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Chapter-I Introduction

1.1 Introduction to Disaster

Repeated disasters threaten sustainable development. In the past twenty years, earthquakes, floods, tropical storms, droughts and other calamities have killed more than 3 million people globally, inflicted injury, disease, homelessness and misery on one billion others and caused damages worth millions of rupees. Disasters destroy decades of human effort and investments, thereby placing new demands on society for reconstruction and rehabilitation.

Disasters are either natural, such as floods, droughts, cyclones and earthquakes, or man-made such as riots, conflicts and others like fire, epidemic, industrial accidents and environmental fallouts. Globally, however, natural disasters account for nearly 80% of all disaster affected people.

1.2 Disasters in Meghalaya

The State of Meghalaya is also prone to disasters like earthquake, floods, storms, etc. The State witnessed a major earthquake in 1897 and a number of subsequent earthquakes there after. Floods, fire, landslides and storm damages are recurrent phenomena. It is therefore clear that the state is in need of a Disaster Management Policy and Plan to guide all aspects of disaster management (including pre-disaster preparedness, post-disaster response, short and medium-term physical reconstruction, social rehabilitation and long-term disaster mitigation).

1.3 Towards promotion of a culture of preparedness

The natural hazards cannot be prevented. However, vulnerability to the hazards can be substantially reduced by preparedness and mitigation measures. In the present times, disaster preparedness and the promotion of disaster resilience have come to be recognised as essential components of all development strategies. By adopting this strategy, the government envisages to reduce economic and financial losses resulting from disasters, while ensuring that they do not reverse, retard or neutralise development efforts. The focus of disaster management has now shifted from "*Rescue, Relief and Restoration*" to "*Planning, Preparedness and Prevention*".

There are three major functional areas, which are necessary components of a comprehensive approach to disaster management: Prevention, Response and Recovery.

1.4 Objectives

The objectives of the Disaster Management Plan are to ensure that disaster management is organised to facilitate planning, preparedness, operational coordination and community participation.

Meghalaya's disaster management arrangements are designed to:

- deal with all types of hazards

Though the focus of attention has been on the earthquakes, the same disaster management arrangements and resources could be used for a wider range of hazards, such as floods, droughts, storms, fires and transport accidents.

- be integrated (involve all stakeholders)

The management of emergencies is a shared responsibility involving many people and organisations in the community. It is not something done by one sector *to* or *for* the rest of the society, although some organisations have specialised roles of this kind. The government departments have a substantial role to play in disaster management but Community Organisations, Local Bodies and Voluntary organisations such as Red Cross have important roles. Individual members of the community are also responsible for taking preventive, protective and restorative actions in their own and in the best interest of the community.

- be comprehensive (cover prevention, response and recovery)

Prevention, response and recovery are all important aspects of disaster management and each should be explicitly addressed in the arrangements.

Prevention: Elimination or reduction of the incidence or severity of disasters and mitigation of their effects.

Response: Combating of emergencies and create provision for immediate rescue and relief services;

Recovery: Assisting of people and communities affected by disasters to achieve a proper and effective level of functioning.

Within these areas, the key responsibilities of agencies include:

Planning: the analysis of requirements and the development of strategies for resource utilisation.

Preparedness: the establishment of structures, development of systems and testing and evaluation by organisations of their capacity to perform their allotted roles.

Co-ordination: the bringing together of organisations and resources to ensure effective disaster management.

1.5 Role of the State Government

The role of the State Government as envisaged in the Plan are:

- Building & Capacity Development of the Institutions involved; Training of department officials from the State Headquarters and districts, members from the community and other stakeholders through a participatory approach in disaster management
- Planning, Monitoring and Evaluation
- Knowledge Networking and transfer, spread and adoption of improved and appropriate technology for disaster prevention, response and recovery
- Review, modification and adoption of appropriate laws, rules, codes and other measures to improve disaster management at all levels
- Arranging resources from Central Government and sharing resources with neighbouring states and other states in need
- Incorporating disaster management aspects in normal developmental activities
- Financial Matters relating to disaster risk management
- Building of Inventories
- Initiating Community Awareness Programme ; generating awareness through media and other IEC strategies and workshops for students, teachers and other stakeholders.
- Effective early warning systems and its disseminations, GIS, Remote sensing, Control Room.
- Documentation

CHAPTER - II
OVER VIEW OF THE STATE

2.1 Meghalaya became a full-fledged State on the 21st January 1972. The state is situated on the North East of India bordering Bangladesh and it lies between 85° 49' - 92° 52' meridian of longitude and 25°1' - 26° 5' Parallels of latitude.

2.2 AREA AND ADMINISTRATIVE DIVISION INCLUDING POPULATION

The total geographical area of the state is 22429 sq. km, i.e. 0.68 % of total Indian land masses. At present there are seven districts, eight Civil Sub-Division and thirty-nine C&RD Blocks. Each district is under the administrative control of a Deputy Commissioner and for administrative convenience, the districts have been grouped into two Divisions each headed by a Divisional Commissioner. Each Civil sub-division is under the control of a Sub-divisional officer(Civil). The districts are further divided into 39 Development Blocks, which are under the administrative control of a BDO. Each Block consists of villages and the total number of villages in the state is 5780. There are 26 Police Stations in the state. Administrative Map at Annexure-I.

The details of the District , Civil Sub-Division and C&RD Blocks are given in the table below:-

Districts/ C&RD Block	Population 2001			Civil Sub-Division
	Persons	Males	Females	
<i>1.</i>	<i>2.</i>	<i>3.</i>	<i>4.</i>	<i>5.</i>
Jaintia Hills	299108	149891	149217	Jowai
1. Thadlaskein	104620	51565	53055	Khliehriat
2. Laskein	65726	32886	32840	Amlarem
3. Amlarem	35970	18158	17812	
4. Saipung	-	-	-	
East Khasi Hills	660923	333553	327370	Sohra
1. Mawphlang	55441	27448	27993	Shillong (Sadar)
2. Myllem	365221	185211	180010	

3. Mawryngkneng	50035	25152	24883	
4. Mawkynrew	34133	17076	17057	
5. Mawsynram	45262	22974	22288	
6. Shella-Bholaganj	54383	27652	26731	
7. Pynursla	56448	28040	28408	
8. Laitkroh-Khadarshnong	-	-	-	
West Khasi Hill	296049	150419	145630	Mairang
1. Mawshynrut	56222	28684	27538	Nongstoin (Sardar)
2. Nongstoin	75512	38397	37115	Mawkyrwat
3. Mairang	80792	40982	39810	
4. Ranikor	32140	16556	15584	
5. Mawkyrwat	51383	25800	25583	
6. Mawthadraishan	-	-	-	
Ri Bhoi District	192790	99319	93471	Nongpoh (Sardar)
1. Umling	75322	38874	36748	
2. Umsning	117168	60445	56723	
3. Jirang	-	-	-	
East Garo Hills	250582	127474	123108	Williamnagar (Sardar)
1. Resubelpara	86189	43738	42451	Resubelpara
2. Dambo-Rongjeng	79224	40273	38951	
3. Songsak	41992	21362	20630	
4. Samanda	43177	22101	21076	
5. Kharkuta	-	-	-	
West Garo Hills	518390	263424	254966	Tura (Sardar)
1. Betasing	64456	32731	31725	Dadengiri
2. Dalu	57781	29364	28417	Ampati
3. Selsella	132963	67477	65486	
4. Dadengiri	32017	16161	15856	
5. Tikrikilla	49360	24866	24494	
6. Rongram	114328	58367	55961	
7. Zikzak	67485	34458	33027	
8. Gambegra	-	-	-	
South Garo Hills	100980	52007	48973	Baghmara (Sardar)

1. Chokpot	37937	19205	18732	
2. Baghmara	45529	23864	21665	
3. Rongara	17514	8938	8576	
4. Gasuapara	-	-	-	

2.3 CLIMATE & RAINFALL

The Climatic condition of Meghalaya is determined by the altitude of the Land surface. The areas in the South and North lying in lower altitude have warm climate, where as those areas situated at higher altitude have cooler climate. During the summer, the South West monsoon coming from the Bay of Bengal causes heavy rainfall in these areas. The amount of rainfall depends on the location of the places. Accordingly, Cherrapunjee and Mawsynram, which are situated on the southern slopes of East Khasi Hills, receive the highest amount of annual rainfall.

The temperature variation at lower altitudes is between 33 and 22 degree Celsius while at higher altitudes it is between 24 and 12 degree Celsius. In Central and Eastern Meghalaya, the central uplands have a moderate climate but the foot hills in the southern part and the sub mountain area of the north and east are warm and humid. The central upland covering Shillong has very severe cold winters .Data of rainfall in the State is given at Annexure –II & III.

2.4 GEOLOGY

The plateau comprises rocks of Achaean basement complex in the central and northern parts comprising gneiss, quartzite and schist. The basement rocks are overlain by Shillong group of rocks, occurring in the central and eastern part and comprises quartzite, schist, granite and conglomerate traversed by acid and basic intrusive in sung valley.

The rocks of Gondwana in the western part of Garo Hills contain pebble beds, sandstone and shale. The volcanic eruption 200m year back in Jurassic time is spread over E-W trending narrow belt in southern part of Khasi Hills and is termed as Sylhet Traps which include basalt and rhyolites. These traps are overlain by the Cretaceous-Tertiary sediments in southern parts of the state. Main rock types belong to Khasi, Jaintia and Garo group which include conglomerate, sandstone shale, silt with coal seams and limestone.

The quaternary deposits constituting thick alluvium overlay the Cretaceous-Tertiary sequence in separate patches and are composed of assorted pebbles, with thick coarse and sand and brown coloured clay. The newer alluvium lies in the river valleys of the northern and southern foothills

of Garo and Khasi hills and along the western border of Garo hills comprising fine silty sand and light to dark coloured clay with sandy pockets.

2.5 DEMOGRAPHIC PROFILE

Statistics of 2001 census reveal that Meghalaya had a population of 23,18,822 out of which 18,64,711 are in the rural and 4,54,111 in the urban area. The population density is 103 per sq.km. However, the plain belts are more densely populated than the hilly areas. Sex ratio is 972 females per thousand males. The overall literacy rate is 62.6%. Amongst males it is 65.4% and amongst females it is slightly lower at 59.5%. The percentage of workers as per 2001 Census among the total population is 41.25%. The percentage of workers in rural areas is 45.58% and in urban areas is 24.42%. Out of the total workers, 47.80% are cultivators, 18.09% are agricultural labourers, 1.88% are engaged in household industries, 32.24% are other workers.

2.6 EDUCATION

The number of educational institutions at the school level was 7610 in the year 2002-2003 with an overall enrolment of 6,57,724. In 1998-99, the State has 4,679 numbers of primary schools with 10,966 teachers and an enrolment of 4,02,349 students. Thus, there are 2 primary schools per 1,000 of population. The number of middle schools was 946 with 4,567 teachers and an enrolment of 79,112 students. Thus there are 4 middle schools per 1,000 of population. The number of high schools in the state was 493 with a total teaching staff of 5574 and an enrolment of 99,340 students. The State has 1 university and 33 colleges. In addition to this, the state has 3 Polytechnic and 1 Teachers Training College.

2.7 HEALTH

The birth rate in Meghalaya (per 000) in 2003 is 24.7. In the rural areas it is 26.6 and urban is 13.8 respectively. The total death rate (per 000) in 2003 is 7.4; in urban area it is 3.4 whereas in the rural areas it is 8.1. In respect of Infant Mortality Rate (per 000) in 2003 Meghalaya recorded 57; in the urban it is 44 (per 000) and rural it is high at 59 (per 000) which indicate lack of medical facilities in the villages. The number of persons per doctor is 5080 while the number of persons per hospital bed is 729. The total number of beds in Government hospitals is 3162 in 2004, with an average of 137 beds per lakh of population.

The state is especially vulnerable to malaria and TB. Many pockets in the plains become prone to epidemics after floods while malaria is endemic in the State. The State also has very high infant and maternal mortality rates.

2.8 FOREST

The hilly topography of the state has rich vegetation. Trees of various species are abundantly found in these forests which include medicinal plants and herbs. The area under the cover of forest is between 36% to 42 % of the total reported area of the state. But the use of forest products in the state for commercial purposes has caused a serious damage to this natural wealth. The indiscriminate cutting and felling of trees has not only spoiled the forest areas but also disturbed the ecological balance and the existence of flora and fauna is very much threatened. It has also reduced the protection against adverse impact of natural calamities like droughts, floods and cyclones. As on 2000-01 the state is having 71.27 thousand hect. of reserve forest, 1.24 thousand hect. of protected forest, 26.75 thousand hect. of national park, 850.30 thousand hect. of unclassified forest ; totaling to 949.56 thousand hect. of land covered under forest which is 42.34% of total geographical area.

2.9 AGRICULTURE

Majority of the population, mostly in rural areas depend on agriculture as the source of their livelihood. Agriculture provides direct and indirect employment to around 66% of the total work force of the state and contributes 33% of the Net State Domestic Product.

Agriculture in the state is being carried in a primitive way with jhumming cultivation prevailing in many parts of the districts. This practice is considered to be destructive since vast forest areas are cleared and burnt for the purpose of cultivation lasting for short periods of 3 to 4 years only. This method of cultivation has an adverse effect on the environment and leads to soil erosion. It takes more than 15 years for the soil subjected to shifting cultivations to regenerate. Agriculture in the state mostly depends on Monsoon since adequate irrigation facilities do not exist. Paddy is the principal crop of the state followed by potato, maize and arecanut.⁽¹⁾

2.10 Land Use Pattern:

There has been a slight improvement in the net area sown (NAS) as per Table given below.

