivulets of various patterns and length. Most of these streams and rivulets are ephemeral in nature. Since the drainage system for a particular area is governed mainly by natural drainage course and topography, therefore, the drainage system of Kolasib district has been studied with the help of satellite imageries and the Survey of India topographical maps.

The drainage system can be divided into two parts according to the geomorphology of the area, viz. Eastern drainage systems and Western drainage system.

Eastern Drainage: The whole district of Kolasib is divided into two Sub-Catchments according to the Watershed atlas of India. The drainage lines falling in the eastern side of this are termed as eastern drainage system. These include Tuirial drainage system and Serlui drainage system.

Tuirial river originates from north Chawilung hill in Aizawl district and flows northward till it enters Cachar district of Assam. It is an important river for the district as well for the state of Mizoram since it is navigable by small boat to a considerable length and a multipurpose hydro-electricity project is being under construction in this river. It also formed the district boundary between Kolasib and Aizawl district in the eastern side.

Serlui originates from Serkhan village in the southern part of the district and flow northward till it meets Tuirial in Cachar district of Assam. It is the most important single river within the Kolasib district from the agriculture point of view. It has a vast fluvial plain along its course giving a fertile agricultural land for the region and it has many incoming

tributaries of which the important ones are Chemlui, Saihapui lui, Builum lui and Pualtawk lui.

Saihapui lui, Chem lui and Builum lui all are important tributary of Serlui which confined to the northern part of the district. All the tributary of Serlui has an important characteristics as sub-dendritic drainage pattern creating a fluvial plain along its course which is quite utilized for cultivating paddy and other cereals crops in the area. The Chemphai plain is popular in agriculture development in the district where one can find the agricultural research firm at Chemphai.

Western Drainage : The drainage systems falling in the western side of the sub-catchment of the district are termed as western drainage systems. These include Tlawng drainage system, Meidum drainage system and Tuichhuahen drainage system.

Tlawng river is one of the most important rivers of Mizoram and it is the longest river in Mizoram and it passes through five districts of the state forming districts' boundary lines while running along its course. Here also it formed a district boundary line between Kolasib and Mamit districts in the western side of the study area. It is navigable by small boat throughout the year and hence it provides water transport route with neighbouring state of Assam. Tlawng river, forming district boundary, enters the district from the south-west portion of district continue to flow up to the Bairabi village in the western part of the district. A number of streams and rivulets join along this course and the important ones are Dur lui, Khuai lui, Tuitun lui and Damdiaithlangta lui. Dendritic drainage patterns are common in this system and especially the Damdiaithlangta lui exhibits a round leaf-like shape dendritic drainage pattern showing no structural control.

Meidum lui drainage system which extends in the western part of the district is characterized by dendritic to sub-dendritic drainage patterns. In its middle course Meidum lui has created fluvial plain areas suitable for agricultural and horticultural development.

Tuichhuahen lui drainage system is confined to the north-western portion of the district and exhibits various drainage patterns such as angulated, dendritic to sub-dendritic and sub-parallel drainage patterns. It is an important source of water supply in the western plain areas facilitating irrigation for the flood plain it has created along its course.

Chhimluang originating near Chhimluang village in the northern most part of the district is another important stream and it forms the state boundary between Mizoram and neighbouring state of Assam.

CHAPTER - 3

GEOLOGY OF KOLASIB DISTRICT

3.1 TOPOGRAPHY: The area of Kolasib District is represented mainly by two main ridge lines and intervening valleys and less prominent linear ridges. The most prominent ridge runs in almost North-South direction from Mualvum near Kawnpui village, almost through the entire area except for few saddles which breaks the range. The entire length of the ridge is about 39.5 Km. which can be divided as Mualvum - Kolasib (25Km) Rengtetlang – Bilkhawthlir upto Thingdelh lui (12Km) and Phainuam ridge (12.5Km). The average height of the ridge gradually decreases as we go from south to north. The average heights of the ridge near Kawnpui, Kolasib and Bilkhawthlir are 750m, 600m and 450m respectively, while at the northern end near Phainuam, the ridge attain an average height of 150m. On the eastern side of this main ridge runs a parallel ridge from Nisapui tlang towards Lungmuat tlang upto Bukpui which is about 22 Km in length. The ridge line is terminated near Bukpui and runs about 13 Km from Hmunchung tlang towards Thingthelh and ends at Lungpher lui. On a slightly eastern side, the ridge runs from Kangmual to Hlimen with a length of 13.7 Km and continues all the way to Parsenchhip and joins Telchat tlang and continues towards Saipum village. The north-western extremity of this range is bounded by Saichang tlang which joins with Teidung tlang on the south with a combined length of about 8.31 Km. Like the ridge on the western side, the height of this ridge decreases towards north. Nisapui tlang

reaches a height of 1285 metres, whereas Kangmual attains a maximum height of 650 metres. The height of Parsenchhip tlang is about 700metres. Towards the eastern side of this ridge line flows Tuirial River, and most of the spurs run from the ridge towards this river.

In between this two main ridges run two rivers, viz., Serlui and Chemlui separated by a ridge line Chemtlang which is almost 26 Km length, this ridge is terminated by Pualtawk lui and continues towards north upto Sesih lui. The length of the ridge is about 7.6 Km. The two limbs of this ridge are characterized by a subdued hillocks and fluvial valley fills.

3.2 GEOMORPHIC CLASSES: Structural hill constitutes the main geomorphic class and dominates the district. Structural hill, as the name implies, is of structural origin associated with folding, faulting and other tectonic processes. Structural hill is further divided into three classes viz., High Structural Hill, Medium Structural Hill and Low Structural Hill.

The Statistics of of Geomorphology is shown in the following Table

Sl. No.	Geomorphic Unit	Area (Sq.Km)	%
1	High Structural Hill	1.94	0.14
2	Medium Structural Hill	43.1	3.12
3	Low Structural Hill	1271.12	91.94
4	Valley Fill	58.51	4.23
5	Flood Plain	7.84	0.57
	Total	1382.51	100

3.3 SLOPE: Kolasib district is characterized by many hill ridges running parallel to each other, most of which roughly runs from north to south. The slope of the area has been conveniently divided into nine (9) slope facts as per given in the following table:

Slopes Statistics of Kolasib District

	Slope(%)	Area	%
1	0-3	36.34	2.63
2	3-10	277.15	16.43
3	10-15	4.54	0.33
4	15-25	81.30	5.88
5	25-35	182.60	13.21
6	35-50	509.24	36.83
7	50-70	251.21	18.17
8	70-100	76.23	5.51
9	>100	13.91	1.01
	Total	1382.51	1.01

There are numerous low lying valleys which are predominantly occupied for Wetland Rice Cultivation (WRC) including many other minor unmappable scattering narrow valleys identified as potential area for WRC which constitutes to about 9.08% of the total area.

3.4 ASPECTS: The slope aspects of the hills are more or less evenly distributed. Areas within the study area having no aspects or relatively flatland occupy an area of 36.19 Sq.Km constituting to 2.62% of the total area. The aspects of the area has been conveniently divided into nine (9) slope facets as per given in the following table:

Aspect Statistics of Kolasib District

Sl. No	Aspect	Area	%
1	North	71.89	5.20
2	North-east	150.36	10.88
3	East	244.73	17.70
4	South-east	181.87	13.15

5	South	125.17	9.05
6	South-west	146.13	10.57
7	West	236.85	17.13
8	North-west	189.33	13.69
9	Flat land	36.19	2.62
	Total	1382.51	100.00

3.5 ATTITUDE: The attitude of Kolasib district can be describe to have drastic unsimilarity in their existence. While many places include lofty altitudes, several areas still fall under very low altitude area. The highest elevation in within the area is Sakawrhmutuai tlang (1535 metres above msl), followed by Nisapui tlang (1285 metres above msl). The lowest area in the district is recorded to be around 40 metres above msl which are located at different places at the river banks of River Tlawng and River Tuirial including a very small low lying area where Meidum lui flows and some part of Bairabi and Hortoki, few areas adjoining Tuichhuahen lui and Thinglian lui, and few areas adjoining River Serlui, Barchep lui and Saihapui lui including a small portion of Chemphai valley.

3.6 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. The land use/land cover statistics is given in the following table:

Land Use/Land Cover Statistics of Kolasib District

Sl. No	Category	Area (Sq.Km)	%
1	Built-up Land		
	Town	7.41	0.54
	Village	4.86	0.35

2	Agriculture Land		
	2.1 Cropland		
	Kharif	24.93	1.80
	2.2 Plantation		
	Coffee	0.17	0.01
	Arecanut	0.68	0.05
	Citrus Woodland	0.40	0.03
3	Forest		
	3.1 Dense	134.10	9.70
	3.2 Medium Dense	114.25	8.26
	3.3 Less Dense	204.94	14.83
	3.4 Bamboo	657.40	47.55
	3.5 Forest Plantation		
	Teak	5.76	0.42
	Gmelina	0.32	0.02
	Miscellaneous	0.22	0.02
4	Shifting Cultivation		
	4.1 Current Shifting Cultivation	64.41	4.66
	4.2 Abandoned Shifting Cultivation	136.03	9.84
5	Scrub Land	17.62	
6	Water Body	9.01	0.65
	Total	1382.51	100.00

CHAPTER - IV

PROBABLE DISASTER AND CRISIS CONTINGENCY PLAN

4.1 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.

The shaking movements are called waves. The focus points originate beneath the earth's surface and there are three types of waves:-

1. L-Wave (Low frequency, long wave length, transverse vibration): These waves usually shake the earth's outer crust and they move slowly and in a criss-cross manner. Hence, they are very destructive and cause extensive damage.
2. S-Wave (High frequency, short wave length, transverse): The speed of these waves range from 4.35 Km per second to 7.25 Km per second and can be effect both the earth crust and below. These waves too, cause extensive damage.
3. P-Wave(High frequency, Short wave length, longitudinal waves, push and pull): These waves move longitudinally and horizontally, they not

only effect the earth's crust and below, but also cause tremors in water and ocean. At the same time, earthquake are measured using Richter Scale which is a scale of 0-10.

Usually, earthquake originates at a point many kilometers deep under earth's. It is called surface. It is called 'focus'. The point on the earth's surface vertically above the focus is called the Epicentre. The main area of earthquake surrounds this point.

Earthquake prediction is not yet scientifically possible with reasonable accuracy in terms of location, time and magnitude. The only tangible effort which can be done is to mobilize relieve and rescue operations immediately so as to minimize damage to life and property. Earthquake caused widespread disaster and loss of human lives primarily due to the collapse of structures and buildings.

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, earthquake 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.

WHAT SHOULD DO BEFORE AN EARTHQUAKE OCCURRED:

1. Keep in mind that most problems from a severe earthquake result from falling objects and debris (partial building collapses, ceiling plaster, light fixtures, etc.) not from ground movement.
2. Fasten shelves securely to the walls. Remove heavy objects from shelves above head level.
3. Locate beds away from the windows and heavy objects that could fall.
4. Secure appliances that could move, causing rupture of gas or electrical lines.