Table – Land Use Statistics (in Hectares)

Year	Total reporting area under Land utilization	Forest	Not available for cultivation	Other cultivable land	Fallow land	Sown area more than once	Total crop area
1.	2.	3.	4.	5.	6.	7.	8.
1999-2000	2227100	950431	22257	596350	227632	45989	276369
2000-2001	2227200	950510	223393	596395	226535	46389	276754
2001-2002	2227200	950533	223393	59630	226551	46659	276932

The NAS has increased from 276369 hectares in the year 1999-2000 to 276932 hectares in 2001-2002. Only 9.89% of the total geographical area is cultivated and only 20.28% of total cultivated area is sown more than once.

Meghalaya is mainly a hilly state with restricted possibility for development of agriculture. The uplands are characterised by mixed forest and highly scattered habitations. The restricted area for cultivation along hills slopes and narrow valleys is common. The entire plateau on the basis topography of the entire plateau may be divided into evergreen scrub land, deciduous forest, degraded forest/scrub lands, shifting cultivation, agriculture land and build up area. The shifting cultivation dominates east and degraded forest land dominates west. Evergreen forest land is found mostly in central part of Meghalaya. Deciduous forest land wraps around evergreen forest belt in the north, west and south. Major agricultural activity is confined to the western fringes of Meghalaya.

2.11 INDUSTRIES

Meghalaya continues to be industrially backward in comparison to the rest of areas in the Country. Industry provides employment to only 2% of the work force and only in recent years, there has been a slight increase in the industrial activity in the State of Meghalaya.

2.12 MINING

Meghalaya is rich in mineral resources. The deposits of coal, limestone and clay are found in various part of the State. Silimanite which is one of the important minerals is found only

in western area of West Khasi Hills district. Coal mining is being carried out extensively in Jaintia Hills in the East and West Khasi Hills and in the South & East Garo Hills District. As the mining is not done scientifically, it is hazardous. The estimated reserve of limestone in the state is about 5, 000 million tones. Uranium was recently found in the State. Commercial mining of this highly important and useful mineral is yet to be taken up.

2.13 TRANSPORT & COMMUNICATION

Road connectivity has to play a vital role in a State like Meghalaya where other cheap means of transportation like railways are not feasible. There are two national highways NH40, Jorabat-Shillong-Tamabil road and NH44 Shillong-Jowai-Badarpur-Agartala road. The Shillong Jowai section (66 km) is maintained by Govt. of Meghalaya and rest of the highways are maintained by DGRR. Other important roads are 7 in number connecting major towns with a cumulative road length of 6491 km.

The tables below indicates the data relating to roads and vehicles:

Road Length

(a)	Surfaced	-	4497.7 Kms (2003-2004)
(b)	Un-surfaced	-	3183.9 Kms (2003-2004)
(c)	National Highway		606.2 Kms (2003-2004)
(d)	State Highway		1124.2 Kms (2003-2004)

No. of Registered vehicles

(a)	Government	-	5732 (2003)
(b)	Private	-	67650 (2003)
(c)	Total	-	73382 (2003)

The road length per 100 Sq. Km. Of area is 40.7 Kms. as against the national average of 76.8 Kms. Rural road connectivity of the state is poor with only 45.33% of villages connected by all-weather roads as compared to 60.16% at the national Level. Under the Pradhan Mantri Gram Sadak Yojana which aims at improving all – weather rural connectivity of villages, road connectivity is expected to improve, thereby.

There are 29 motor vehicles per thousand of population. With the increase of vehicles on the roads and shortage of public transport, non-adherence to MV Rules the number of accidents and deaths caused by road accidents are on the rise. During the year 2001, there were 593 road accidents in the State with 178 reported deaths against 392 road accidents and 145 deaths during the previous year.

2.14 Civil Aviation:

There is one airport located at Umroi near the capital city of Shillong. Another airport is coming up at Baljek, near Tura. At present, there are two helipads in the State at Shillong and Tura.

2.15 Postal and Telecom Services:

There are 490 post offices in the State by 2002. There are 21 Nos. of post offices per lakh of population and each post office serves an area of 45.77 Sq.Km on an average. There are 78 telephone exchanges, 867 Public Call Offices and 52490 telephone connections in the state by 2001-02. The rural connectivity is poor and about 21% of the villages have public telephone facilities. All the telephone exchanges are electronic and the Subscriber Trunk Dialling (STD) service is now available at stations spread over all the seven districts headquarters.

2.16 Power and Electrical Installations:

The state has five Hydro Power Projects in the Umiam – Umtru basin. The potential for Thermal power projects and more hydro-electric exist. Presently, the State has an installed capacity is 185 MW of hydroelectric power. In addition to that, the State also purchases power from the central grid. Presently 67% of villages are electrified.

A major dam in the State is located on the Umiam river and is used for power generation. Since it is located in highly seismic zone, appropriate disaster proofing/management is necessary with respect to the dam. NH-40 is passing through Umiam Dam which is highly vulnerable in a disaster whereby communication between Shillong and Guwahati may be disturbed. There are other smaller dams for power generation and water supply (Mawphlang, Edenbari etc.) whose hazard potential also has to be kept in view.

CHAPTER-III

Risk Assessment and Vulnerability Analysis

3.1 Introduction:

Disasters impede socio-economic development. Disasters affect population where there is physical, infrastructural, environmental or socio-economic vulnerability. The higher the individual and other vulnerabilities, higher are the risks. A comprehensive understanding of the pattern of various hazards is crucial in order to have a focus and prioritise the scarce resources for ensuring sustainable development in areas and populations at risk. Similarly, identification of various disasters and the assessment of the consequent effects of such disasters are essential to adopt preventive, preparedness, response and recovery measures to minimise losses during disasters and ensure quick recovery. For a multi-hazard prone state like Meghalaya, it is essential to ensure that vulnerability and risk reduction aspects are taken into account for all developmental plans and programmes.

3.2. The State is prone to severe earthquakes. In addition, the state is also affected by disaster like floods, epidemics, fire, cyclone, hailstorm, lightning, road accidents, etc.

3.2.1. Vulnerability to Earth Quakes:

In Meghalaya, seismicity is high. Current seismicity is related to activity along faults. The country has been divided into four zones and as per the seismic zoning map of India now Meghalaya falls in Zones V. All the districts appear under Zone V. See Annexure IV. The vulnerability to the earthquake is high because of:

- (1) Poor housing/building constructions with post 70s.
- (2) Poor socio-economic condition.
- (3) Poor literacy and education.
- (4) Poor communication.

3.2.2 Vulnerability to Land Slides:

Landslides are caused by a number of reasons like geology, climate and human activity. The map showing landslide hazard zonation is at Annexure V. Vulnerability is increased due to Jhumming Practices in the state.

3.2.3 Vulnerability to cyclones:

Cyclone affect various parts of the State particularly during April-May every year. A wind hazard map is at Annexure VI. The various factors contributing to high degree of vulnerability include poor socio economic conditions, weak housing, etc.

3.2.4 Vulnerability to floods:

In Meghalaya, damages due to floods are caused mainly by the backwaters of Brahmaputra especially Garo Hills. Flash Flood also occurs in different parts of the State due to heavy rainfall. The various factors which contribute to the high degree of vulnerability and damages in the State during floods are:

- a) Poor socio-economic condition of the majority living in the plain belts and the local economy being primarily dependent on the monsoon paddy.
- b) Poor infrastructure and weak mud houses.
- c) Very little or no forest cover in the flood prone areas.

3.2.5 **Fire accidents:**

Fire accidents are quite common, especially in rural areas because of the following factors

- a) Individual housing with roof of thatch/grass/leaves and storage of straw/hay in close proximity of the house
- b) Lack of availability of adequate water and nil or poor equipments for fire fighting especially in rural areas and small towns.
- c) Lack of awareness of basic do's and don'ts when people live in houses that uses inflammable materials
- d) Human error or carelessness

3.2.6 **Vulnerability to accidents:**

The figures of road accidents indicate a rising trend in Meghalaya. This is due to increase in the number of vehicles, the quality of roads, and inadequate adherence to traffic rules. Except for the observance of the Traffic Week in the first week of January every year in the State, there is very little regular and sustained campaigns to prevent and reduce road accidents.

3.2.7 **Vulnerability to mining disasters**

The vulnerability to mining disasters exists in areas where coal mining in an unscientific way is being undertaken. These include district of Jaintia Hills, South Garo Hills & to some extent of East Khasi & West Khasi Hills.

3.2.8 **Vulnerability to chemical disasters:**

Though at present the hazard posed by chemical hazards is not significant, over the years it is likely to increase. As industrial activities in the State increase some industries in the State would store, handle and process large volume of hazardous chemicals. This could cause potential threat to the employees, general public and environment in general. The districts with above type of hazards are Ri Bhoi, Jaintia hills & East Khasi Hills.

4.1 **Socio-economic Vulnerability:**

Despite the given hazards in the State, the vulnerability of an area is determined by the capacity of its social, physical, environmental and economic structures to withstand and respond to hazards. An understanding of the socio-economic factors and the capability of the community to cope with disasters would provide an understanding to the development and disaster managers to plan risk reduction against future hazards.

4.1.1 **Economy:**

Poor economy, low per capital income and significant poverty contribute to the vulnerability of people. The economy is underdeveloped as is apparent from the fact that Agriculture is the main stay of the people of the State and accounts for direct and indirect employment to around 66 % of the total work force and contributes 33% of the Net State Domestic Product. However, agriculture, which is the primary sector of the state, is characterised by low productivity due to traditional practices, inadequate capital formation, low investment, inadequate irrigation facilities and uneconomic size of the holdings. Only 9.89% of land is available for cultivation and agriculture is mainly rain fed with attendant disadvantages.

4.1.2 Lack of access to infrastructure:

The State is handicapped due to inadequate electrification, irrigation facilities, insufficient storage facilities, insufficient marketing/credit institutions and poor road infrastructure. Basic services like health, market, are also inadequate in certain hilly and remote areas. Poor accessibility to infrastructure increases the vulnerability of the population during disasters.

4.1.3. Urbanization:

The State has increasing trends of people migrating from rural areas to towns, particularly Shillong, Tura & Jowai in search of employment and livelihood. This has led to increase in the density of population in towns. The majority of the immigrants usually belong to the lower income strata of population. The increasing influx of poor immigrants to an area adds pressure on the existing infrastructure. Being poor, these immigrants settle in slums or areas vulnerable to disasters lacking in basic infrastructure like safe drinking water, sanitation and drainage facilities. The weak techno-legal regime, the unplanned construction authorized by Headmen and the substandard quality of work by unsupervised and untrained masons is a very important factor contributing to vulnerability of the city and towns. The Meghalaya Urban Development Authority needs to strengthen and improve its building bye laws and enforcement thereof. In addition there is inadequate drainage, waste management and sanitation facilities. This makes the population highly vulnerable to various diseases. Narrow roads, poorly maintained overhead electric and telephone wires, and congested drains make these settlements vulnerable during floods and earthquake.

4.1.4 Housing:

Quality and design specifications of houses as well as materials used for housing, particularly for roofing and walling, have a bearing on the vulnerability of houses to earthquakes, cyclones, high wind, floods and fires. The houses, due to their type of construction and materials used for the walls and roofs, are vulnerable to disaster impacts and the damage risk to such type of houses is very high. The house types in the State, as whole, numbering 400,428, as per the 1991 Census, consist of 5.71 % Kutcha (clay mud walls) 1.03% stone walls laid in mud and 1.56% Pucca brick walls. These are classified as Cat. A (clay and stone walls), and Cat. B (brick walls). These two category houses are vulnerable to receive severe damage including collapse in MSK IX and VIII and heavy damage even in Intensity VII. The concrete and wood frame houses, placed in Cat. C account for 35.70% and behave much better with only a few collapses in MSK IX. The others consisting of thatch/metal sheet huts account for majority of the housing, 56.00%. These suffer very little damage in earthquakes, and do not pose threat to life as the Cat. A and B housing. The district wise Housing Tables show a varying percentage of Cat. A-housing from low of 0.85% in East Garo Hills to highest 19.71% in Jaintia Hills, hence lower to higher Risk of losses in the districts than the State average. Figures of vulnerability of houses in the State is given in the Annexure VI.1 -XII

So far as wind hazard is concerned, the design wind speed in almost the whole state is 50m/s (180 Km/h) which could only occasionally be reached when cyclonic wind storms reach the State after crossing Bangladesh. In such events, weakly built sloping roofs such as using thatch and tiles and those A.C. sheet and Corrugated Galvanized Iron (C.G.I.) sheet roofs which are not fully anchored and integrated will suffer damage. Majority of houses (56%) in the State are of this type termed 'X' type. Fortunately, the damages occurring in wind storms are of localised nature and do not result in a 'disaster' to the State. But it will be useful if the wind-resistant construction guidelines are adopted and implemented for minimising wind damage.

4.1.5 Education:

Education is a basic requirement that helps improve the coping capacities of the population. The State's literacy rate is still low at 62.6%, and it is lower for women 59.5%. Inadequate education becomes a strong detriment for understanding Disaster Management.

4.1.6 High Mortality:

The health care system and health infrastructure of the State are inadequate and add to the vulnerability of people to the disasters.

4.1.7 Gender discrimination:

Even though women constitute nearly half of the population, they are more vulnerable to disasters because of socio-cultural barriers to various forms of livelihood opportunities.

4.1.8 People needing special care:

Pregnant women, aged & sick are the most vulnerable during and after disasters because of their physical vulnerability and also their lack of capacity of earning their livelihood.