5. Make sure that overhead lighting fixtures are well secured to the ceiling and moves heavy unstable objects away from exit routes.
6. Store breakable items such as bottle foods, glass and china in low-closed cabinets with latches.
7. Be aware that with a severe earthquake, all services such as electric, water, etc. will probably be down. Emergency services may also be extremely limited for few days.
8. Store chemicals and flammable objects and products securely in closed cabinets with latches or low shelves.
9. Store or have access to emergency supplies (water, long lasting, ready-to-eat-food, first-aid kit, medicine, tools, portable radio, flash light, fresh batteries, blankets, warm jackets, fire extinguishers) in a secure place at your residence or in your car.

AWARENESS FOR PUBLIC:

1. Stay calm. Do not panic. Await information from official sources.
2. Most injuries occur while people enter or leave buildings, so stay where you are when the tremor occur.
3. If you are indoors, get under a desk or a study table or brace yourself within a narrow hallway or doorway, making sure that the door can not close on your hands. Stay away from glass, windows, and outside doors. If you are unable to move, cover your head and body with your arms, pillows, blankets, books, etc. to protect yourself from falling objects. Avoid high book cases, mirrors, cabinets or other furniture that might topple.
4. If in a multi-storeyed building, stay in the building in the same floor. Get elevators as power may have failed. Do not run for staircase, since these may sustain more damage than level surfaces. Exits may also be affected/blocked.
5. If an earthquake occurs while you are outside, get away from buildings, walls, trees and utility wires. Stay in an open area until tremors stop. You must remember that the greatest danger from debris is near exterior doorways enclosed to outer wall.
6. If driving, stop and stay inside, although tremors may occur extensively it is a fairly safe place to wait. Do not remain next to masonry structures or high-rise building, do not remain on or under

bridges and flyovers. While driving, watch for earthquake created hazards, such as falling objects, downed power lines, broken or undetermined roadways and bridges.

7. Wear sturdy shoes to protect your feet from possible broken glass.
8. Check for injuries, apply first-aid. Do not attempt to move any one seriously injured.
9. Check for fire.
10. Check utilities for damage, evacuate the building if a gas leak is suspected. Do not light matches or turn-on electricity until you are certain there are no gas leakages.
11. Avoid downed power lines.
12. Check for structural damage, clear blocked exits.
13. Check radio and phones and listen official broadcast. Do not use the phone except for an emergency.
14. Use extreme caution when close to masonry structures.
15. For several days after a severe earthquake, be prepared for aftershocks. These are common following a large earthquake and can cause additional damage to weakened structures.

EARTHQUAKE CHECKLIST:

1. Battery powered flashlights and lanterns
2. Battery power AM/FM radio or television
3. Spare batteries
4. Extra exchange of clothes
5. Sturdy shoes with thick socks
6. Matches (stored in waterproof container)
7. Fresh drinking water(three to five gallons per person per day)
8. Canned food(upto two days worth)
9. Dry/dehydrated food(upto five days worth)
10. Can opener/knife
11. Paper plates/cups
12. Blanket and bedding
13. Towels
14. Stove/Charcoal
15. Toilet Paper

16. Toothbrush and tooth paste/powder
17. Work gloves
18. Survival guide
19. List of important phone numbers
20. Small amount of cash
21. Fire Extinguishers
22. Rain gear

MANAGEMENT OF RESPONSE OPERATIONS IN KOLASIB 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 Kolasib 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 PWD will be required for clearing debris in order to rescue people trapped in collapsed buildings. The manpower 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. The Red Cross Society, local medical practitioners, other Hospital and Community volunteers could support the efforts of the Health and Family Welfare Department. The Chief Medical Officer, Kolasib 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 Homeguards perform the responsibilities of evacuation with support from other government agencies. In Kolasib district (Not only in Kolasib 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 be established 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 are 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-inforcing water and electricity supply lines. Non-structural measures, on the other hand, emphasize on proper hand-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 Kolasib 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, godowns and factories.

2. Non-Structural Measures: The following aspects required to be look 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 Kolasib 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 abiden by guidelines and pre-set standards. This increased the risks as well as hazard factors should any disaster occur in Kolasib 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-inforced 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, 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 behaviour 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 of 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.

4.2 LANDSLIDE

Land slide are a serious geological hazard common in the hilly regions of India. 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.

Need for Hazard Zoning:

Landslide became a problem only when it affect human life and properties. Economic losses attributable to natural hazards may represent as much as 1-2% of the GNP in the developing countries. Of this, the losses due to mass movements are estimated to be one quarter of the total. This highlights the importance of hazard mitigation.

Mitigation of landslide disaster can be successful only when detailed knowledge about the frequency, nature and magnitude of mass movement in an area is obtained. The zonation of landslide hazard forms the basis for any landslide mitigation project in an area. As the factors that can play a role in triggering of landslide are many, the analysis on landslide hazard becomes a complex task. The analysis requires a large number of input parameters and the analytical technical may be costly and time consuming.

Basis of Landslide Hazard Zoning :

The first step in a programme for landslide hazard mitigation is the identification of zones prone to mass movements. A hazards zonation procedure involves a comprehensive investigation embracing structural and lithological settings, geomorphic features that are related to slope instability, seismicity of the region and apparent signs of instability already present. The data needed for landslide hazard zone mapping thus include geographical map, slope and aspect map, land-use/land cover map, rock weathering, ground water data, drainage map, seismic data and climatic.

On the basis of integration of these data hazard zone maps are prepared depicting either different degree of slope stability such as unstable, moderately stable and stable or high hazard, moderate hazard and low hazard zones.

Landslide in Mizoram :

Most parts of Mizoram, along with the eastern part of Tripura and western parts of Manipur are characterized by a very immature first order topography comprising steep slopes in poorly compacted siltstone,

shale and sandstone. The region is subjected to frequent earthquakes with their epicenters along Indo-Burma border. With the high rainfall and occasional cloud bursts slope failures culminating in disastrous landslide are recurrent features.

Though the landslides have been occurring in different parts of Mizoram in the past it was only during the last ten decades that the attention of the central and state governments was drawn to this hazard, mainly because of the huge loss of life and property and disruption of communication they have caused. Landslides that have occurred along the main major settlements have therefore, attracted more attention were studied in greater detail than those occurring in remote areas.

Brief description of major Landslide in Kolasib District :

i) Chatuan Leimin : A small scale mass movement was observed at 2.2 Km from Kolasib along the Kolasib -Bairabi road in 1993. A retaining wall was constructed as a preventive measure. But during the heavy monsoon on 1993, a major slide occurred at the location resulting in huge mass coming down the slope affecting a stretch of 150m length of road and tension crack developing in uphill slope. The main cause of this slide has been identified as the saturation of the over burden by rain water penetrating through tension cracks.

ii) Mualkhang Slide : This is a major slide located a few kilometers north of Sairang on the Aizawl-Kolasib bye-pass. This slide has affected a large are damaging the road for about 100m. The lithology include siltstone and shale which are deeply weathered and jointed. Huge blocks of the rocks were broken along vertical joints and slumped down the slope into the valley. The actual of this massive slide could not be ascertained.

iii) Other Slides and Slope Failures : In addition to the above there are a number of minor slides and slopes failures especially along the roads. In many places along the roads stone quarrying and widening of the roads have resulted in rock debris fall on sideslopes causing damage to the vegetation and also erosion and landslips.

Causes of Landslide in Kolasib 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 state have been caused by the combined effect of two or more factors:-

- Steep Slopes with loose overburden consisting of clayey and silty materials.
- Heavy rain and occasional could burst, resulting in percolation of water into the loose overburden and along tension cracks.
- Soil erosion and headward 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 Kolasib 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 Eg: Bualpui Quarry.

Recommendation for preventive and remedial measures of landslide in Kolasib 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 Kolasib District had occurred following heavy rains. The physico-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 channelising 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 headward 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.

4.3 CYCLONES

Cyclones are intense low-pressure system that develop in the oceanic area surrounding Indian Sub-Continent. These systems are classified as i) Depression (36 to 54 Kms per hour), ii) deep depression 56 to 66 Kms per hour), iii) Cyclonic Storm (68 to 94 Kms per hour), Severe Cyclonic Storm (96 to 117 Kms per hour), v) Severe Cyclonic Storm with Hurricane winds (117 Kms per hour).

In India, 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 Kolasib District :

The impact of cyclone is annually in Kolasib 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 livestock, etc.

Since, Mizoram does not have any coastline, 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 Kolasib 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 Kolasib District is not able to sustain for long any kind of strong winds and torrential it results in landslide/rock slides which inturn 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 Kolasib 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 Deptt.)
 - ii. First-Aid Kits (with the help of H&FW Deptt.)
 - iii. Availability of water (with the help of PHE Deptt.)

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

Do's and Dont's before, during and after a cyclone (For individual/people) :

Do's (For Public) :

- i) Check your house, repairs doors and windows, wherever necessary.
- ii) Keep a hurricane lantern filled with kerosene, flashlight, matchboxes, candles and enough dry cells.
- iii) Make sure that your radio set is fully serviceable. Keep an extra set of batteries ready for transistor.

- iv) Keep your radio set on, and listen to the latest weather warnings and advise from the nearest AIR station. Pass the information to the other. (by word of mouth.
- v) Do not venture into the areas where streams or rivers flow high water due to heavy rains may surge.
- vi) Bolt up glass window and out shutters in place.
- vii) Get extra food stored, particularly that type which does not require cooking. Store extra drinking water.
- viii) When you are moving to a shelter, move your valuable articles to upper floors or tie it to the roof so that these would not be submerged.
- ix) Make provisions for children and old people requiring special diets.
- x) Be calm. Your ability to meet emergency will inspire and help others.
- xi) Stay in the shelter, as long as you are informed to do so.
- xii) While in the shelter, follow the instructions of personnel-in-charge.

Dont's (For Public) :

- (i) Do not keep loose objects like canes, tins and other implements. They may become weapons of destruction during strong winds.
- (ii) Do not spread rumours, not listen to them, only official version of the warnings may be listened to through radio.
- (iii) Do not stay in your house, when advised to vacate by authorities, especially when your house is located in a low-lying area. You may run the risk of being marooned.
- (iv) Do not venture out, if the weather suddenly clears during a storm as indicated by a lull in the wind and rain. Remember strong wind will return equally suddenly from the opposite direction with even greater velocity. This happens when the eye of the storm passes over your area.
- (v) Avoid any loose wires hanging from poles to avoid electrocution.
- (vi) Drink only safe water.

4.4 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 Kolasib 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 become 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, 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-act 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't's 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 drought 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.

4.5 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 extend 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.

Forest are broadly categorized under three main categories as per Champion & Seth (1968)-

- (i) Tropical Wet Evergreen Forests
- (ii) Tropical Semi-Evergreen Forests
- (iii) Montane Sub-Tropical Pine-Forests

Forest ecosystem of Mizoram is unique with variety of tropical flora and fauna of which few species are either extinct, rare, endangered or threatened. Although north-eastern region is globally identified as a mega-diversity zone and a hot-spot of precious gene-pool yet the ecosystem is fragile due to over exploitation of forest resources and incessant destruction of vegetation together with fauna under the age-old jhum practice. During the summer season, the forest floor, road side stretches and plantations are highly susceptible to fire damage due to inflammable dry leaves, dry grass, bamboo leaves and dry annual herbs. A slide kindling of burning material will take the shape of wild fire destroying the tree vegetation, bamboo and agricultural crops in no time. Apart from the loss of precious biological life, the burnt-up areas accelerates the process of soil erosion, dries up sub-soil water source beside destroying useful bacteria and micro-organisms. 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 ir-repairable 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 slopes bereft of vegetation only accelerates the spread of fire due to smooth surface without barriers of shrubs and trees.

Forest are 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 Kolasib 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 graziers 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 Kolasib 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 Maharastra.
- (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, poor natural regeneration, retarded growth of tree plantations change in climate, low water table, and sute deterioration. Thus raped 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 reveal 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 phenomena 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 a 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 Kolasib 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 firelines 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 graziers 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 devise 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 on set of dry period is inevitable. Annually firelines are to be traced at strategic and fire prone sites such as roadsites, 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, 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, Kolasib
Member Secretary	:	DFO, Kolasib
Members	:	S.P., Kolasib DLAO, Kolasib 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

4.6 MAUTAM

In Mizoram, there have been periodic cycles of famine viz. Mautam and Thingtam. Mautam in the 30th year after Thingtam and Thingtam in the 18th 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. The last known Thingtam happened in the year 1977. Going back to 18 years before this time, as per the cycle indicated above, the last Mautam happened in the year 1959. In the same way 30 years before 1959 was 1929, the year of Thingtam famine. Likewise, 18 years before 1929 was 1911, the year of Mautam which was the foremost and clearly known year of Mautam.

There was no educational institution in the then Lushai Hills now known as Mizoram and there is no record whatsoever about the Thingtam famine that struck the land except the brief account of 1881 by E.R. Elles which is produced as under-

1881 – The first recorded Thingtam famine in Mizo history

1911 – The first recorded Mautam famine in Mizo history

1929 – The second Thingtam famine

1959 – The second Mautam famine

1977 – The third Thingtam famine

2007 – The third Mautam famine

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 phenomena 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, State Government has adopted a comprehensive Bamboo Policy in the year 2002. Some of the action points listed in the Bamboo Policy are:-

- (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 galvanise 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 centres.

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/fruiting 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 a 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.

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 coordinate their services for smoother delivery of timely action and goods to the people at the time of their worst suffering .

5.1 ROLE OF DISTRICT MAGISTRATE/DEPUTY COMMISSIONER IN DISASTER MANAGEMENT

1. Preparation of the Disaster Management Action Plan for the District with the assistance of the Disaster Management Committee and other experts.
2. To implement the disaster management action plan.
3. Setting up the district Control Room and making it function effectively.
4. Ear marking and entrusting responsibility to the various departments.
5. Coordination with all the line departments of the State, Central and other agencies.
6. To liaise with the Government periodically about the disaster and the action taken.

7. Make the district machinery to equipped and to be prepared before the disaster.
8. Setting up relief camps and transit camps.
9. Conducting relief and rescue operations.
10. Corresponding with the Defence Ministry Personnel.
11. To interact with the donor agencies for relief and rehabilitation.
12. Collector is the central authority exercising emergency powers to issue directives to all the departments and to provide emergency response service.
13. Organising Training and mock drills.
14. Providing information at district level, local level and disaster prone areas through appropriate media.
15. Brief the media of the situations and day to day reports during the disaster.
16. To report the ground situations and the action taken by the District Administration.
17. The District Control Room would be placed under senior officers, who have already been trained adequately to handle disaster.
18. Control Room can have many service divisions with assigned duties, for example-infrastructure, health, drinking water, logistics, agriculture, communication, resources, etc. According to the need, it could be expanded.
19. The District Control Room should have all the facilities for effective communication and also to anticipate in case of system failure has alternative, ordinary and mobile phones-e-mail facility etc.
20. List of all personnel and trained persons who could be contacted at any time.
21. Organise post disaster evaluation.
22. Liaise with Site Operation Center. Site Operation Center is the center in the disaster site to be set up and an officer earmarked to be in charge. The Officer incharge will conduct the relief, transit camp, feeding center, cattle camp, salvage operations, disposal of the dead bodies and carcasses of animals, constructions of temporary sheds, with adequate facilities, medical relief, clearance of debris and repair of damaged infrastructures, etc.

23. Collect information and activate the district level department for handling assistance on need basis.
24. Maintaining the supply of essential commodities..
25. Preparing memoranda for getting resources for relief.
26. Giving adequate and right information to the people.

To make arrangement for-

- i) cordoning off the area affected by the earthquake
- ii) evacuation of people from the effected area
- iii) recovery of the dead bodies and animal carcasses and their disposal
- iv) the medical care for the injured
- v) supply of food and water and restorations of water supplies
- vi) the constructions of temporary shelters, such as tents, metal sheets
- vii) restorations of lines of telecommunication and information flow
- viii) restoration of transport communications
- ix) cordoning off severely damaged structures liable to collapse during and after shocks
- x) temporary shoring of certain precariously standing buildings to avoid collapse and damage to other adjoining buildings
- xi) 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-

- i) 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)
- ii) search and rescue operations, activation of public shelters, etc. have commenced
- iii) the process of gathering information about the extent of damage caused by the earthquake
- iv) arrangement has been made for periodic press release
- v) Liaison with particularly army/paramilitary forces (to minimize possibility of looting, ground control) done

- vi) Opening of relief centres and supply of food and other basic requirements
- vii) Round the clock site control room has been set up, with officers in rotation
- viii) Restriction of entry into affected area by public(issue pass)
- ix) Restoration of minimum communication network
- x) Quick relief operations
- xi) Operationalization of shelters-established public shelters and new emergency shelters
- xii) Distribution of relief supplies
- xiii) Health surveys-preferably by Village Officials
- xiv) Provision of medical services particularly for the injured
- xv) Establishment of hygienic and sanitation conditions in the relief villages(use bleaching powder)
- xvi) Restorations of basic transport facilities (movement of at least two wheelers)
- xvii) Setting up of District level relief and rehabilitation cell with government and non-government representatives
- xviii) Exercise for rapid damage assessment
- xix) Announcement of relief and rehabilitation policy/package
- xx) Full restoration of transport and communications network
- xxi) Restoration of structural integrity of built environment, particularly roads, slopes, etc.

5.2 ROLE OF VILLAGE COUNCIL, YMA, MHIP, ETC IN DISASTER MANAGEMENT:

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

- i) Maintaining of security and creating help-Centre at suitable place in the locality
- ii) Maintenance of law and order during evacuations
- iii) Helping in emergency evacuations
- iv) Containing panic behaviour, maintaining orderly movements towards community shelter and taking preventive steps to avoid injuries and accidents

- v) Encouraging self help
- vi) Organising recreational activities
- vii) Contributing labour (loading and unloading) of distribution temporary construction, materials, salvage and restoration of water supplies, feeding centres, relief camps
- viii) Ensuring standards in sanitation and disposal of waste
- ix) Counselling injured, panic stricken people

5.3 DIFFERENT NGOS & RELIGIOUS INSTITUTIONS. PRE DISASTER PERIOD:

EARLY WARNING DISSEMINATION

PREPAREDNESS	REMARKS
<input checked="" type="checkbox"/> IEC Campaign. <input checked="" type="checkbox"/> Preparation of Community Contingency Plan. <input checked="" type="checkbox"/> Formation of Village Disaster preparedness Community with Assigning their particular responsibilities. <input checked="" type="checkbox"/> Generation of Community Contingency Fund. <input checked="" type="checkbox"/> Mock Drill in different	Shall keep direct link with Sub-Division and Block administration.

levels. <input checked="" type="checkbox"/> Training to the NGO/Village Volunteers on Rescue & First Aid/Ham/VHF etc.	
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DURING DISASTER PERIOD

PREPAREDNESS	REMARKS
<input checked="" type="checkbox"/> To advice people to leave for identified safer places with their belongings & domestic animals. <input checked="" type="checkbox"/> Evacuation of people with help of rescue kits locally available. <input checked="" type="checkbox"/> Assist Rescue Operation.	Shall keep direct link with Sub-Division, Block Administration /leading NGOs.

POST DISASTER PERIOD

PREPAREDNESS	REMARKS
<input checked="" type="checkbox"/> To administer/assist in Relief Administration.	Shall keep direct link with Sub-Division administration/District

<input checked="" type="checkbox"/> Arrangement of free kitchen. <input checked="" type="checkbox"/> Supply of safe drinking water. <input checked="" type="checkbox"/> Disposal of debris, Educate on Health Care. <input checked="" type="checkbox"/> Co-operate road-cleaning ,to assist local relief work. <input checked="" type="checkbox"/> Rehabilitation activities in bringing normalcy.	Administration.
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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.

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.

5.4 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	Block/Concern village

	places constructed by default agencies.	committee BDOs
	Ensure maintainance and proper functioning of electronic communication system.	BSNL/Police department BDOs
	Immediate response for repair/replacement of pipe water supply system.	PHED/RMDD, BDOs and CBOs
	Proper maintainance of VHF system installed by police department.	Head of office of the concerned location
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 pilling 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 resistance crops. Drought resistance short duration paddy seeds are made available to	Director Agriculture, Director Horticulturist, BDOs,

	farmers. Ensuring crop insurance.	
	Rising of Nursery in the horticulture farms & insurance coverage of horticultural products.	Director, BDOs, NGOs
INSURANCE	By way of IEC activities through walling posters, street play, village task force/svolunteers training, during normal period.	CMO/DVO/NGOs/DM&R
	Emphasizing on insurance coverage of live stock, crops, industry, workshop, etc.	Director Agriculture, BDOs, NGOs
	Creating awareness among general public. During normal time to insured human life.	Leading NGOs, BDOs

CHAPTER VI

ACTION PLAN FOR EMERGENCY SUPPORT FUNCTIONS

6.1 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 DDMC 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 DDMC.

6.2 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 Organisations are part of the ESF. The actions Plans for ESFs for disaster management are discussed below. The DDMC shall ensure these action plans are updated by annually and practice dough mock drills in the district.

6.3 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

6.4 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.

6.5 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. In case of fire, the Civil Defence team members should do fire fighting.
6. First Aid should be provided along with the members of ESF on medical response
7. Demonstrate Search and Rescue.

Equipments to be brought:

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

6.6 ACTION PLAN FOR POWER AND ELECTRIC DEPTT.

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.

6.7 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.

6.8 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 metalling, pathole 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 arrangement 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 , Aeromatic 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.

6.9 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 personal 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 metalling, pathole 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 eg. 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, Forklifts, Dumper, Aeromatic Hammer for debris/road clearance, supporting rescue operations.
- Vehicles(Truck), Earth Movers, Mobile medical vans.
- Other disaster management related equipments.