HAPTER-IV

Capability Analysis

Capability analysis of the Institutions in the state:

An analysis of the capabilities of selected organisations in the State, which could play key roles in promoting and strengthening disaster management activities, is given below.

4.1 Revenue Department:-

Revenue Department co-ordinates all Disaster Management Activities as it has been the Nodal Department for same since the inception of the State. It will be strengthened by merging of Relief & Rehabilitation Department and will be renamed as Revenue & Disaster Management Department. The Deputy Commissioners and Block Developments Officers are either directly or indirectly under its control in so far as their relief/disaster management functions are concerned. They are the key officials in relief/disaster management.

4.2 Meghalaya Administrative Training Institute

The MATI was set up with the prime aim of providing Institutional Training for officers of the State Administrative Service. It also conducts in-service trainings, refresher trainings programmes, short duration training programmes for various senior and middle level officers of the State Government. The MATI has been sanctioned a Faculty on Disaster Management, under the Central Plan Scheme in order to build up the training capability of the MATI in different aspects of disaster management. The facilities and the faculty positions in the MATI will be further strengthened and link with the Revenue Department further reinforced.

4.3 State Institute of Rural Development (SIRD):

The State Institute of Rural Development located at Nongsder is the apex Training Institute under the Community & Rural Development Department, Government of Meghalaya for imparting training in rural development. The main objective of the Institute is to train various categories of people on rural development through training courses, seminars, workshops etc. The Institute is organizing training for grass root & middle level officials and NGOs working in the field of rural development. The Institute has established linkages with other Government Departments like Soil and Water Conservation Department, Social Welfare Department, ICAR, etc and NGOs like Bosco Reach Out, KJP Synod, World Vision etc. The SIRD is also co-ordinating its efforts with the Department of Continuing Education from 2004 – 2005. Of late, the

SIRD has also prepared training modules for Department of Co-operation for imparting training a capacity building of Co-operative Officers and leaders of Co-operative Societies. The Institute has the capacity for undertaking Disaster Management Training also for rural development officials/NGOs/CBOs/Co-operators and volunteers which will be further strengthened.

4.4 NE Remote Sensing Application Centre (NESAC)

The North Eastern Space Applications Centre (NESAC) is an agency under Department of Space, Govt. of India providing space technology support such as remote sensing applications, satellite communications and space science research. The Agency implements the Disaster Management Support Programme using space technology for the entire NE Region. It has facilities for monitoring disaster affected areas, mapping of disaster prone areas, and providing satellite based emergency communication systems. NESAC is also installing a Telemedicine network and the Transportable VSAT System of NESAC can work as a backup communication network for post disaster rescue/relief operations.

NESAC has the potential of providing critical knowledge management support to Revenue Department by providing inputs like creation of GIS based Road Network Map, Disaster vulnerability map, emergency communication etc., in critical disaster management operations. Institutional linkages between NESAC and Revenue Department will be strengthened.

4.5 IT Deptt:

The IT Deptt. is the computer application, development & training agency of the Government of Meghalaya. Its main activities include development of computer related plans and policies in the government, providing total solutions for computerisation in the government and PSUs, development of appropriate software organising training programmes for the government employees. IT Deptt. has contributed to the steady growth of computerisation in Meghalaya.

IT Deptt. can play a promotional role to develop appropriate software, database and systems development for various departments and personnel involved in disaster management activities in the State and district levels including extending professional training and allied support to strengthen the IT network in disaster management related activities.

State Wide Area Network will be implemented in 2006-2007 which will provide redundant connectivity upto Block Level. It will also provide data and voice communication.

4.6 Community Information Centres (CICs)

Community Information Centres are Centres at Block Head quarters which have been provided with Personal Computers having internet connectivity and a TV Set which is connected through a Satellite based reception. Internet connectivity for the PCs is provided through a VSAT terminal of NIC. Each CICs has to trained operators.

The State currently has 32 CICs, that is one in each Block Headquarter at the Block Development Officer's Office. 7 more CICs are being set up in the new Blocks of Saipung, Khatar Shnong, Jirang, Mawthadraishan, Kharkutta, Gambegre and Gasnuapara. This infrastructure can be used for communicating to and from the disaster affected areas.

4.7 National Informatics Centre (NIC):

The National Informatics Centre has facilities like VSAT-based video conferencing, Internet connections. It has district centres functional at headquarters of 7 districts with VSAT facility. It also has district informatics officer attached to Deputy Commissioners.

The services of NIC will be harnessed to strengthen the communication and information database systems related to disaster management at the State and district levels.

4.8 Search And Rescue Team:

The first 72 hours are most crucial for saving lives in any emergency situation. Therefore the role of SAR is paramount in any disaster management plan.

SAR Team has been carved out of the existing State Armed Police Force, Civil Defence & Fire Services & Medical professionals. SAR Team members will be trained in specialised rescue and search operations and provided with equipments & communication facilities. They will be under control of the DC/HG & CD. It can be mobilised to any emergency situation. Logistics support is to be provided by the local administration

4.9 Civil Defence:

At present there are three civil defence offices in the State with trained volunteers and emergency equipments. The Civil Defence Units impart training to its members on self-defence, provide protection to any person or property against any hostile attack, rescue trapped and incapacitated persons using improvised techniques, search for survivors after an incident, etc. State government can utilise the services of civil defence, including trained civil defence volunteers, during natural calamities.

State of the art training on search and rescue operations will be imparted to the Civil defence volunteers. They will be used to train members of different task forces/committees created at various levels. There will be adequate co-ordination with the Civil Defence for communication and information exchange with the government to ensure their prompt response after disaster.

The CTI of the Home Guard/Civil Defence at Shillong has been designated as the Resource Agency for Training of Volunteers in Search & Rescue and Disaster Management. The CTI is being strengthened through provision of equipments and is expected to fulfil its role substantially.

4.10 Voluntary Agencies and Community Based Organisations (CBOs):

The existing network of Community Based Organisations and voluntary agencies in Meghalaya will be utilised in disaster management. These include the Indian Red Cross, the traditional authorities, the religious welfare organisations, youth organisations, etc. The SRC will act as an interface between the Govt. agencies and the NGOs. Coordination meetings will be held at the State, District and Block levels by SRC, Deputy Commissioners and Block Development Officers respectively.

NGOs and CBOs will be encouraged to participate in raising awareness of the communities, information dissemination, training and capacity building of local volunteers, immediate rescue, relief and first aid, damage assessment, technical and material aid in reconstruction and monitoring for strengthening the disaster management efforts.

Similarly existing groups like NCC, NSS, and Nehru Yuva Kendra will be strengthened and will be groomed to work in tandem with each other.

4.11 Mass Media:

The role of media is vital in educating the people about disasters; warning of hazards, gathering and transmitting information about affected areas, alerting government officials, relief organisations, and the public to specific needs and facilitating discussions about disaster preparedness and response leading to greater transparency in the whole operation.

A regular and effective working relationship with the media will be developed. Regular, routine interaction, before a disaster is important for effective working relationships in the aftermath of a disaster. Relevant training for reporters and field personnel will be provided to enhance disaster preparedness, and the timeliness, quality, and accuracy of reporting about natural hazards. Similarly the media organisations are

expected to address disaster prevention and reduction in their coverage relating to disasters.

4.12 Defence

The Army and Air Force have a significant presence in the State. HQ 101 Area comprising of Assam Regimental Centre, 58 Gorkha Training Centre and 24th Mountain brigade and Mountain Division is located at Shillong. The Eastern Air Command is also located at Shillong. Both Army and Air Force have well laid out disaster management scheme for Meghalaya and would come to the aid of civil authorities in an emergency particularly in performing disaster management tasks relating to response and restoration. Every efforts will be made to strengthen the institutional linkage between the State Govt. and the Armed forces.

4.13 Research-

Research studies on various aspects of disaster management will be encouraged to build on the existing skills and knowledge of communities and other expertise in the field and developing sustainable and cost effective solution. NEHU and NESAC will be encouraged to take up such research works.

NESAC is also taking up research on climatology of the NE Region, and earthquake risk assessment in association with NEC.

4.14 Indian Meteorological Department

The basis function of the Central Seismological Observatory (C.S.O.), IMD, Upper Shillong is to monitor the seismic activity in the country, in particular the NE Region. In the event of a significant earthquake shock occurring in the region or in the state C.S.O. IMD, Upper Shillong can pass the information to the concerned decision making Government bodies for planning, relief and evacuation operations. This information can contain parameters such as epicentre, magnitude, intensity etc.

C.S.O. IMD, Upper Shillong also has a Meteorological and Atmospheric Radiation Observatory. Daily meteorological and radiation data are collected and passed to the Regional Meteorological Centre, IMD, Guwahati for issuing the weather forecast for the entire region. The Regional Meteorological Centre, IMD, LGBI Airport Guwahati-15 is the nodal agency to issue weather forecast for the entire North Eastern region. The daily forecast is issued to AIR, Doordarshan, PTI, local newspapers etc. For quick dissemination of the forecast data, C.S.O, Shillong can also obtain the date from the Regional Meteorological Centre, Guwahati and disseminate the information to the concerned decision making bodies of the state in the event of severe weather phenomena etc.

A digital telemetric seismic network comprising of twenty unmanned (Including five manned existing) stations equipped with V-SAT based communication facilities will soon be operational in the NE. Region with the central receiving station (CRS) at the Central Seismological Observatory (C.D.O.), IMD, Upper Shillong. Apart from this, the C.S.O. Shillong will be one of the 17 selected observatories for Real-Time Seismic Monitoring Network (RTSMN) for Tsunami early warning system in the country. The system will be equipped with the state of the art Broad Band Digital Seismic and GPS receiver data acquisition systems with V-SAT based communication facilities to enable to transfer data on near – real time basis to the CRS at the IMD HQs, New Delhi.

4.13 Geological Survey of India.

Geological Survey of India is a prime National Organisation entrusted with the task of studying various geological aspects of the earth. However for past one decade it has expanded its activities to include study of the Geological Hazards specifically as its thrust areas of activities. The Organisation, therefore, has initiated geological studies pertaining to the areas susceptible to hazards from earthquake and landslides and bring out thematic maps on various scales to be utilized by different agencies. At present the GSI is carrying out the following activities:

(i) Landslide Hazard Zonation – regional and along the National Highways. Thematic maps on macro, meso and micro level are prepared based on the objective of the investigation. The mapping helps in categorizing the hazards in the area of the study into low, moderate, high zones. Presently, the emphasis is on National Highways. The Organization has been declared as Nodal agency for Landslide studies in the country and any major slide occurrence in the region is being promptly attended to.

ii) Site specific studies of the chronic landslides such as the Sonapur land slide on NH-44 which is currently underway. Such studies are useful in working out the remedial measures to control and stabilize the slide.

iii) Seismic microzonation studies of the principal cities-to delineate hazard zones to enable planners to recommend suitable designs. First and Second level thematic maps are prepared in such cases.

iv) Active fault mapping - to study the seismic status of various discontinuities (faults, shears) and to establish probable seismogenic nature of the discontinuity and its capability of generating earthquake. In areas where instrumental records are lacking, such studies guide in knowing the hazard potential of the area. Besides, the organization is entrusted with the task of preparing Isoseismal map of the any area affected by a damaging earthquake.

The organization has its Regional Headquarters at Shillong and caters to the requirements of all the seven states of the northeast India.

CHAPTER-V

Disaster Management Arrangements

5.1 INTRODUCTION

The State Government has shifted its focus from reactive response measures to proactive preparedness and preventive mechanisms taking all the stakeholders into account with a view to generating synergy, prevent conflict, optimise use of resources and avoid oversight.

The management arrangements proposed cater to all types of disasters and, in particular, deal with situations where more than one organisation is involved. This part of the Plan explains Meghalaya State's current and proposed disaster management arrangements and enables the reader/users to get an overview.

5.2 The Current Arrangement

The MEGHALAYA RELIEF MANUAL provides the basic guidance relating to the disaster management structure. However, there is a need for a more comprehensive approach with focus on risk management and risk reduction for all forms of possible disasters, both natural and man-made.

Some other Acts and codes like Factory Act, Building Code, etc. also guide and provide the necessary statutory powers to various departments/ agencies to plan, implement and enforce various measures relating to the prevention, response and recovery in case of emergencies in the State.

5.3 Disaster Management Structure for preparedness, response, recovery and mitigation. [The arrangement indicated below are subject to revision on coming into force of Disaster Management Act, 2005 and arrangement prescribed there under.]

5.3.1 STATE DISASTER MANAGEMENT COMMITTEE

The State Committee headed by the Chief Secretary reviews the arrangement of agencies (government and non-government), reviews the status of preparedness, reconstruction and restoration for disasters.

The State Committee shall review the arrangements under the State Disaster Management Plan at least once annually along with the review of the status of other agencies having roles or responsibilities in relation to the response to emergencies and overall aspects of coordination of various agencies at the State and district levels.

The committee will also review on an annual basis the mitigation sub-plans under the state and district disaster management plans to ensure co-ordinated planning and management of disaster recovery.

5.3.2 DISTRICT DISASTER MANAGEMENT COMMITTEE

The Committee will be headed by the Deputy Commissioner and will co-ordinate all activities relating to preparedness, response and recovery measures. It will prepare

and review the District Disaster Management Plan and ensure their updation on a half yearly basis. The Committee will be composed of representatives of all line Departments engage in Disaster Management, public representatives and NGOs/CBOs. The Committee will be assisted by the District Project Officer and Assistant District Project Officer incharge of Disaster Management.

5.3.3. BLOCK DISASTER MANAGEMENT COMMITTEE

The Committee will be headed by the B.D.O. and will co-ordinate all response and recovery measures in the event of emergency. It will prepare and review the Block Disaster Management Plan and ensure their updation on a half yearly basis. The Committee will be composed of representatives of all line Departments engage in Disaster Management, public representatives and NGOs/CBOs, Self Help Groups and NaRM(Natural Resources Management)

5.3.4.VILLAGE DISASTER MANAGEMENT COMMITTEE

The Committee will be headed by the headman/traditional authority/local influential person. It will prepare and review the Village Disaster Management Plan/Community Contingency Plan. The functions of the Committee would be to coordinate with govt. agencies in all disaster management works and to arrange volunteers for various teams/task force performing disaster relief tasks.

5.3.5 DISASTER MANAGEMENT TEAMS/TASK FORCES

5.3.5.1. Casualty Service Team/Task Force:

- a) Medical team at the block level- under the M/O incharge of the local CHC/PHC.
- b) First Aid team at every village – may consist of ANM/Male Nurse (where available) and volunteers trained to provide first aid. VDMC to select the volunteers.
- c) Mobile First Aid Team- at least one per block .

5.3.5.2 Search and Rescue Team/Task Force-

- a) Normal search and rescue may be carried out by a village level team/Task Force – the volunteers for the team could be selected by the VDMC and trained by the Civil Defence.
- b) for medium search and rescue work – a team/Task Force may be created at the Police station (or Block level, if there is no police station in the block).
- c) for heavy Search and rescue the assistance of the team from state Govt. or armed forces may be requested.

5.3.5.3 Welfare Service/Team/Task Force

- a) A Team/Task Force at the level of the Block under the CDPO with members from available officials of PWD(B), Housing, PHE and Teachers to be constituted. The function of the committee would be to organize shelter, feeding, clothing, water supply and care of children.

b) A welfare service team/Task Force at every village to be organized by the VDMC with AWW, PHE Khalasi (wherever available) as members in addition to volunteers from the village.

5.3.5.4 Supply Service Team/Task Force

a) A Team/Task Force under the EO(Agri) to be set up in every Block with Supply staff (Inspector/Sub-Inspector), as available, with the aim of arranging and transporting required commodities to the requiring areas. The committee may also keep stock position of essential commodities available in various places in the block.

5.3.5.5 Depot Service Team/Task Force

a) The team will take charge of all stocks of various equipments, etc. relating to disaster relief at every block under the Block accountant assisted by clerks to keep records.

b) A Sub-depot at every Gram Sevak circle level under the Gram Sevak. At the village level the VDMC will constitute a team to keep equipments relating to Disaster Relief at designated place.

5.3.5.6 Transport service team/Task Force

The block level team would keep record of all vehicles available in the Block and marshal them in emergency.

5.3.5.7 Salvage service team/Task Force

a) The team would be the custodian of all salvaged property; a team for every block under the Sub Engineer of the Block will be created.

b) In the village, the team for the above purpose to be constituted by the VDMC and trained by Civil Defence.

5.3.5.8 Corpse Disposal Service Team/ Task Force

a) One team at each block to be constituted under the EO(Vety.) with members from Police and Health and Civil defence. Their function will be to arrange the disposal of dead bodies as per procedure and disposal of animals, etc.

b) At the village level a team of volunteers will be nominated by the VDMC and trained by the Civil defence about the procedure.

5.3.5.9 Fire- fighting Service Team/Task Force

a) Auxilliary fire service team may be set up in every Police station : in blocks not having police stations the same may be created in the Block Headquarters with suitable training to the officials/volunteers.

b) At the village level the VDMC may identify volunteers for the who may be trained to handle minor fires with local materials.

5.3.5.10 Disaster Management Team/Task Forces at District Level

The District Disaster Management Committee may also constitute teams referred under point 5.3.5.1 to 5.3.5.10 above to manage, coordinate and review the tasks relating to Disaster Relief in respect of the District.

5.6 Supporting Arrangements

5.6.1 Information and Communication Task Team

The team will be constituted at the State Level consisting of NESAC, Geological Survey of India IMD/CSO,IT Department, Urban Affairs, IPR Department, NIC, NEHU under State Relief Commissioner (SRC) or his nominee.

The Team will arrange back up Communication Systems including modalities for establishing Communication with the Disaster affected area from the Control Room for efficient and timely rescue/relief operation.

Available communication systems are:-

- i) BSNL Landline telephone network
- ii) Mobile Telephone Networks.
- iii) IPOL Net.
- iv) Police Wireless
- v) ISRO Telemedicine network
- vi) Transportable VSAT system of NESAC
- vii) Satellite (INMARSAT) Telephones
- viii) All India Radio
- ix) Doordarshan
- x) Cable T.V.

Disaster management planning, its monitoring and implementation at the State and district, block, village levels will be strengthened and augmented by Information and Communication Task Team through :

1. Creation and updating a sound information base at village/ block/ and district levels giving land use, demographic, infrastructure, resource inventories of government agencies, NGOs, Public and Private Sector Undertakings to be made and networked, to compile the information from various sources and bring it under one platform to support disaster management activities;
2. Preparation of appropriate GIS database and Digital Maps.
3. Improvement of communication links, forecasting, and control rooms by modernising the existing facilities.
4. Establishment of Help Lines during emergencies with modern communication facilities and tracing mechanism;
5. Establishment of a Disaster Knowledge Network within the State and a Global Information Network;
6. Strengthening of all State and District level control rooms using the state of the art technology;
7. Seismic Micro-zonation of Shillong and other major towns, industrial centre(s), other vital installations like dams and mines with detailed risk assessment of all buildings and infrastructure
8. Up-gradation and adequate network of rain gauge network, especially in known hazardous districts and locations;
9. Encouraging all proposed developmental activities to use remote sensing data for a hazard risk assessment for evaluation and setting up of minimum standards for all infrastructural works, especially in hazard prone areas;
10. Also refer to tasks prescribed in Para 9.2 of Chapter IX.

5.6.2 Awareness Building and Training Team:-

This Team will consist of the following members under State Relief Commissioner (SRC) or his nominee:-

- i) Commissioner & Secretary, Revenue.
- ii) D.I.P.R.
- iii) S.C.C.T.E & P.D.S. & T.
- iv) D. G. Home Guard And Civil Defence
- v) Secretary, Public Works Department
- vi) Secretary, Health and Family Welfare Department.
- vii) Principal Shillong Polytechnic.
- viii) Chief Engineer, Public Works Department (Buildings)
- ix) Director, M.A.T.I.
- x) Indian Red Cross.
- xi) Officer In-charge State Sainik Board.

Functions:

- i) Human Resource Development to increase the capacity of various role players in disaster management;
- ii) Training in disaster management of Police and Para Military Forces, Fire Services, Civil Defence and Home Guards, and Search And Rescue Team;
- iii) Regular updating, rehearsals, mock drills and simulations;
- iv) Incorporation of Disaster Management as one of the main activities of youth organizations such as NCC, Boys Scouts, Girls Guides, National Service Schemes and interested clubs and their involvement;
- v) Incorporation of disaster management aspects in educational curricula from primary school level upwards.
- vi) Creating awareness among the Community through disaster education, training and information dissemination to empower them to effectively cope with hazards;
- vii) Taking necessary measures to increase public participation and awareness and enrolment of trained volunteers for different response and recovery tasks;
- viii) Ensuring increasing involvement of NGOs, CBOs, traditional authorities and Corporate Sector;

5.7 Financial Arrangements:

Immediate response and recovery operations will be carried out with Calamity Relief Fund, Prime Minister's and Chief Minister's Relief Funds.

However, to make the effort sustainable, the following measures will be taken:

- ❖ Allocate 5-10% of the normal developmental budget for disaster management and mitigation activities.
- ❖ Incorporate risk reduction measures in normal developmental plans.
- ❖ Undertake a budgetary exercise at the State Level to raise additional resources necessary for improvement and modernisations of existing arrangements, training and important disaster management related activities which cannot be covered under normal budget.
- ❖ Draw up project proposals and mobilise additional resources from national and international agencies including the Central Government

CHAPTER VI STATE DISASTER RESPONSE PLAN

I (a) Approach.

The Meghalaya Government's approach is to ensure that those deptts/agencies which are responsible for providing a particular emergency response service will adopt a planned, systematic and coordinated approach to make them most effective, while utilizing the resources most optimally.

(b) Resourcing Support

A three-tiered framework (Block, District and State) exists for implementing response to emergencies. The responsibility for response in the first instance rest with the Village & Block. At the block level, resources owned or under the control of the block will be used. As the effects of the emergency escalate, or the resource requirements are in excess of what is available locally, District, State and external resources will be explored.

(c) Co-ordination

The district level will ensure co-ordination of resources to support operations which cannot be resourced locally, or which extend over more than one block. The highest level of operational co-ordination and support takes place at the State level. It is at this level that resource support from other States, Central Government and/or other agencies is assessed and requested.

(d) Procedures

Where an agency/department requires resources beyond its own capacity to satisfactorily complete a task, it will request for assistance as appropriate:

- If at the village level, from the B.D.O.
- If the request cannot be satisfied at the local level, then via the BDO to the Deputy Commissioner.
- If the request cannot be satisfied at District level, then request will be made to the State Govt. (State Relief Commissioner).
- If a request cannot be satisfied from resources within the State, the SRC will seek Central assistance or external assistance

II. Response Activities

A) WARNING

a) Most of the disasters except earthquake and fires could be predicted and the community likely to be affected forewarned about any impending disaster through a proper warning mechanism. Floods, droughts, cyclones, pest attacks, epidemics, industrial and chemical disasters are some of the disasters for which adequate warning could be given.

b) Disasters for which warning is not possible include earthquakes, landslide, dam bursts, thunder and lightning, fire, chemical and industrial disasters, and all accident related disasters.

c) At the State level the following departments/ agencies are made responsible to issue warning in respect of disasters which usually affect the State:

Type of Emergency	Agency
Floods	PWD, IMD, Irrigation
Cyclones/Storms	IMD/ Revenue Deptt.
Epidemics	Health Department, AH & Vety.
Pest Attacks	Agricultural Department

d) Advanced technology like, remote sensing, GIS, etc, have made predictions about imminent disasters, especially for weather and climate related ones more precise and reliable. It will be ensured that the state of the art technology will be used for predictions. The State Govt. and Deputy Commissioners of the districts affected by floods will maintain regular contact with districts upstream in Assam for advance warning.

e) The warning given will be clear and unambiguous at the earliest in vulnerable pockets in local languages/ dialects with clear advice of what the people should do before the impending emergency- whether they should stay indoors, get ready to evacuate or evacuate.

f) Emphasis to be given on regular use of communication system during normal time to ensure that they are always functional and to publicise and update all the emergency telephone numbers. Warning to people through the Govt. field functionaries will be disseminated. This system of alert may range from alarms (fires), sirens (industrial disaster), to public announcement systems like radio, television, cable T.V., loud speakers and traditional systems i.e., beating of drums etc. (cyclones, floods). On receipt of warning, the District/block level machinery and the concerned departments at the State level will be systematically activated for response measures at the earliest:

g) De-Warning

In case the disaster does not occur as predicted, the responsible agency as per Table above issues a de-warning. The de-warning will initiate the following:

- ◆ Dissemination of De-warnings by respective districts and blocks
- ◆ EOC will revert to normal functioning.
- ◆ The specialised teams (defence/search and rescue/medical), QRTs shall also stand-down.
- ◆ Material resources will be returned/stored back

III (B) Evacuation

a) Definition

Evacuation is the planned relocation of persons from dangerous or potentially dangerous areas to safer areas and eventual return.

b) Legal and Operational Considerations

The decision to order evacuation rests with the DC on the basis of advice from BDO, police and other experts, unless time constraints prevent this consultation. Once the decision is made, the BDO and the local Police will be responsible for carrying out the evacuation process.

c) Evacuation Process

Evacuated people are taken or directed to a place of relative safety, usually to an identified shelter or an emergency relief centre as per the Village/Block Disaster Management Plans.

Block Development Officers will be responsible to ensure the registration of the evacuated people. Emergency relief will be provided to evacuees as needed. They will remain at the centre or in other emergency shelters until the danger is over and it is safe for them to return home. The evacuation process includes the returning of evacuees to their homes. In situations when evacuated persons must remain away from home for an extended period, temporary accommodation may be necessary. This will be managed under the recovery arrangements.

(d) Operating Procedures for evacuation

- ◆ Shelter sites will be identified within close proximity (one hour walk and or within 5 km) of dwellings.
- ◆ Alternate routes will be planned well in advance.
- ◆ For appropriate security and law and order, evacuation will be carried out with assistance from police, fire brigade, local community leaders and NGOs/CBOs working in the community.
- ◆ Care will be taken to ensure the following:
 - To evacuate the entire family together as a unit as far as possible.
 - In view of inadequate transport or limited time, encourage community emergency evacuation in the following order:
 1. Seriously injured and sick
 2. Children, women and physically challenged
 3. Old
 4. Others

(e) Evacuation of marooned persons

Even with all the measures taken for early warning and evacuation, there may not be adequate time or opportunity for evacuating all persons. Some may be marooned and in such cases

- ◆ Evacuation must be carried out within the shortest possible time.
- ◆ The marooned persons will be transferred to the transit camps.
- ◆ Emergency transport for the seriously injured by appropriate means to be ensured.
- ◆ A senior medical officer will accompany the rescue team.
- ◆ Marooned persons will be provided with water, medicines, first-aid and cooked food
- ◆ Pregnant women/lactating mother/infants/old and sick be given top priority

(f) Dos & Don'ts' for Public

Families will be encouraged to take adequate supplies of water, food, clothing and other emergency items. People will be advised to

- ◆ Shut off electrical switches, gas appliances,
- ◆ Secure their homes. Close and lock their doors and windows
- ◆ Leave early enough to avoid being trapped
- ◆ Follow recommended evacuation routes
- ◆ Stay away from broken / fallen power lines
- ◆ Set the livestock free.