6.10 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 centres 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.

6.11 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

6.12 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 are located in the EOC, they would function for the overall district response.

CHAPTER VII

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 activate 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.

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, Police/Private Telecom

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 overall 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

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, Kolasib

Supporting Agencies: Police, NCC, Army

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 receive 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.

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: Police, Fire Service

Support agency: NCC, Army and health Reps, 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

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, Army

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

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: State Health Department

Support Agency: NSS, MHIP, MUP

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 arrangement 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 equipments.

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. 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, 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.

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 (NOs) 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 innovative 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 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

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.

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., Kolasib

Support Agency: NIC/NGO Reps

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.

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

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 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 counter parts.
- 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.

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: Department of Transport

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 VIII

STANDARD OPERATING PROSEDURES FOR ROAD ACCIDENT IN KOLASIB DISTRICT:

In Mizoram, Road Communication is all the more important because of the absence of other means of transport and we can also say that road transport is the sole life-line of Mizoram. In the meantime, roads in Mizoram seems to be one of the most risk prone through narrow and deep gorges along the rugged hills of uneven height. Despite all these drawbacks, vehicle population in the state has, however, dramatically increased during the last decade. According to Statistical Handbook of Mizoram, 2000 there are more than 70373 vehicles of all types on the roads in Mizoram(it is obvious that number of vehicles is higher at present). If these vehicles were evenly spread on the 3947.34 Km long stretches of road maintained by state PWD which in an emergency would be a miracle, each would have only 0.09 Km of space. As such, occurrence of road accident in a hilly state like Mizoram is unavoidable. These fatal accidents are mainly because of the following generic reasons:-

- (i) Poor road condition.
- (ii) Drivers failures/carelessness in driving
- (iii) Poor vehicle maintenance
- (iv) Lack of safety belts and helmets
- (v) Poor emergency services
- (vi) Absence of adequate pedestrians amenities

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

(i) Civil Administration: The District Magistrate/Chairman, District Disaster Management Committee will be over-all incharge of the activities for management of this kind of accidents, as soon as they receive occurrence of such accidents, the District Magistrate or the concerned Sub-Divisional Officer or other magistrates will reach the place of accident 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.

(ii) Police Department: Under the operational control of District Magistrate/Chairman, Disaster Management Committee and supervision of Superintendent of Police in the District, Police Department will follow the undermentioned 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.

(iii) 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.

(iv) 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.

(v) 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.

(vi) NGOs/Voluntary Organisations: 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.

Standard Operating Procedure for Police:

(i) Operational Task and Control : Police is the leading agency, which works under operational control of the district Superintendent of Police. Being a key response organization in the District, it is vital that this organization remains in a state of preparedness to ensure its general readiness to respond to disaster situation. In view of hazard scenario in the district, the Police Department will be responsible for the following functions:-

- a.** Search and Rescue and evacuation of persons on occurrence³ of a department of a disaster;
- b.** First-aid to the injured people in the absence of medical relief team;
- c.** Security of the property and law and order maintenance in effected area;
- d.** Traffic management leading to affected area;
- e.** To ensure enforcement of Essential Commodity Act;
- f.** Investigation of offences;

(ii) Operation Co-ordination: The Superintendent of Police, Kolasib 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.

(iii) Direction and Co-ordination:

- a. On receiving the alert message for readiness from the district control room, SP, Kolasib 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., Kolasib will take a briefing session and submit a briefing report to the District Magistrate.

**Standard Operating Procedure for Health & Family Welfare
Department:**

Major disaster like earthquakes result 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 department is 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 years.

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 trained 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) of Kolasib 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 check 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 packet in protective covering and stored rooms considered being the most damage-proof.
- (iv) All fracture equipments should be redied, if surgery is to be performed following the disaster, arrange for emergency supplies of anaesthetics 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 diarrhoe, water-borne diseases and flu (including oral dehydrating supplies).
 - c. Drugs required to treat burns and fight infections.
 - d. Drugs needed for detoxication including breathing equipments.

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

It should also tried 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 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 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 occurence of an earthquakes 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 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 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.

CMO will receive the message from DCR and immediately put his doctors and the paramedical staff on alert. All the staff will seek instruction from D.C. through CMO. The CMO will call doctors using names and address list of doctors in his office. A 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 (For Earthquake):

CMO 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 (treage):-

- (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 pedriatic intravenour use
- (ii) Stensiometers for children and adults
- (iii) Assorted ferrules
- (iv) Racheal 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) Thoracotomy 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 immobilising fractures
- (vii) Drugs for emergency use
- (viii) Minimal equipments for resuscitation manewvers

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 CCO will end 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.

Standard Operation Procedure for 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 centres.

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 DSCDM 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 centres on the direction of the District Magistrate for the affected people.
- (3) Debris clearance to support search and rescue operation.
- Identification of unsafe buildings.
- (4) 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.

**Standard Operation Procedure for 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 effected 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 confirm 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 centres 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 DDMC 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.

Standard Operating Procedure for 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 centres.

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 DSCDM 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 centres 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 DDMC 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 attend 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 shelterless 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 the evacuees with 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. Organise 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. Organise themselves into pairs (buddy system).
6. Prepare back up teams ready for rotation of personnel.

On receipt of warning

1. Organise 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 Counselling 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 a moving vehicles, will 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. Organise a meeting to evacuate the experience, internalize learning.
10. Make a physical inventory of stocks when external assistance arrive.
11. Keep the undistributed relief material in a safe place/godown and preserve it.

7 Water and Sanitation Group:

Pre-Disaster Preparedness Activities

2. Ensure sufficient supplies of chlorine tablets etc. for disinfecting drinking water.
3. Ensure sufficient stocks of lime powder for disinfecting large water bodies.
4. Ensure that sufficient water is stored in proper tanks and jerry cans in safe shelters.
5. Ensure that there is list of contact persons at Dist.com and PHE for assistance.
6. Raise prior awareness amongst the community about how to treat water sources.
7. Set a minimum standard in advance for distribution of water in emergency.
8. Ensure sufficient number of raised platforms, deep tube wells etc. constructed.
9. Stock long steel rods, kerosene and fuel wood to dispose corpus and carcasses.

10. Help of the local administration to construct temporary sanitary facilities.
11. Identify the tractors and labours requires for sanitation purposes.
12. Contact PHE for assistance in acquiring diesel engines and generators.

On receipt of warning

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

CHAPTER X

PREPAREDNESS AND RESPONSE

PREPAREDNESS AND RESPONSE		
Emergency Operations Centre (EOC)	i) Setting up of emergency Operation Centres at the State, District Block and Village levels. ii) Multi-hazard resistant construction. iii) Communication linkages Mobile EOC for onsite disaster. iv) Management information.	DM&R /DC/BDO/VC

Crisis Management Group	i) State Crisis Management Group ii) District Crisis Management Group. iii) Block Crisis Management Group. iv) Village Crisis Management Group. v) Training of Crisis Management Groups.	DM&R/Home/Health/RD/BRTF DM&R/DC/Police/Health/PWD/Power DM&R/DC/BDO/Police/Group YMA BDO/VC/YMA ATI
Resource Inventory	Collection of Data on resources and maintenance of rescue inventory and updated at the District, Block and Village level.	DC/BDO/VC
State SAR Team	i) Identification and formation of Search & Rescue teams at the State level and arrangement of their specialized training. ii) Procurement of equipments. iii) Training of trainers. iv) Training of Teams	DM&R/Police/MRHG Police/MRHG/DM&R/Police Police/MRHG/DM&R/ATI
Disaster Management Teams at the State/District/Block and Village Level	State: One team to be formed as Master Trainers District: One to five(5) members team at each District as trainers. Block: One to five(5) Members team as trainers Village: 8-10 members for each teams as given below	DM&R/ATI DC/DDMC BDO/BDMC SVC/VDMC
Incident Command System	i) Designated nodal training centre ii) Putting in place protocol/SOPS for ICS	All/Police
Emergency Support Function Plan	Departments! Agencies which perform emergency support functions to draw up	Medical/PHE/P&E/PWD/DM&R

	ESF plans, constitute	
India Disaster Resource Network	i) All District to collect datas from all line. Departments and upload item to the MHA website. ii) Half yearly updating.	DC
Communication Linkage	i) Draw up communication plan ii) Obtain sanctions iii) Put communication network in place.	DM&R/Police(W)/PH E PWD/P&E/DM&R DM&R/Police(W)/PH E
Inclusion of Disaster Response in the State police/MRHG Training curriculum	i) Draw up capsules ii) Train trainers	PTC/CTI
Contingency Plans for Government Offices, Public Buildings, Educational Institutions, Corporation Establishments	i) All Government Institutionals and Offices will draw up their response plans. ii) Training of Superintendant level level for preparation of contingency plan or Government Offices. iii) Training of Teachers for preparations of Institute/Contingency.	ATI/GAD/Edu. ATI/Education
Disaster Management Plans	State Level i) Plan include mitigation, preparedness and response ii) Plan to be multidisciplinary iii) Line Departments to be consulted iv) Plan to be approved by the State Steering Committee.	DM&R/SSC/DC/DD MC DC All Line Departments

	District Level	
	i) Plan to be drawn under the supervision of the DC. ii) To include mitigation, preparedness and response. iii) Line Department to be consulted. iv) Plan to be approved by the District DM Committee. v) District Inventory of resources to be included. vi) Fixing up remuneration for DDM Plan.	DDMC/DC DC All Line Departments DC/DDMC All Line Departments DM&R
	Block Level	
	i) Plan to be drawn under the supervision of the BDO. ii) To include mitigation, preparedness and response. iii) Line Department to be consulted. iv) Plan to be approved by the Block DM Committee.	BDO/BDMC All Line Departments All Line Departments BDMC DM&R
	Village Level	BDO/VDMC/VC/YM A
	i) Plan to be drawn up by ⁷ the Village DM Committee.	
	ii) Possible facilitator to draw up the Village Plan. iii) Training of Facilitator	DM&R/All ATI & DM&R DM&R

	iv) Fixing up remunerations for facilitators.	
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EARLY WARNING SYSTEMS		
State of the art sensors to be set up Warning Protocols	i) Installation of Scientific equipments for early detection of hazard approach. ii) Communication linkages for early warning iii) Districts to set up protocols for communication of early warning to the community.	MZU/Geo & Mining wing/Sc & Tech MPRO/PWD/PHE/P&E

HUMAN RESOURCE AND DEVELOPMENT & CAPACITY BUILDING		
Strengthening of ATI Mizoram Youth Organisation	i) Provision of technical faculties in the discipline of Geology and Civil. ii) NCC, NSS, Scouts & Guides, Youth Adventures to include disaster response, search and rescue in their training programmes.	
Masons	Training of Mason for safe constructions.	ATI/SIRD
School Curriculum	Include DM Awareness	MBSE
Awareness Generation	i) Design and develop a communication strategy for awareness campaign.	I&PR/DM&R

	ii) Use audio, visual and print medium to implement the awareness campaign. iii) Development of resource materials on mitigation, preparedness and response.	
NGOs	i) Strengthening the NGOs capacity by equipment imports at the State level. ii) Coopted into the Planning process response mechanisms all levels. iii) Built their capacity and utilize their services as facilitators at the community level.	
Corporate Sectors Contingency Plan	Sensitization and development of SOPs for them	ATI/Corporate Bodies.