The families will be encouraged to assemble the following items in their disaster supplies kit, which they will carry when evacuating:

- ◆ Adequate supply of safe water in closed unbreakable containers
- ◆ Adequate supply of non-perishable, dry ration
- ◆ Extra clothes and rain gear
- ◆ Blankets, plates and glasses
- ◆ Toiletries
- ◆ A battery powered radio, torch, lantern, and matches
- ◆ Cash, jewellery, medicines, important documents
- ◆ Food and prescribed medicine, if any, for infant and people needing special care

III (C) Emergency Relief

- a) This section covers the provision of emergency relief to persons affected disaster.
- b) The State Govt. will specify minimum standards of relief from time to time and legal provisions will be made to ensure that all departments/agencies adhere to the specified standards. There will also be incorporation in guidelines for special care and provisions for children, pregnant women, lactating mothers, physically challenged, elders and sick persons.
- c) The BDMC will be responsible for coordinating emergency relief at the local level. The relief function roles of the chosen/designated agencies for food relief, emergency relief centres and material needs at the local level will be designated in the Block Disaster Management Plan. Should the event exceed the capacity of the specified committee to perform this function, the BDO through the DC will arrange for the State or District Authorities to assume coordination.

d) If the magnitude of disaster is very great and assistance from outside the State is required then co-ordination of relief operations assumes significance. The flow of materials and manpower from outside will be co-ordinated by the SRC, who will organise the Arrival point for flow of such assistance.

i) The SRC will establish at the nearest Airport, Rail head and Bus Terminal an Information & Arrival Centre which will be manned by suitable personnel. These will be the key points for arrival and dispatch of relief materials and rescue workers. The incoming assets from outside the State will be clearly allotted and assigned to various disaster sites by these Centres. At these centres there will be provision for:-

a) **Storage:** Storage facility at the arrival point where material is categorised and if needed, packed for dispatch will be established.

b) **Briefing cell:** This cell will give specific briefing for different types of field workers.

c) **Donation management cell:** At the arrival point, the donations (in kind) from other states and international agencies are packed and readied for further distribution.

ii) The services of Resident Commissioner will be utilised in indicating to outside agencies about the type of relief material/personnel required and the place of collection of the relief material/personnel.

Precaution : Arrangement shall be made to ensure that no donor whether National or International, NGOs/INGOs should operate independently , without the prior intimation to and the approval of the State/District Administration regarding their type of support and area of operation. This will help avoid duplication and other administrative related issues/complications.

(IV) CO-ORDINATIONAL ROLES OF SRC/DC/BDO

(A) ACTION BY SRC WHEN DISASTER IMMINENT/STRIKES

1) Once the alert stage has been activated or disaster has struck, within the first two hours of the event a meeting will be held with Secretaries of ESF departments by the SRC in the EOC or his office to -

- 1) Review the situation.
- 2) Official declaration of disaster/emergency;
- 3) Prepare a brief report to Government with recommendations;
- 4) Arrange Meeting of the State Level Steering Committee;
- 5) Appraisal of situation to the State cabinet
- 6) Ensure activation of Emergency Operations Centre (EOC), at State & Districts concerned (The role of functions of EOC is as per Annex XIII)

- 2) The following activities will be initiated parallel to the SRC meeting:
- ◆ Briefing of officers of the concerned Departments/nodal officers for each ESF
 - ◆ Arranging for all required inventories from the concerned Departments
- It will be ensured that all officers remain in headquarters until the situation gets back to normal.
- ◆ Departure of first assessment team.
Arrange Damage assessment {Report as per lines suggested in Annex -B}
 - ◆ Departure of first search and rescue team with army personnel, if required.
 - ◆ Arrange for reconnaissance flights and army assistance, if required.
- 3) The Secretaries of concerned Departments involved in ESF will meet as often as necessary under the Chairmanship of SRC and be responsible for the following:
- ◆ Ensure that the officers of concerned departments immediately inspect the affected area and take appropriate protective and restorative action within the ambit of their budgetary provisions.
 - ◆ Assessment of relief materials required will be made. Stock piling of relief materials/ ORS packets at strategic points will be ensured. Take decisions on more resources and relief material that may be required. Identify the nodal transport points for the affected Districts
 - ◆ Send specialised teams to priority areas
 - ◆ Review the actions taken for clearance of roads for movement of traffic, rescue of and relief to the marooned people, disposal of dead bodies and carcasses, restoration of communication, power and drinking water.
 - ◆ Establishment of communication with the district and block and ensuring regular flow of information. Regular contact with all control rooms will be maintained. Set up information desks at critical locations
 - ◆ Lat-long book will be kept handy for identifying the probable air dropping zones and preparation of an advanced list of villages where air droppings may be needed will be made available
 - ◆ Spare copies of block maps will be kept ready
 - ◆ Document the resources (manpower and material) support that has already been dispatched to the affected area
 - ◆ Civil society organisations will be alerted and a plan of action for working in coordination with Govt. functionaries will be drawn up.
 - ◆ Emergency meeting of important NGOs/CBOs will be convened and clear indications will be given about their expected role.
 - ◆ Submission of preliminary and final damage reports of the circumstance as well as loss sustained
 - ◆ Briefing of Press at regular intervals.

IV (B) Actions by the Dy. Commissioner

The D.C. will be the Response Coordinator at the district level. He will be responsible to the SRC for the effective coordination of resources or services within the District.

The response roles, responsibilities and duties of the District Response Coordinator are:

- 1) Operationalise the E.O.C.(As per Annexure XIII)
- 2) Undertake assessment of situation.
- 3) Co-ordinate with E.S.F. Departments./Agencies for provision of emergency relief and supply.
- 4) Ensure that consideration has been given to:
 - Alerting the public to existing and potential dangers arising from serious emergency
 - The need for evacuation
 - Other public information
- 5) Review and dispatch situation reports to the SRC
- 6) In an emergency, arrange to provide requested resources to the Block Development Officers from:
 - Within the District
 - Outside the District through the SRC
- 7) In the event of uncertainty, determine, which agency is to perform its statutory response role within the District or within a specified area of the District, where more than one agency/department is empowered to perform that role.
- 8) In the event of imminent disaster or the event occurring he will take following action:
 - ◆ Set up information desks at critical locations
 - ◆ Concerned officers in Revenue, Public Health, agriculture, veterinary, Police, Power, Telecom, PHE, C&RD, R&B, Irrigation, PWD, Civil Supply, to be called to fulfil their respective ESF function.
 - ◆ Concerned departments will be directed to get ready with emergency tool kits and necessary personnel
 - ◆ It will be ensured that all officers remain in headquarters until the situation gets back to normal.
 - ◆ Arrangements for generators, radios, batteries, extra vehicles, Satellite telephones;
 - ◆ Assessment of relief materials required will be made
 - ◆ Adequate fuel for generators and vehicles;
 - ◆ Availability of food and kerosene at block head quarters, storage agents and other inaccessible pockets;
 - ◆ Stock piling of relief materials/ ORS packets at strategic points;
 - ◆ Private stockists/ wholesalers and godowns will be directed to remain open till the situation gets back to normal
 - ◆ Adequate number of small and big vehicles will be immediately requisitioned and kept in readiness
 - ◆ If necessary, boats will be requisitioned

- ◆ Vaccines and fodder stock available with the veterinary department.
- ◆ A rapid assessment of the medicines, bleaching powders and halogen tables will be made and if necessary, more will be requisitioned immediately
- ◆ Start movement of medicines to hospitals, other points lacking adequate stock
- ◆ If needed, all the educational institutions will be closed
- ◆ Lat-long book will be kept handy for identifying the probable air dropping zones and preparation of a list of villages where air droppings may be needed.
- ◆ Spare copies of block maps will be kept ready
- ◆ Civil society organisations will be alerted and a plan of action for working in coordination with Govt. functionaries will be drawn up.
- ◆ After quick review of the preparations taken, emergency meeting of important officials and non-Govt. agencies will be convened and clear instructions will be given about their expected role
- ◆ Arrangements for evacuation;
- ◆ Registration of persons evacuated or otherwise affected.
- ◆ Provision of relief needs of evacuees where necessary.
- ◆ All search and rescue agencies and volunteers pressed into service.
- ◆ Provision of medical treatment / first aid.
- ◆ Fact gathering for inquests or judicial inquiries.
- ◆ Maintenance of law & order
- ◆ Briefing the press at regular intervals.
- ◆ Maintenance of proper records.

IV (C) Action by the Block Dev. Officer

The BDO will be the Emergency Response Coordinator at the block level. The responsibilities and duties of the Block Coordinator will be to:

- Ensure that immediate relief provisions are available and their movement activated in the event of an emergency
- Regularly apprise the District D.C. if the emergency, cannot be controlled within his/her resources.

On occurrence of an emergency he will take following action:

- 1) Arrangements for generators, radios, batteries, extra vehicles, Satellite telephones to meet emergency situation will be made
- 2) Adequate fuel for generators and vehicles will be arranged
- 3) Godowns for storage of relief materials and parking places for trucks carrying relief materials will be inspected
- 4) Availability of food and kerosene at block head quarters, storage agents and other inaccessible pockets will be checked
- 5) Private stockists/ wholesalers and godowns will be directed to remain open till the situation gets back to normal
- 6) Stock piling of relief materials/ ORS packets at strategic points will be ensured.
- 7) A rapid assessment of the medicines, bleaching powders and halogen tables will be made and if necessary, more will be requisitioned immediately
- 8) Start movement of medicines to hospitals, other points lacking adequate stock

- 9) Location of sites for operation of camps will be identified
- 10) Adequate number of small and big vehicles will be immediately requisitioned and kept in readiness
- 11) Position of boats already deployed will be assessed and if necessary additional boats will be requisitioned
- 12) Assessment of vaccines and fodder stock available with the veterinary department will be made
- 13) Lat-long book will be kept handy for identifying the probable air dropping zones and preparation of an advanced list of villages where air droppings may be needed will be made available
- 14) Necessary arrangements for evacuation will be made
- 15) All search and rescue agencies and volunteers will be alerted/pressed into service
- 16) Provision of medical treatment / first aid.
- 17) Registration of persons evacuated or otherwise affected.
- 18) Provision of relief needs of evacuees, where necessary.
- 19) Maintenance of law & order
- 20) Fact gathering for inquests or judicial inquiries.
- 21) Maintenance of proper records.

V) Emergency Support Functions (ESFs) in managing response to disaster.

The ESFs, comprising of various supporting agencies/departments, will manage and coordinate specific kinds of assistance, which are common to all types of disasters. For each ESF there will be a lead department or agency responsible for the delivery of goods and services to the disaster area. These lead agencies could be supported by a number of other department/agencies.

The proposed agencies performing the Emergency Support Functions will identify requirements, mobilise and deploy resources to the affected areas and assist the districts in their response action under Emergency Support Functions. The Emergency Support Functions will come into operation on either receipt of warning of an expected calamity or in the event of a sudden emergency.

The responsibilities, initial activities on receipt of warning and minimum standards for each ESF are given in Table-A. The details of the primary and support agencies for each type of ESF are given below in Table-B. The checklist for each ESF desk is given at Table -C.

Table –A

<p>1-Early warning</p>	<ul style="list-style-type: none"> • Setting up Control Room round the clock • Arrangement of vehicle and sound system for information dissemination • Proper record keeping and transmission of information to all the level • Ensure functioning of warning system & communication systems • Create awareness with the target groups
<p>2-Evacuation</p>	<ul style="list-style-type: none"> • To warn people about the impending danger & to leave for safer places. Mobilize people to go to identified/safer shelter • Organize trained task force members. • To co-ordinate with civil defence-NGOs/Secy. Rajya Sainik Board/Police for support. • Arrangement of boats/vehicles etc. for evacuation. Deployment of Boats for evacuation • Evacuate people of marooned areas and administer emergent relief. • Deployment of police for maintaining law & order & peace keeping during evacuation
<p>3- Search and Rescue</p>	<ul style="list-style-type: none"> • Deployment of Police/Fire Brigade for search and rescue. • Co-ordination with the NCC/NSS/Civil Defence/Rajya Sainik Board etc. for rescue operation. • Ensure availability of the rescue materials. • Prepare inventory of shelter places and map indicating the shelter centres. • Provide & arrange Rescue kit at risk areas • Deployment of the Transportable VSAT System and emergency communication systems of NESAC for search and rescue.
<p>4- Medical Aid</p>	<ul style="list-style-type: none"> • Deployment of Medical Staff • Stock piling of Life saving drugs/ORS packets/Halogen tablets. • Protocol on medical aid • Treatment of the injured persons and Transportation of the injured to hospitals. • Awareness message to stop the outbreak of epidemics. • Disease surveillance and transmission of reports to the higher authorities on a daily basis. • Vaccination • Constitute mobile teams and visit the worst affected areas • Disinfection of Drinking water sources. • Identification of site operation camps • To obtain/transmit information on natural calamities to District Control Room • Advance inoculation programme in the flood/Cyclone prone areas • Arrangement of fodder/medicines for the animals • Vaccination, site operation camps, carcasses disposal • Deployment of the Telemedicine network for medical aid at the disaster site.