ANNEXURE I

Do's and Don'ts

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

Do's	Don'ts
Listen to the Radio/ TV / Public	Do not go outside or into a beach

Addressing System for advance information and advice.	during a lull in the storm.
Allow considerable margin for safety.	Be away of fallen power lines, damage bridges And structures.
A cyclone may change direction, speed or intensity within a few hours, so stay tuned to the radio / TV for updated information.	Do Not go for side sight seeing
Tape up large windows to prevent from shattering.	
Move to the nearest shelter or vacate the area if this is ordered by the appropriate government agency.	
Stay indoors and take shelter in the strongest part of the house / society.	
Open windows on the sheltered side of the house if the roof begins to lift.	
Find shelter if you are caught out in the open.	
If you have to evacuate, do not return until advice.	

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

Do's	Don'ts
Listen to the Radio/ Tv/ Public Addressing System for advance information and advice.	Avoid standing under direct sun.

Finish the work at the morning or leave it to the evening.	Avoid Long Drives.
Drink Sufficient Water & take Food	
Keep your head away from the direct heat. Use Clothes, Cap, Umbrella or Glasses	
Keep Stock water with you	
Wear light dresses.	

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

Do's	Don'ts
Save Water & Stock Water	Stop disutility of Water
Arrenge for alternate cropping's	
Contact Nearest Agriculture Office	

Operational Guidelines of What to do in the event of a Tornado

Do's	Don'ts
Listen to the Radio/ Tv/ Public	Do not run and do not wander round

Addressing System for advance information and advice.	the streets.
Turn off Electricity	
Keep away from Old, Tall or ditched buildings, electricity wires, slopes and walls, which are liable to collapsed.	Keep away from buildings, walls, slopes, electricity wires and cables & stay in the vehicle.

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

Do's	Don'ts
Listen to the Radio/ TV/ Public Addressing System for advance information and advice.	Do not run and do not wander round the streets.
Teach all members of your family how to turn off the electricity, water and gas supply.	Keep away from buildings, walls, slopes, electricity wires and cables & stay in the vehicle.
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.	Do not rush to the doors or exits, never use the lifts keep well away from windows, mirrors, chimneys and furniture.
Keep away from Old, Tall or ditched buildings, electricity wires, slopes and walls, which are liable to collapsed.	Do not rush to the doors or exists, never use the lift.
Stop the vehicle away from building, walls, slopes, electricity	Avoid places where there is use electric wires and do not touch any metal object

wires and cables.	in contact with them.
Live your badly damaged house.	Do not re-enter badly damaged buildings and do not go near damage structures.
Collect water containers, food items and ordinary and facial medicines.	

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 near 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, 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 kilometres 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.

ANNEXURE II

Role & Responsibilities of the Collector, ADM, Superintendent of Police, Block Development Officer

Roles and Responsibilities of District Collector

- The District Collector will co-ordinate all disaster management efforts of the district as the Chairman of Disaster Management/Natural Calamity Committee.
- The District Collector will coordinate the district level response with the concerned departmental officers assisting him and a core group of officers constituting the District Disaster Management/Natural Calamity Committee. The Disaster Management/Natural Calamity Committee will consist of the Superintendent of Police, CMO, Superintending/Executive Engineer, PWD, Superintending/Executive Engineer, Irrigation and the Executive officer.
- The District Collector may co-opt any other officers or specialists to assist him/her in carrying out the activities of the Disaster Management/Natural Calamity Committee.

Responsibilities of the District Collector

The District Collector shall be responsible for

- Preparation of the District Disaster Management Plan with the assistance of A.D.M (In-charge of Emergency) and the Emergency Officer.
- Setting up the District Control Room;

- Encouraging the formation of Mutual Aid and Response Groups (MARGs) consisting of Sub-divisional Officer (Sub-Collector), Zone/Addl Zone Officer (B.D.Os), Home Guards and other Voluntary Agencies;
- Under the District Disaster Management Committee or the Natural Calamity Committee at the district level and other agencies would be responsible for directing field agencies right from the stage of warning to relief and rehabilitation.
- At the disaster site, specific tasks will be given to the designated officers to manage the disaster.
- The District Collector will be an integral part of the DCR.
- The Site Operations Centre (SOC), which will be supervised by the concerned Sub-Collector who will assist the District Collector.
- A Site Operation Manager (BDO) who would be deployed by the Collector will be the head of Site Operation Centre.
- The Site Manager will coordinate the activities at various campsites and affected areas.
- The Site Operations Centre will report to the District Control Room directly and from there the information will pass to the Collector.
- The District Collector will coordinate all the field responses. Field Responses include setting up Transit Camps, Relief Camps and Cattle Camps and will respond to the State Relief Commissioner.

Responsibilities of ADM:

Addl. District Magistrate, will act as the overall in-charge of emergency preparedness and operation. He will coordinate in the following activities:

- Liaison with all the concerned deptt. /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.

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, Deptts, Organisations and individuals.

The responsibilities of the Emergency Officer is 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 lever 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 DCR.
- 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.
- Organise post-disaster evaluation and update Dist. Disaster Management Plan accordingly.

Roles and Responsibilities of Police/Arm Force:

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.

Standard Operating Procedures for 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.

Scope of Work Police/ Arm Force

- Road cut off, repairing and Building of approach road.
- Rescue operation / evacuation
- Escort/convoy the relief material
- Referring the dropping zone (Breach sites, Cut off and marooned areas) do the air dropping
- Relief and Rehabilitation operation

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 Collector-

- (a) Assist the Authority, the Commissioner and the Collector;
- (b) Ensure that the staff of the local authority is 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:-
 - (i) The manner in which the concept and principles of disaster management are to be applied in local area;
 - (ii) Role and responsibilities of the local authority in the terms of the disaster management plan of the State;
 - (iii) Capacity of the local authority to fulfill its role and responsibilities;
 - (iv) Particulars of disaster management strategies; and
 - (v) 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 State and stakeholders;
 - (i) Regularly review and update the plan.
 - (j) Conduct disaster management drills periodically; and
 - (k) Provide such assistance to the Authority, the Commissioner and the Collector 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 thereto.

- (1) Each department of the Government in a district shall prepare a disaster management plan for the district and the Collector shall ensure that such plans are integrated into the disaster management plan for the whole of the district.
- (2) The department of Government while preparing a plan -
 - (a) Anticipate the types of disaster that may occur in the district and their possible effects;
 - (b) Identify the communities and property at risk;
 - (c) Provide for appropriate prevention and mitigation strategies;

Block Development Officers:

- i. Rain Recording Stations are to be made in good working Condition. Replacement of parts, repairs if any, are to be completed by 1st June.
- ii. Daily Rain Fall reports from 1st June to be ensured by the Block Dev. Officers either through VHF or over Telephone to the Dist. Emergency Officer .
- iv. For the Blocks in the Sub Divisional / Dist. Hdqrs., only one Control Room either in the Office of the Sub Collector or the BDO will do.
- v. Vulnerable points in the villages / GPs be identified and repairs, etc. be ensured through the departments concerned with the funds available with them before the ensuing Monsoon.
- vi. All the water bodies (small & large) in the Villages be got verified and if necessary, the deepening, maintenance, etc. be ensured through the VCs before the Monsoon.

Food & Civil Supply Officer:

- i. 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.

- ii. Functioning of Storage Agents should be closely watched and the stocks in the stores should be verified through Officers very often to ensure transparency.

District Fire Officer:

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

DIPRO:

- i. 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.
- ii. He must keep close liaison with Dist. Emergency Officer / Addl. Dist. Magistrate and the Collector for the purpose.

ANNEXURE III

CHECK LIST

Check List for Control Room

<i>Activities</i>	Pre Disaster	During Disaster	Post Disaster
Assignment of Duty			
Maintain inventory of resources			

Identification of Weak and vulnerable points			
Proper setting up of the control room			
Provide information who need it			
<i>Service division and assign duties</i>			
<i>Receive information on a routine basis and record</i>			
Receive preparedness report from various relevant dept.			
Basing on the reports feedback to the state authority and others			
Vulnerable area map displayed			
Imp. Phone numbers			

CHECKLIST FOR VARIOUS DEPARTMENTS

District Magistrate & Collector

<i>Activities</i>	Pre Disaster	During Disaster	Post Disaster
Vulnerable and risk assessment map			
Cut off areas with safe route map			
Storing facilities			
List of dealers for food			
List of volunteers			
Control room set up			
Transportation for food supply			
Pre-positioning of staff			
Evacuation and rescue of people			
Coordination and linkage			
Damage assessment			
Alternative communication system			
Pulling resources from out side if required			
Having network with neighboring districts			

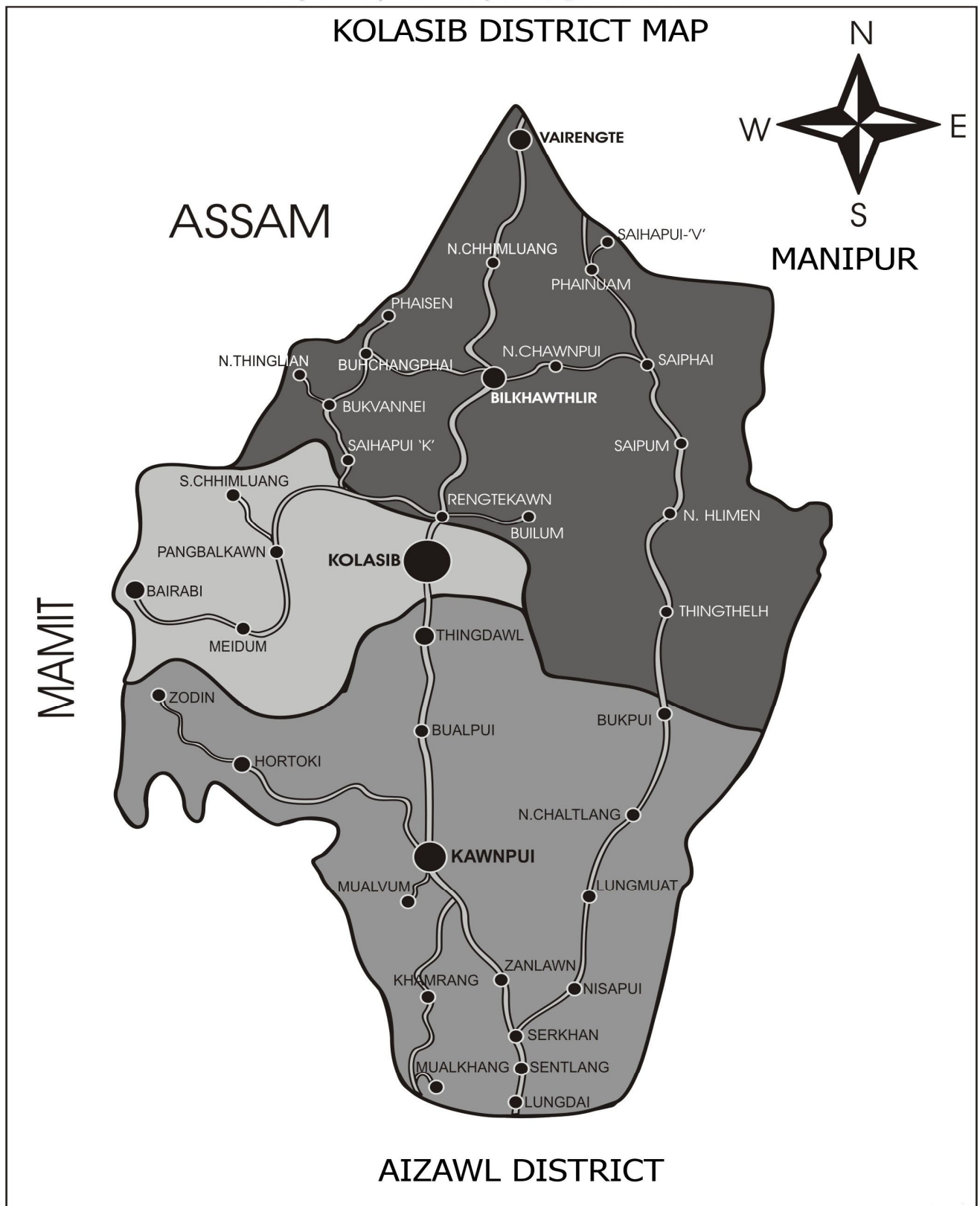
CDMO

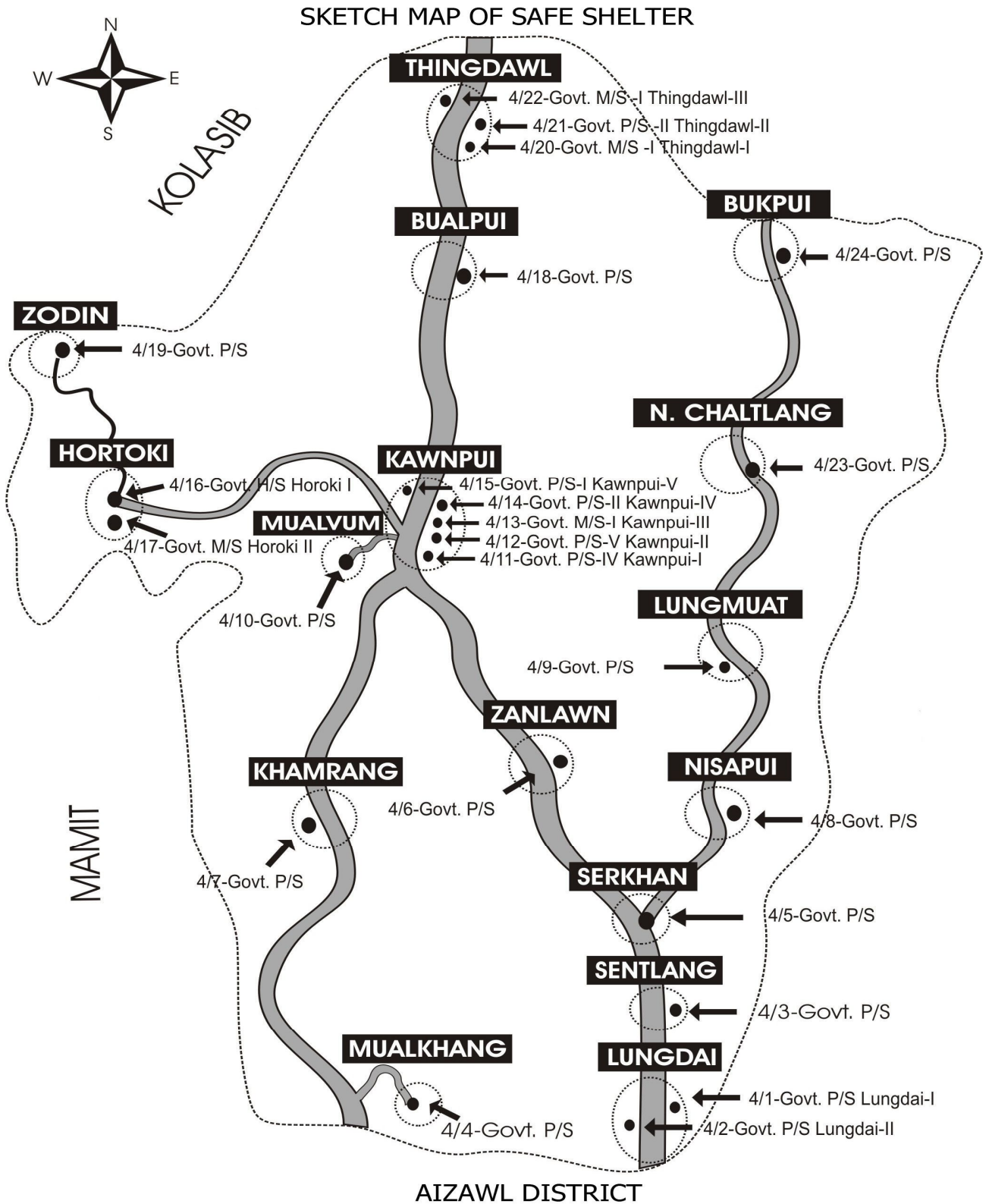
<i>Activities</i>	Pre Disaster	During Disaster	Post Disaster
Stock position of life saving drugs, ORS, IV fluids and other equipment			
Distribution of ORS, Halogen to field areas			
List of contact address of field staff			
List of volunteers			
List of PHC			
List of epidemic/risk prone areas			
List of site operation areas			
Mobile health unit			
List of Dist./ health control rooms			
List of private and local doctor			
Awareness through propagation of healthy practices			
Trained the District/Block/village taskforces on use of medicine and first aid			
Daily disease report collection and analysis			

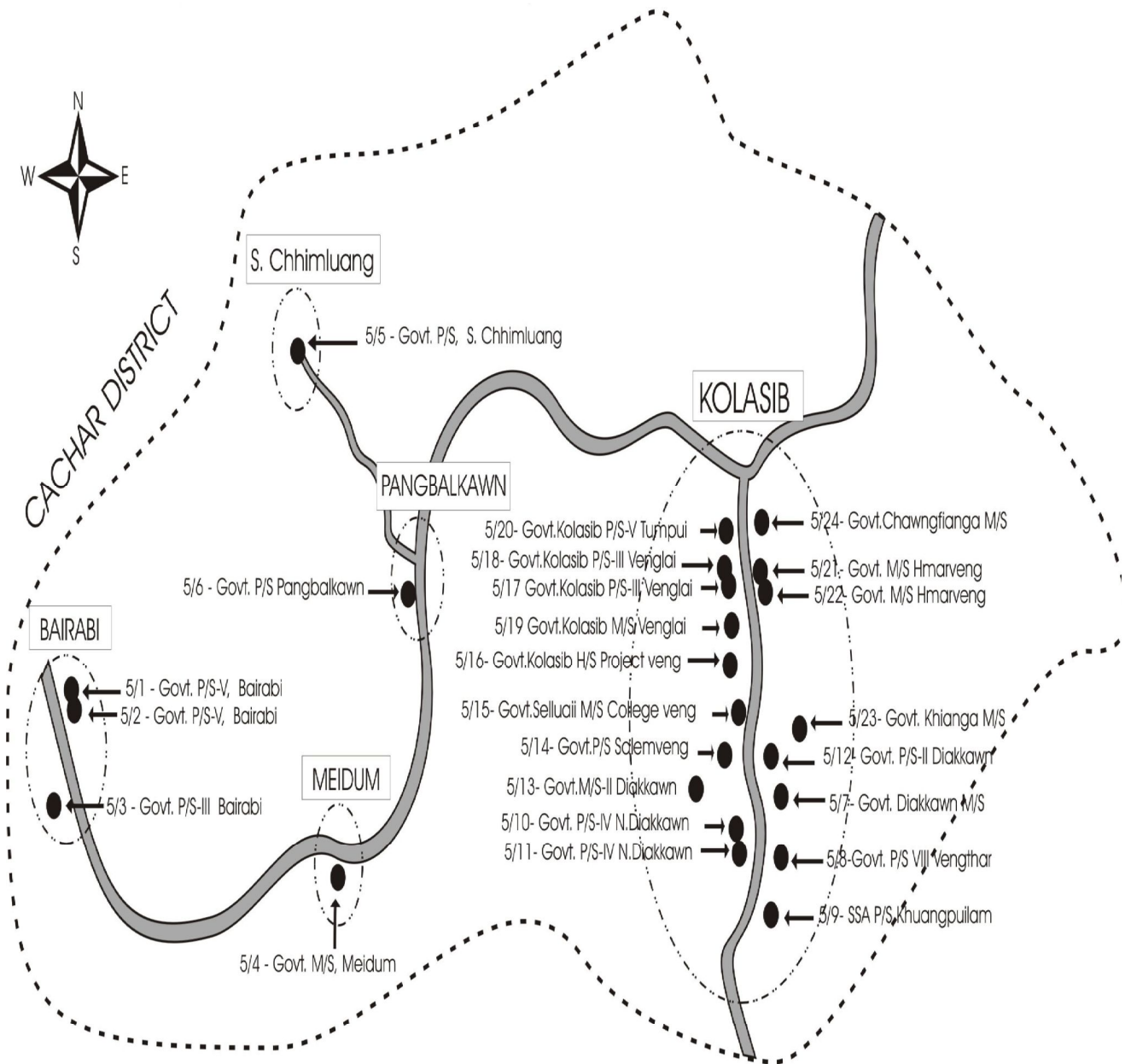
Preventive measures			
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Director, Agriculture

<i>Activities</i>	Pre Disaster	During Disaster	Post Disaster
List of different areas to be affected by different hazards			
Crop pattern with land holding			
List of irrigation points with status			
Alternative crop			
Assessment of damage			
Provision of seeds and others			
Helping in raising of community nursery for seedling/sapling			
Crop insurance			
Generate seed bank/grain bank at village level			
Coordinating with others			