5-Shelter Management	<ul style="list-style-type: none"> • Identification of Shelter/Temporary shelter at appropriate places and arrangement of tents etc. • Arrangement of Food/Drinking water/Medicine in the shelter places.. • Arrangement of transportation • Arrangement for safe shelter for animals • Providing the lighting facilities for shelter places • Deployment of Police Personnel • Temporary supply of safe drinking water
6-Emergent Relief/Free Kitchen Operation	<ul style="list-style-type: none"> • Deployment of vehicle • Procurement and transportation of Relief materials to affected pockets/areas • Provision of kitchen in the shelter camps & affected areas. • Assigning of free kitchen in the shelter camps & affected areas. • Assigning responsibilities to officials for distribution of emergent relief/running of free kitchen. • Coordinating with the NGOs/Other voluntary organization & PSUs / UNDP/ REDCROSS etc for continuing Relief Operation • Monitoring
7- Water Supply and Sanitation	<ul style="list-style-type: none"> • Ensuring supply of safe drinking water arrangement for supply of safe drinking water • Disinfectant for purification of water • Arrangement of mobile team and assigning specific operational area for supply of water • Involvement of volunteers/village level workers inaccessible pockets health awareness campaign
8-Infrastructure Restoration	<ul style="list-style-type: none"> • Formation of task force with specific equipments • Assigning responsibilities for specific areas. • Emergency cleaning of debris to enable reconnaissance. • Coordinate road-cleaning activities to assist relief work • Begin clearing roads, assemble casual labour provide a work team carrying emergency tool kits. • Towing vehicles, Earth moving equipments, cranes, construct temporary roads • Keep National & other Highways clear from disaster effects. • Damage assessment & Monitoring

Table-B

ESF No.	Service Function	Primary Agency	Support Agencies
1	Communication	State Relief Commissioner	<ul style="list-style-type: none"> • S.S.P. Communications • Doordarshan • All India Radio • Department of Telecommunication • IMD • Army • NESAC • IT/NIC • Meghalaya House New Delhi & Calcutta.
2	Public Health	Departments of Health and Family Welfare	<ul style="list-style-type: none"> • Army • Health NGOs • Department of Transport
3	Transport	Transport Department	<ul style="list-style-type: none"> • Home Department • Army • MTC • Private. Association of Buses & Taxis.
4	Power	Department of Power	<ul style="list-style-type: none"> • MeSEB • Army
5	Search and Rescue; Evacuation	DG, Civil Defence and Home Guards	<ul style="list-style-type: none"> • Fire Brigade • Police • Army • NGOs
6	Restoration of Infrastructure including Road	Public Works Dept.	<ul style="list-style-type: none"> • C&RD • PHED • UAD

	Communication		<ul style="list-style-type: none"> • MGCC
7	Relief Supplies and Food	Revenue Department/District Administration.	<ul style="list-style-type: none"> • Food & Civil Supplies Department • Department of Transport • NGOs • Army & Air force • FCI
8	Water Supply and Sanitation/	PHED	<ul style="list-style-type: none"> • Army • NGOs • Municipality/Town Committees • District Councils • Traditional Authorities • Indian Red Cross
9	Animal Health	Veterinary Deptt	<ul style="list-style-type: none"> • NGOs
10	Shelter	PWD(Buildings)	<ul style="list-style-type: none"> • Urban Affairs Department • C&RD • NGOs • Housing Department
11	Media	Dept. of Information and Public Relations	<ul style="list-style-type: none"> • Revenue Deptt.
12	Receipt of Aid	Meghalaya House New Delhi, Calcutta	<ul style="list-style-type: none"> • Designated Teams to be activated at relevant time.

Table – C

6.10.2 Checklist for each Emergency Support Functions desk:

- ◆ Do's and don'ts to be followed during disaster times in EOC
- ◆ Schedule for regular staff
- ◆ Schedule for staff on call
- ◆ Schedule for staff on disaster duty
- ◆ Databank of maps and plans
- ◆ Hardware
- ◆ GIS software
- ◆ State of the art communication equipment
- ◆ Inventories related to relief materials

VI) Department Wise Response to Disaster

Standard Operating Procedures (SOP)

General Preparedness:

Each Department and Govt. agency involved in Disaster Management and mitigation will:

- Designate a Nodal officer for emergency response who will act as the contact person for that department / agency.
- Ensure establishment of failsafe two-way communication with the State, District and other emergency control rooms and within the organisation
- Emphasis on communication systems used regularly in normal times with more focus on the use of VHF's with automatic repeaters, mobile phones with publicised numbers, HF radio sets etc. It should be remembered that SAT phones fail during prolonged emergencies and electric failure if the phones cannot be re-charged.
- Work under the overall supervision of the SRC / the District Collectors during emergencies.

VI.1 Department of Agriculture / - slide 1

Task: Assist in assessment of damage to agriculture & farming community and help them to restart their agriculture/farming operations.

Advance Preparedness: -

- Identify hazard prone zones
- Skill up gradation trainings for the officers/supporting staffs & volunteers.
- Formation of teams & delegation of areas
- Plan for emergency accommodation for agriculture staff & other officers from outside area.
- Equipment/machines etc., upgraded & are in working condition
- List of alternative safe routes
- Important telephone/contact details available
- Keeping close contact with administration
- Encourage & ensure crop insurance by farmers
- Determine the quantity, type of seeds/plants/medicines/tools and equipments etc which will be required per district/block/village, in case of an emergency
- Ensure people/farmers take the advantage of new schemes, technology and facilities provided by the government.
- List of possible storage godowns
- Pre-contract with suppliers (seeds/plants/medicines/manure/tools/equipments)
- Estimate & maintain register of type of agriculture practices, land use pattern, type of crops according to seasons, quantity of production, amount of cultivated area, insured crops etc & keep it updating.
- Monitor pest & disease control
- Generate awareness on community level preparedness

During/Post - Disaster Management:-

- Establish linkages with State/District Control Rooms
- Ensure availability of staff and teams (extension officers and others) visiting/stationed at respective disasters sites with necessary equipments, medicines, logistic support and authority as planned and establish communication links.
- Assess the extent of damage to soil, crop, plantation, micro-irrigation systems, storage facilities and the required intervention (estimate the requirement of seeds, fertilizers, pesticides , labour, tools and equipments etc).
- Ensure stock of seeds/plants/medicines/manure/tools/ equipment, which are needed and to supply immediately.
- Requisition of seeds/plants/medicines/manure/tools/equipments etc as per the pre-contract with the suppliers
- Clearance of debris, if any, due to land slide and flash flood and assist community in developing agricultural land.
- Organise transport, storage and distribution of the relief aid with adequate record keeping procedure
- Establish contact with water testing laboratories/office

- Restore the agricultural operations (including soil conditions)
- Crop protection
- Restore agriculture produce market.
- Arrangement of alternative power/ energy sources, as planned, to operate agriculture department/ field offices.
- Establish public information centre to let the people know about the type of job done and the necessary relief aid/new schemes etc
- Monitor pest and disease control
- Assist community/farmers getting insurance benefit.
- All valuable equipments/ instruments/seeds/manure/fertilisers and medicines etc should be packed in protective coverings and stored in a safer place.
- Regular reporting to higher authorities about the situation including expenditure statement etc.
- In post operation phase, sit with the teams, review situation, discuss problems, suggest remedies, collect feedback etc., to upgrade mitigation as well as action plans

VI.2 Health & Family Welfare Department

Tasks:

- To provide immediate medical, health and public hygiene services
- To check outbreak of epidemics and provide on site OT and Trauma Services
- Awareness generation on public health

Advance Preparedness: -

- Identify likely diseases associated with disasters
- Setting of quick response teams with team leaders and supporting staff (Identify by name & allocation)
- Skill up gradation trainings for the officers/supporting staffs & volunteers
- Plan for emergency accommodation for staff & other officers from outside area.
- Equipment/machines etc., upgraded & are in working condition
- Emergency fuel stored, vehicles including its batteries inspected & are in working condition
- List of alternative safe routes
- Important telephone/contact details available
- Keeping close contact with administration
- Determine the quantity, type of medicines, medical support, equipments etc that will be required per day/district/block/village, including relief camps etc in case of an emergency
- Maintain inventory including portable equipments at different locations.

During/Post - Disaster Management:-

- Establish linkages with State/District Control Rooms
- Close contact with administration
- Large stock of surgical packs be sterilized to last for one week, at least & kept in a safer place.
- Arrange for emergency supplies of anaesthetic drugs
- Requisition of medicines/equipments etc as per the pre-contract with the suppliers
- Ensure stock of equipment and drugs, which are needed and/or request HQ , on priority basis, to supply to the hospital immediately
- Arrangement of alternative power/ energy sources, as planned, to operate hospital centres.
- Deployment of teams with necessary equipments, medicines etc and logistic support and authority as planned and establish communication links
- Ensure storage of safe drinking water and encourage water savings in the hospital.
- Ensure emergency admission procedures with adequate record keeping & establish public information centre to let the people know about the type of job done and the necessary relief aid/new schemes, etc
- Ensure availability of staff and teams of doctors and assistants visiting disasters sites
- Assist volunteers/village headman/police personnel in rescue & evacuation and/or disposal of carcass as well as get insurance benefit.
- Assist administration for setting up transit and relief camps, feeding centres and ensure adequate sanitary conditions.
- All valuable equipments/ instruments and medicines should be packed in protective coverings and stored in a safer place.
- Regular reporting to higher authorities about the situation including expenditure statement etc.
- In post operation phase, sit with the teams, review situation, discuss problems, suggest remedies, collect feedback etc., to upgrade mitigation as well as action plans

VI.3 Department of Animal Husbandry

Tasks:

- Disposal of dead cattle and others animals to prevent outbreak of health and sanitation problems
- Management of livestock in emergency,
- Assist Police and Civil Defence & police in disposal of dead bodies, claimed/unclaimed, after observing all formalities

Advance Preparedness: -

- Skill up gradation trainings for the officers/supporting staffs & volunteers
- Formation of teams & delegation of areas
- Plan for emergency accommodation for veterinary staff & other officers from outside area.
- Equipment/machines etc., are in working condition
- Emergency fuel stored, vehicles including its batteries inspected & are in working condition
- List of alternative safe routes
- Important telephone/contact details available
- Keeping close contact with administration
- Determine the quantity, type of fodder/medicines etc which will be required per day/district/block/village , including relief camps etc in case of an emergency
- List of possible storage godowns
- List of possible shelters (camps) for animals
- Pre-contract with suppliers (fodders/medicines/equipments)
- Maintain livestock update
- Identify hazard prone zones
- Monitor disease control
- Encourage farmers for insurance of their livestock

During/Post Disaster Management:-

- Establish linkages with State/District Control Rooms
- Close contact with administration
- Requisition of fodders/medicines/equipments etc as per the pre-contact with the suppliers
- Deployment of teams with necessary equipments, medicines etc and logistic support and authority as planned and establish communication links
- Ensure storage of drinking of safe drinking water and encourage water savings in the hospital.
- Treatment of injured cattle/ livestock
- Protection and care of abandoned/lost livestock
- Assist volunteers/village headman/police personnel in rescue & evacuation and/or disposal of carcass as well as get insurance benefit.
- Assist administration for setting up transit and relief camps, feeding centres and ensure adequate sanitary conditions.
- Organise transfer of seriously injured livestock from villages to veterinary aid centres wherever possible.
- Establish cattle camps and additional veterinary aid centres at disaster sites and designate an Officer-in-Charge for the Camp.
- Estimate the requirement of water, fodder, medicines and animal feed and organize the same
- Regular reporting to higher authorities about the situation including expenditure statement etc.

- In post operation phase, sit with the teams, review situation, discuss problems, suggest remedies, collect feedback etc., to upgrade mitigation as well as action plans

VI. 4 Public Health Engineering Department.

Task: To provide immediate supply of clean drinking water in the disaster affected areas and in the relief camps and hospitals etc.

Advance Preparedness: -

- Identify hazard prone zones. Maintain a list of weak points/disaster prone area
- Skill up gradation trainings for the officers/supporting staffs
- Formation of teams & delegation of areas
- Plan for emergency accommodation for staff & other officers from outside area.
- Equipment/machines etc., upgraded & are in working condition
- Emergency fuel stored, vehicles including its batteries inspected & are in working condition
- List of alternative safe routes
- Important telephone/contact details available
- Mitigations undertaken as per the plan
- Keeping close contact with administration
- Pre-contract with suppliers (tools/equipments)
- Generate awareness on community level preparedness

During/Post - Disaster Management:-

- Establish linkages with State/District Control Rooms
- Close contact with administration
- Deployment of teams with necessary equipments/tools, logistic support & authority, as planned and establish communication links
- Immediately undertake inspection of intake structures, pumping stations, water sources, treatment plants, storage tanks (hospital etc), sewerage lines and of other equipments and review extent of damage.
- Undertake chlorination, bacteriological analysis, determination of chlorine residue & restoration of water works. Daily determination of the chlorine residual in public water to avoid the presence of Escherichia coli & other contamination in public water supply.
- Recruit casual labours on an emergency basis for clearing damaged pipes, blocked sewerage and salvage of important equipment and accessories
- Check the condition & contamination level of private water sources including water from streams, wells, tube wells etc , if any, and use scientific methods of de-contamination to make it edible/use worthy.
- Restore and ensure uninterrupted water supply to all vital installation, facilities and sites (life-line buildings, relief camps, feeding centres, godowns hospitals, etc).
- Assist health authorities to identify appropriate sources of potable water
- Encourage public for economic use of water

- Make provisions to acquire tankers and establish other temporary means of distributing water on an emergency basis.
- Requisition of equipments etc as per the pre-contract with the suppliers.
- A minimum level of stock should be maintained for emergencies and should include extra length of pipes, connections, joints, hydrants and disinfectant/bleaching powder. Adequate tools should be on hand to carry out emergency repairs.
- Arrangement of alternative power/ energy sources, as planned, to operate PHE centres
- Cover and guard the pumps/ motors with adequate protection so that it is not damaged or stolen
- Regular reporting to higher authorities about the situation including expenditure statement etc.