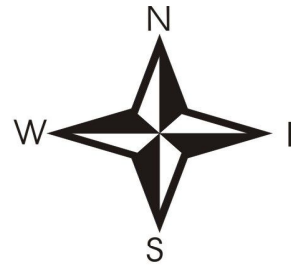




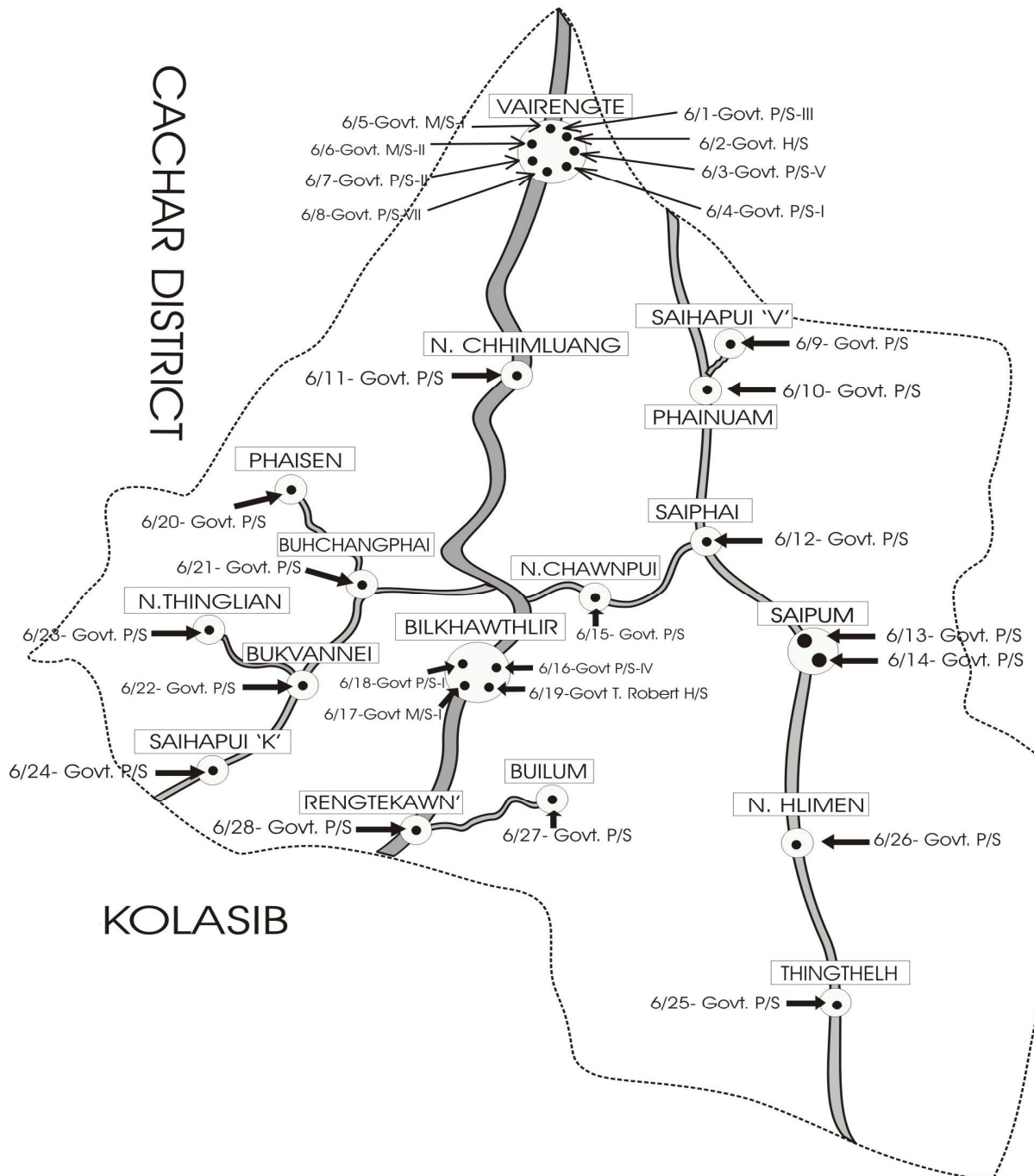


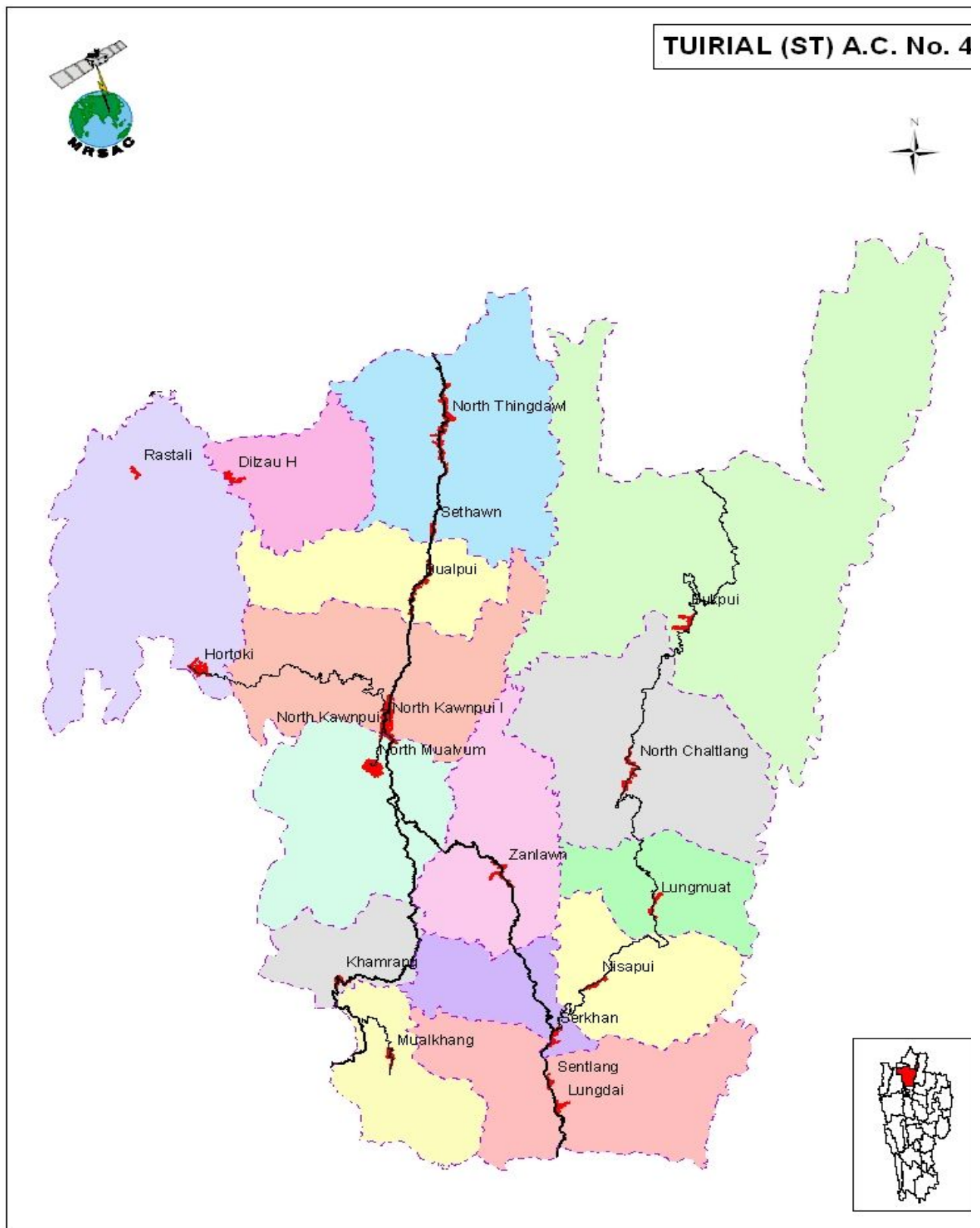
MAP SHOWING SAFE SHELTER

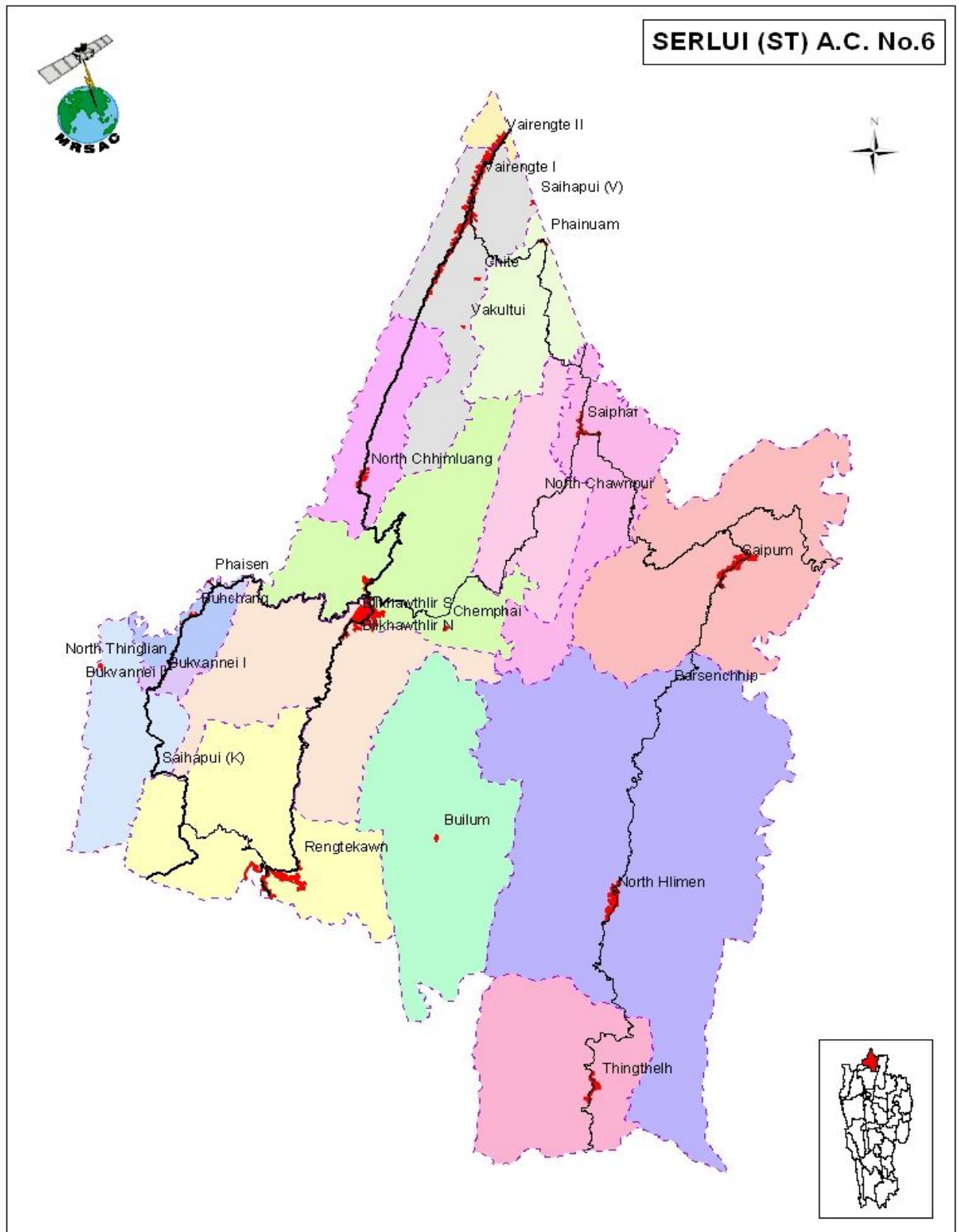
MAP SHOWING SAFE SHELTER



CACHAR DISTRICT

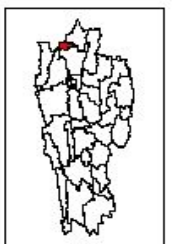
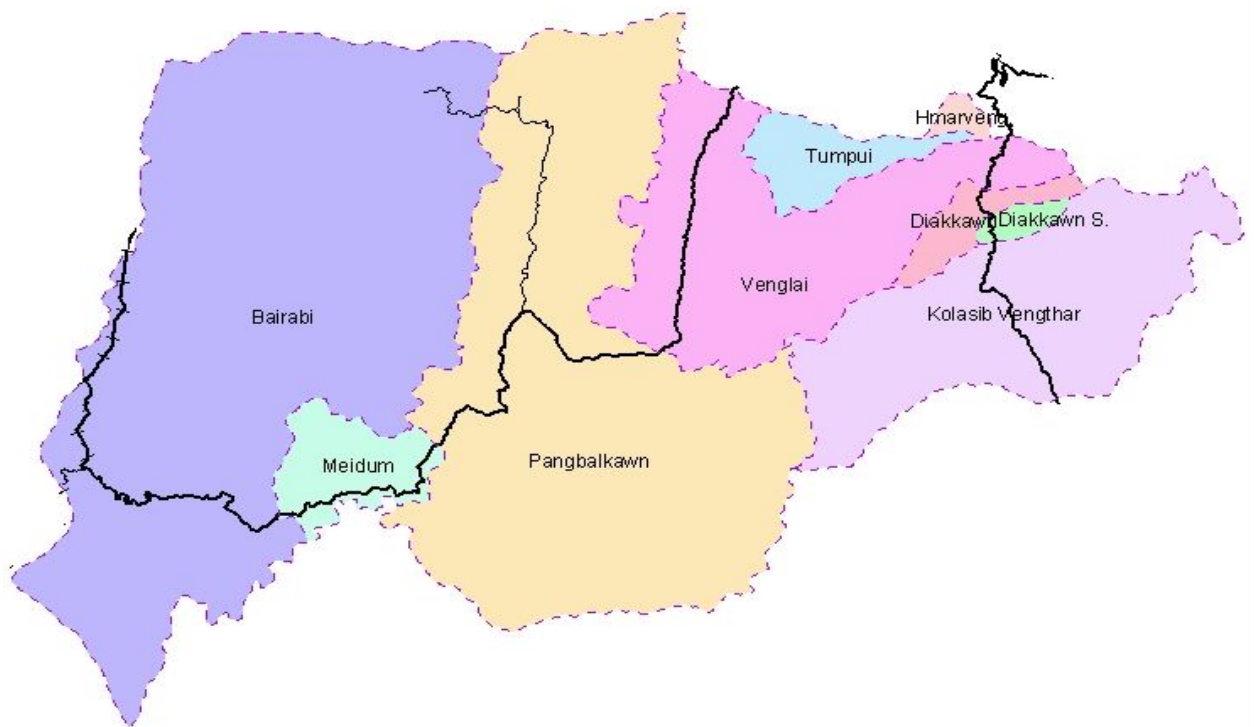


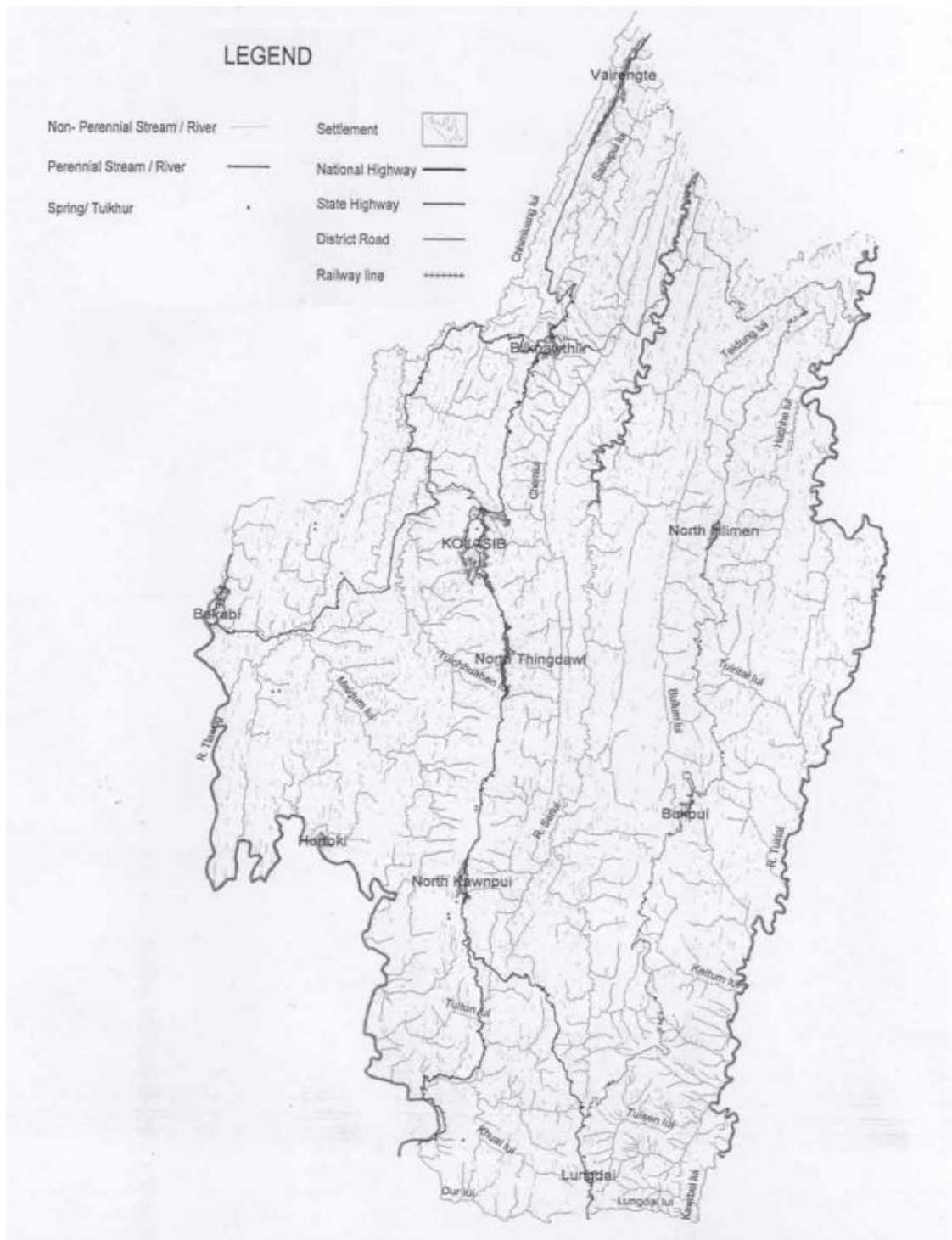




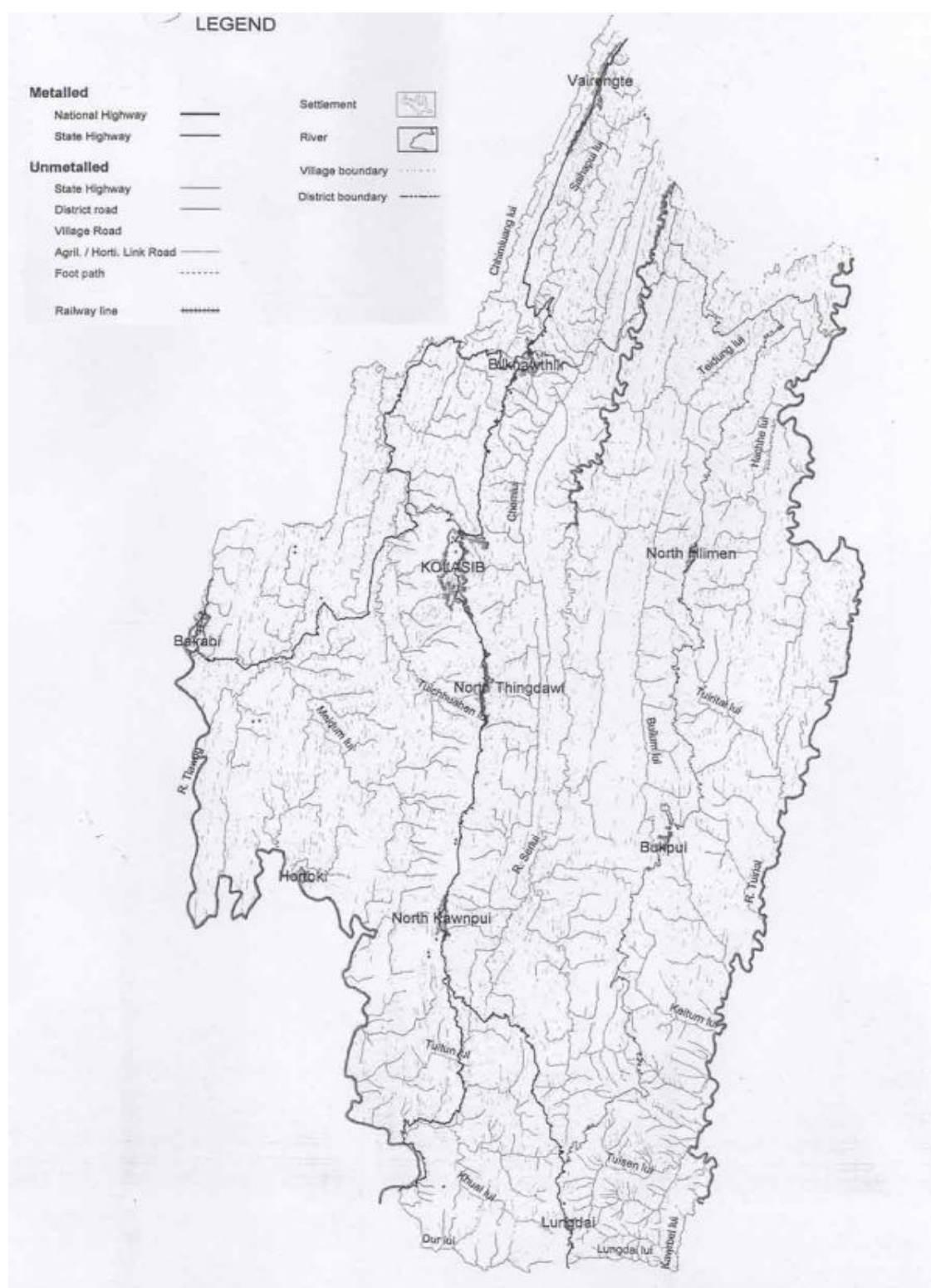


KOLASIB (ST) A.C. No. 5





Drainage Map of Kolasib District



Road Map of Kolasib District