VI.5 Home Department(police and Civil Defence and Homeguards)

Task:

- Maintain Law & order
- Undertake search & rescue works as well as orderly evacuation to safer places
- Undertake fire fighting, if occurs
- Protection of supply & convoys and assist in orderly distribution of relief assistance.

4.1 Advance Preparedness: -

- Formation of teams & delegation of areas
- Skill up gradation trainings for the officers and supporting staffs & wardens /post wardens
- Mock drills according to plans
- Equipment/machines upgraded & are in working condition
- Emergency Control Rooms operational
- Adequate warning mechanism for evacuation
- Identification of alternative routes
- Important telephone/contact details available
- Unsocial elements/groups identified
- Identification of sensitive areas and patrolling
- Patrolling on important buildings/ highways
- Support to administration on training to volunteers
- Keeping close contact with administration

During/Post- Disaster Management:-

- Establish linkages with State/District Control Rooms
- Close contact with Armed Forces for specialized assistance/equipments for search and rescue

- Establish Radio Communication to assist evacuation, information dissemination and checking rumours
- Evacuation of People & immediate reporting to higher authority
- Assist seriously injured persons to go to treatment centres
- Maintain law and order
- Assist fire brigade personnel in their efforts
- Assist and encourage the community in road-clearing operation
- Traffic management and patrolling as required
- Salvage operation
- Provide security in transit and relief camps, affected areas, lifeline infrastructures & services, ensure identified are cordoned off
- Provide security arrangement for visiting VVIPS and VIPs
- Assist administration to take necessary actions against hoarders, black marketers and those manipulating relief materials
- Identify and register the names of the dead and disposed persons
- Support administration, Medical, Community members in disposing dead bodies
- Assist administration in supply and distribution of relief materials
- Deploy police personnel near relief godowns
- Escort relief carrier vehicle and personnel
- Regular reporting to higher authorities about the situation including expenditure statement etc.
- In post operation phase, sit with the teams, discuss problems, suggest remedies, collect feedback etc., to upgrade mitigation as well as action plans

VI.6 Department of Food & Civil Supplies

Tasks:

- To meet the shortage of supply of food, baby food, P.O.L., S.K.O., LPG, Candles & Batteries.
- Action against black marketers, hoarders, etc.

Advance Preparedness: -

- Identify hazard prone zones. Formation of teams & delegation of areas
- Determine the quantity & type of supplies required in a disaster (e.g. dry food, ready to eat food, essential commodities, SKO, LPG, P.O.L., toiletries, blankets etc) & tie up with suppliers.
- Identify storage facilities, location & capacity wise
- Maintain a list of suppliers of different commodities in the State & outside the State(in NE region)
- Plan for emergency accommodation for officers & staff from outside area.
- Emergency fuel stored, vehicles including its batteries inspected & are in working condition
- List of alternative safe routes
- Important telephone/contact details available
- Pre-contract with suppliers

During/Post Disaster Management:-

- Arrange and dispatch supplies to affected areas as per the requisition
- Arrange distribution of commodities to the affected people
- Take action against black marketers , hoarders etc and maintain price line
- Regular reporting to higher authorities about the situation including expenditure statement etc.
- In post operation phase, sit with the teams, review situation, discuss problems, suggest remedies, collect feedback etc., to upgrade mitigation as well as action plans.

VI.7 Public Works Department

Task:

- To clear roads, replace collapsed bridges by temporary bridging equipment or making temporary arrangements
- Assist concerned authorities to repair damaged air-stripes, helipads
- Providing engineering support to Search & Rescue Teams (SRT)
- Providing support of heavy equipments i.e., Earth Movers, Bulldozers, etc
- Assist Revenue Department to provide temporary shelters/tents

Advance Preparedness: -

- Formation of teams & delegation of areas
- Skill up gradation trainings for the officers and supporting staffs
- Mock drills according to plans
- Identify weak structures/weak points vulnerable to Earthquake/Landslide
- Inspect all roads, bridges, including under water inspection of foundation and piers. A full check should be made on all concrete and steel work
- Equipment/machines etc., upgraded & are in working condition; procurement of tentage equipments
- Emergency fuel stored, vehicles including its batteries inspected & are in working condition
- Preparation of possible helipads; inform its longitude/latitude to State/District Control rooms
- Non-destructive test & retrofitting of lifeline buildings & important structure to ensure seismic proof (along with the Urban Affairs Department).
- Heavy equipments, such as front-end loaders, should be moved to areas likely to be damaged and secured in a safe place.
- Retrofitting of roads
- List of safe alternative routes
- Important telephone/contact details available
- Training of masons on retrofitting and building bye-laws (along with the Urban Affairs Department)
- Keeping close contact with administration
- Pre-contract arrangement with suppliers for requisite equipment/stores
- Generate awareness on community level preparedness

- Important telephone/contact details available
- Pre-contract with suppliers (equipments)
- Arrange disaster management tool kit, at each sub-stations, comprising cable cutters, pulley blocks, jungle knives, axes, crowbars, ropes, back saws spanners and tents for crews.
- Generate awareness on community level preparedness

During/Post - Disaster Management:-

- Establish linkages with State/District Control Rooms
- Deployment of teams with necessary equipments , logistic support and authority as planned and establish communication links
- Switch off the power supply immediately to avoid further damage to life and property during the time of disaster
- Immediately undertake inspection of Power grids, barrage, high tension lines, towers, substations, transformers, insulators, poles, and other equipments and review extent of damage . Undertake restoration works
- Restore power supply and ensure uninterrupted power to all vital installation, facilities and sites (relief camps, feeding centres, god owns).
- Recruit casual labours on an emergency basis for clearing damaged poles and salvage of important equipment and accessories.
- Requisition of equipments etc as per the pre-contract with the suppliers
- Arrangement of alternative power/ energy sources, as planned, to operate hospital centres and lifeline buildings (DC Office/State Control Room/Police Stations/Tele-communication Buildings/IMD Shillong etc)
- Regular reporting to higher authorities about the situation including expenditure statement etc.
- In post operation phase, sit with the teams, review situation, discuss problems, suggest remedies, collect feedback etc., to upgrade mitigation as well as action plans

VI.9 Forest Department

Advance Preparedness

- Promotion of shelter belt plantation
- Publishing for public knowledge details of forest cover, use of land under the forest department, the rate of depletion and its causes
- Keep saws (both power and manual) in working conditions
- Provision of seedling to the community and encouraging plantation activities, promoting nurseries for providing seedlings in case of destruction of trees during natural disasters

- IEC activities for greater awareness regarding the role of trees and forests for protection during emergencies and also to minimise environmental impact which result as a result of deforestation like climate change, soil erosion, etc.
- Increasing involvement of the community, NGOs and CBOs in plantation, protection and other forest protection, rejuvenation and restoration activities.
- Plan for reducing the incidence, and minimise the impact of forest fire

- **During and Post Disaster Management**

- Assist in road clearance
- Provide of tree cutting equipments
- Units for tree cutting and disposal to be put under the control of SRC, DC during emergency
- Provide of building materials such as bamboos etc for construction of shelters
- Take up plantation to make good the damage caused to tree cover

- **VI.10 Department of Transport**

Task:-

- Arrangement of transport for reaching supplies to affected areas
- Transport for evacuation of people
- Transport of medical teams

Advance Preparedness: -

- Identify hazard prone zones. Formation of teams & delegation of areas
- Plan for emergency accommodation for officers & staff from outside area.
- Emergency fuel stored, vehicles including its batteries inspected & are in working condition
- List of alternative safe routes
- Important telephone/contact details available
- Pre-contract with suppliers
- Provide list of important telephone/contact numbers
- Assessment of the likely requirement in the event of a disaster
- Information about various classes/types of vehicles available, location-wise
- Keep vehicle requisition forms ready in sufficient numbers

During/Post - Disaster Management:-

- Get in touch with State/District Control Rooms
- Ascertain the actual requirement from Control Room, Supplies Deptt., Housing Deptt, Medical Department
- Arrange vehicle for evacuation , maintenance of supplies and medical aid etc.,

- Regular reporting to higher authorities about the situation including expenditure statement etc.
- In post operation phase, sit with the teams, review situation, discuss problems, suggest remedies, collect feedback etc., to upgrade mitigation as well as action plans

VI.11 Community & Rural Development

Advance Preparedness

- Develop prevention/mitigation strategies for risk reduction at community level
- Training of public representatives on various aspects of disaster management
- Public awareness on various aspects of disaster management
- Organise mock drills
- Promote and support community-based disaster management plans
- Support strengthening response mechanisms at the village level (e.g., better communication, local storage, search & rescue equipments, etc.)
- Ensure alternative routes/means of communication for movement of relief materials and personnel to marooned areas or areas likely to be marooned.
- Assist all the government departments to plan and prioritise prevention and preparedness activities while ensuring active community participation

During and Post Disaster Management

- Train up the BDC/BSC Members and support for timely and appropriate delivery of warning to the community
- Construct alternative temporary roads to restore communication to the villages
- Operationalise emergency relief centres and emergency shelter
- Sanitation, drinking water and medical aid arrangements
- Participate in post impact assessment of emergency situation
- Support in search, rescue and first aid
- Provision of personal support services e.g. Counselling
- Repair/ restoration of infrastructure e.g. roads, bridges, public amenities
- Supporting the villages in development of storage and in playing a key role and in the coordination of management and distribution of relief and rehabilitation materials
- Provide training so that the elected representatives can act as effective supportive agencies for reconstruction and recovery activities.

VI.12 Department of Information and Public Relations

General Tasks

- Creation of public awareness regarding various types of disasters through media propagation
- Dissemination of information to public and others concerned regarding do's and don'ts of various disasters
- Regular liaisoning with the media Response Activities
- Setting up of a control room to provide authentic information to public regarding impending emergencies
- Daily press briefings at fixed times at state & district levels to provide official version
- Keep the public informed about the latest of the emergency situation (area affected, lives lost, etc)
- Keep the public informed about various post disaster assistances and recovery programmes

VI.13. Revenue Department

Task

- Coordination with Govt. of India
- Overall control & supervision
- Damage assessment, finalisation of reports and declaration of Emergency
- Mobilisation of finance

VII Information Management

The objective of information management is to provide the right information to the right person at the right time in the right format. During emergency response activities, all participating agencies, persons affected and the wider community need information. Dissemination of critical information required during emergencies through use of display boards, etc. can minimise confusion. Training of persons responsible for briefing the media is required. A lot of confusion can be avoided through regular press briefings.

VII.1 Media Liaison

Media management during a disaster is an important aspect. The SRC/DC will ensure that up-to-date and accurate information is made available.

A media centre should be established with the involvement of DIPRO in the district(s) affected.

The office of the SRC will also establish a Media Centre attached to the State EOC to be operated by the DIPR

VII.2 Post-operational Debriefing

The SRC/DC is responsible for convening a debriefing conference as soon as practicable after cessation of response activities. All agencies that participated in those activities will be represented with a view to assessing the adequacy of the response and to recommend any changes to the relevant plan(s).

1. Purpose of the Debriefing Conference
2. Debriefing Conference Agenda
3. Debriefing Conference Format

Definition of Recovery

Recovery from Disasters
The process of restoring the community to a state of normalcy or better after a disaster. It involves the coordination of resources and the implementation of recovery plans. Recovery is a long-term process that may take years to complete.
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CHAPTER VII

STATE DISASTER RECOVERY PLAN

7.1 Introduction

Disasters can and do destroy property, adversely affect the livelihood of people, undo development initiatives and damage public infrastructure and facilities. Immediate relief to affected people is addressed by arrangements under the State Emergency Response Plan. The affected people and the communities often require support, both in tangible and intangible form, to regain normalcy and start life afresh from where it got disrupted. Each disaster could be considered as an opportunity to reinforce the resilience of the communities and the resistance of the infrastructure, so that adversity of the future disasters could be minimised.

The stakeholders in disaster management are: (a) the Community, (b) the Government, (c) the Voluntary organizations and (d) the funding agencies. All these stakeholders play specific roles at different stages of disasters, viz., (a) before a disaster, (b) during the disaster, (c) immediately after the disaster and (d) thereafter. While all the stakeholders do have some role or the other to play in all the four stages, the role of the community is most pronounced in all the stages. Particularly, the communities have to meet the challenges on their own during and immediately after a disaster. . The community during a disaster has a shared responsibility of providing physical and psychological support to each individual, particularly to the vulnerable sections. The State Disaster Recovery Plan places the affected community as the focus of recovery management and provides a structure for the management of all the inputs into the recovery process in a way that is appropriate to the needs of the community.

The recovery plan applies to all types and scales of emergencies and also to organisations having roles in the recovery from disasters, whether listed in this manual or not.

7.2 Definition of Recovery

Recovery can be defined as “the assisting of persons and communities affected by emergencies to achieve a proper and effective level of functioning”. Recovery includes all aspects of mitigation and also incorporates the continuation of the enabling process, which assists the affected persons and their families not only to overcome their losses, but also to achieve a proper and effective way to continue various functions of their lives. The Recovery process is therefore a long-term process in which everyone has a role – the Government including the self-government institutions, the NGOs, and especially the affected people, their families and the community.

7.3 Recovery from Disasters

The capacity of people to recover from a disaster using their own resources varies, depending on the circumstances of the disaster as well as on the nature of their community. Repeated occurrence of disasters, on one hand, has fortified the coping mechanism of the communities, but on the other, has trapped them in a vicious cycle socio-economic vulnerability. It is required to take up long-term disaster proofing measures to enable the communities to get out of the vicious circle and minimise their vulnerability.

Assistance provided will be adapted to meet the basic needs of those affected, with a focus on the most vulnerable sections of the people. After disasters, special recovery measures are necessary for vulnerable groups like people with disabilities, widows, orphans, children and uncared elders. The recovery plans will also be gender sensitive and include cultural and biodiversity components. This requires sensitivity and extensive consultation with the affected people and communities and the inclusion of psychosocial expertise in the recovery team. Assistance may include material aid, temporary accommodation, financial assistance, counselling and personal services, information and community support and can come from a range of sources.

Various aspects of mitigation activities that will be taken up for minimising the impact of most likely hazard i.e. earthquake is given in Annexure XV.

7.4 Recovery as a Developmental Process

Recovery should be seen as a developmental process throughout which communities attain a proper level of functioning rather than merely returning to the previous level of functioning.

7.5 The Recovery Process

There are two interrelated aspects of losses caused by disasters: The physical and technical aspects, which includes destruction of property, and the social or community aspect, which includes personal suffering, community disruption, loss of community amenities as well as economic and commercial losses.

7.5.1 Physical and Technical Aspect of Recovery

This aspect of the recovery process covers two types of activities:

Restoration activities comprise repair of public utilities, housing, etc. and re-establishment of the means of livelihood, farming and industrial activities/enterprises.

Reconstruction activities include replacing buildings and other capital infrastructure. These activities may continue for months or even years.

7.5.2 Social or Community Aspect of Recovery

Recovery is a complex social process, which involves the whole community, and is best achieved when the affected communities exercise a high degree of self-determination.

7.6 Co-ordinating Agency for Recovery

For restoration of public infrastructure, the primary responsibility will vest with the concerned Govt. departments. For livelihood restoration and social security, the Block will be the nodal agency. Social Capital Restoration programmes will be executed through NGOs and CBOs. State Relief Commissioner will be over all charge of identifying, formulating, monitoring and co-ordinating the Recovery Activities. The Deputy Commissioners will be responsible for facilitating and monitoring of the works at the district level.

7.7 Interface with Response Activities

Though distinct, response and recovery activities could run concurrently. Recovery activities should begin as early as possible without waiting for the response activities to cease.

7.8 Recovery Management and the Community

The recovery process is usually most effective if the affected community is able to participate in the management of programmes and resources made available to it. The village disaster management Committee and the Block Disaster Management Committee, which consist of representatives of the people/affected community, will be closely associated with the recovery programme, particularly relating to livelihood recovery.

Tasks of the VDMC/BDMC, in so far as recovery activities is concerned, will include:

- Monitor the progress of recovery in the affected community;
- Identify community needs and resource requirements and make recommendations to appropriate authorities – DC/SRC
- Liaise, consult and negotiate, on behalf of affected communities with D.C., and Government Departments.
- Liaise with district administration.
- Undertake specific recovery activities as determined by the circumstances and the committee.

7.9 Role of Deputy Commissioner

The Deputy Commissioner will be the co-ordinator of all Recovery activities in the District. The role of the Deputy Commissioner will be to:

- Generally oversee the management of the recovery process;
- Assist departments, blocks and village Committee in providing services effectively, minimising overlap and duplication;
- Ensure that an assessment of needs is conducted; and, where possible, ensure appropriate services are provided.

7.10 Recovery Management at State Level

State Relief Commissioner will be in charge of recovery management at State level. Its overall responsibility will be:

- Develop policy issues on recovery management
- Conceive and solicit programmes from Govt. departments, District administration and NGOs.
- Prioritise projects
- Decide on the terms and conditions of execution
- Mobilize resource for operations
- Liaise and co-ordinate with the implementing agencies;
- Facilitate and Monitor operations
- Suggest norms for the recovery projects at village and Block level
- Support the local management of recovery by ensuring State co-ordination of resources from all sources;

7.11 Funding:

The financing of Recovery activities will be explored from the following sources:

- From budgetary provisions for recovery plans and programmes in normal developmental activities.
- Calamity Relief Fund
- National Calamity Contingency Fund
- Prime Minister's Relief Fund
- Chief Minister's Relief Fund
- Special programmes of Govt. of India
- Loans and assistance from national and international funding agencies

7.12 Monitoring & Minimum Standards

Monitoring and evaluation will be done with a view to ensure

- That the outputs have incorporated disaster proofing measures for risk reduction
- Monitoring at different stages of the process
- Enforce the adopted quality regime
- Solicit feedback from the target groups
- Transparency of operations
- Accountability

Chapter-VIII

Voluntary, Bilateral and Multilateral Agencies

8.1 Introduction:

Participation of the community is crucial in Disaster Management. However, preparing the community for appropriate response within a limited time and motivating it for adopting long-term mitigation measures would require a very sustained, intimate and a flexible approach. This a challenge which can be effectively addressed through involvement of NGOs and CBOs (Community Based Organizations) due to their close linkages with the community, their outreach and flexibility in procedural matters

8.2 NGOs & CBOs

Local NGOs and CBOs, due to their proximity to the community, can act as a vital link between government and the community particularly during emergencies. They are in a better position to appreciate the area and specific problems of the people and their flexibility in approach makes them more acceptable in the community.

There are some international NGOs in Meghalaya like Indian Red Cross Society, who have considerable experience and expertise in emergency management. These organisations, apart from their resources and expertise, have a network of NGOs whom they can harness during emergencies. They could also play a vital role in information dissemination because of their existing global network.

Apart from local and international NGOs and CBOs, there are a number of NGOs, which are religion based and have a very committed work force. These religious groups generally own institutes / places of worship that are "Pucca" buildings which can be used as shelters during emergency. These groups also often have necessary infrastructure and resources for mass feeding.

Some international and national religious institutions have a mandate on active social action and disaster management irrespective of religion, caste, creed and language. These missions provide services like social counseling and promote communal harmony. During disaster they, not only, come for relief operations, but also, because they have a large number of followers in the society and have an established identity, also undertake reconstruction and restoration activities. Some of these organisations have technical professionals associated with them and have good training and other infrastructure. The services, technical professional expertise and training infrastructure could be fruitfully used for all disaster management activities.

These organisations can play crucial role in planning and preparedness through

- Creation of contingent funds for disaster management and generate resource from other agencies, patrons and individuals.
- Organising congregations and other cultural functions and in raising community consciousness on disaster preparedness.
- Organising awareness and skill development trainings on various aspects of disaster management

The Role of CBOs and NGOs in disaster management is considered in three stages:

- **Preparedness**
 - ❖ Public education, awareness raising
 - ❖ Community based preparedness activities: vulnerability and risk assessment; Forming and training DMTs (Disaster Management Teams); contingency planning.
 - ❖ Introducing alternative technologies and livelihood practices, including alternative methodologies and planning strategies which will make such interventions sustainable
 - ❖ Assisting and participating in preparation of contingency Plans at Block, district, state, and village levels;
 - ❖ Policy and Issue-based Consultations at State level
 - ❖ Reviewing and upgrading DM Plans/Community Contingency Plans.
 - ❖ Documentation
- **Emergency Response**
 - ❖ Dissemination of warning
 - ❖ Evacuation; Search and Rescue
 - ❖ Relief distribution
 - ❖ Medical aid
 - ❖ Emergency shelter
 - ❖ Immediate restoration
 - ❖ Women and Child care
 - ❖ Trauma Counseling
 - ❖ Coordination of Volunteers
 - ❖ Community mobilization
 - ❖ Documentation, etc.
- **Recovery**
 - ❖ Restoration of damaged community structures (schools, etc.)
 - ❖ Restoration of livelihood
 - ❖ Rehabilitation of vulnerable groups
 - ❖ Restoration of environment
 - ❖ Managing emergent group activities
 - ❖ Recovery planning, coordination, evaluation
 - ❖ Documentation, etc.

The District, Block & Village Disaster Management Committees shall be encouraged to utilize the service of CBOs/NGOs & religious organizations in the DRM Programme.

8.3 Bilateral Organisations

Bilateral agencies play a major role in disaster management and work through government as well as NGOs and other partner agencies. They provide resources for preparedness, research, networking and institution development, relief, reconstruction and rehabilitation. They can assist in making suggestions for possible changes in policies by sharing of disaster management applications in other parts of the world. In addition they can provide technical expertise and give support by mobilizing advanced rescue and evacuation teams from other countries during time of extreme emergencies. These

organisations carry out responsibilities in coordination with the Government of the affected country, other donor Governments, international organisations, UN agencies and NGOs.

8.4 Corporate Bodies

Meghalaya has a very small corporate sector. Yet the existing corporate sector will be encouraged to-

- i) Play an active role in preparedness and planning through raising community awareness in their projects areas on various aspects of disaster preparedness
- ii) Provision of technical know-how to manage disasters (especially industrial accidents, fire etc.)
- iii) Providing specialised equipments (earthmoving equipments, boats, etc.) for disaster response
- iv) The corporate sector will be encouraged to develop a fund at the state and district levels for preparedness and post-disaster activities.

8.5 UN Agencies:

The UN resolution affirms that the humanitarian assistance must be provided in accordance with the principles of humanity, neutrality and impartiality. The UN has a central and unique role through the organizations under its aegis, coordinate international co-operation in the field of disaster management and mitigation. Even though disaster management and mitigation rests on the National Government, the UN agencies are responsible for providing advice and assistance to the government and responsible to mobilize and provide technical and material assistance according to its mandate and resources.

- A mandate issued by the UN General Assembly ensued in setting of United Nations Disaster Management Teams (UN-DMT) to be convened and chaired by UN resident coordinators in each disaster prone nation. Essentially the composition of UN-DMT is determined by taking into account the types of disasters to which a country is prone to and capability of the organizations present in the country working in the area of disaster mitigation and relief. The primary purpose of UN-DMT is to ensure a prompt effective and concerted response in the event of a disaster
- Coordinate UN assistance to the Government in post disaster rehabilitation and reconstruction process
- Undertake long-term disaster mitigation measures

8.6 UNDP (United Nations Development Programme)

UNDP is mandated to promote incorporation of disaster mitigation in development planning and provide financial support and technical assistance for different facets of disaster management. Assistance is also provided in the planning and implementation of post disaster rehabilitation and reconstruction and incorporation of risk reduction techniques in the affected areas.

Following the Super-cyclone in 1999, UNDP took a lead in coordinating and facilitating relief and rehabilitation efforts of various agencies.

UNDP plays the role of convener of the UN's DMT which is an inter-agency working group and works on disaster management in collaboration with Govt. and NGOs.

The activities of UNDP in the State are -

- Supporting the State Project on Disaster Preparedness and disaster mitigation;
- Initiating community based disaster preparedness programme in the State

UNDP can play the following roles in a disaster management:-

- ◆ Propagate disaster preparedness in community level through NGOs, CBOs, and Govt. machinery.
- ◆ Play a vital role in preparing disaster management plans at state, district, block and community levels.
- ◆ Incorporation of disaster mitigation in development planning.
- ◆ Support and get involved in planning and implementation of relief and rehabilitation activities of the Govt.

8.7 WHO (World Health Programme)

WHO provides advice and assistance in various aspects of preventive and curative health care including preparedness of health services for rapid disaster response. WHO can play a major role in initiating and strengthening the disease surveillance system in the event of a disaster in affected Districts of the State.

CHAPTER-IX

Information, Education and Communication (IEC)

9.1 Information, Education, Communication:

IEC activities play a crucial role in the entire disaster management process, specially in enhancing the capacity at the village/community and individual level. Timely information, enhanced knowledge and awareness & effective communication; all together enhance the impact of disaster management strategies.

Evolving a **disaster management information system, strategies for education and awareness, and communication strategies** are the main 3 issues/activities to be operationalised in the State.

9.2 Disaster Management Information System (DMIS)

The DMIS will facilitate handling of both longer term tasks such as vulnerability and risk analysis, capacity and resource mapping, hazard impact and recovery documentation and short term emergency information management task such as warning dissemination, pre-and post-impact situation monitoring, immediate damage assessment, emergency response monitoring & documentation. The State Information Task Team is expected to perform the lead role in establishing a credible DMIS Major tasks to be accomplished for putting in place a DMIS in the state are as follows:

- IDRN net work will be managed in the **State & District Emergency Operation Centre (EOC)**;
- The state level will receive and compile data and information from all relevant agencies, departments & similar data management will be carried out at the district level EOCs
- A GIS Database will be developed.
- Other Databases would include information on Department/Agencies connected with Disaster Management, their skills, areas of operation, nodal offices, sector specializations, financial and human resources and information on Volunteers, Equipment, Communication, Emergency Shelter and other Disaster Management facilities.
- Dissemination of necessary information to relevant agencies and stakeholders.
- Hazard Tracking based on reports received from the Meteorological Department & other designated Departments.
- Warning dissemination in three aspects: early alert, warning, and de-warning.
- Pre-Impact Information Management
 - Collecting information on threats, possible impacts;
 - Monitoring preparedness at District, Block,/village levels;
 - Monitoring warning dissemination and evacuation
 - Readiness of different response and support agencies including non-govt. agencies
- Post-impact Information Management will include the following tasks:
 - Assessing primary and secondary data in the affected areas including physical, environmental, social, economic, and psychological impacts on various socio- economic groups at affected locations;
 - Monitoring emergency response activities at different levels
 - Monitoring deployment of emergency agencies and equipment;

- Monitoring role of external/non-government agencies involved in emergency management process;
- Management of necessary data and information for post-impact rehabilitation/recovery planning;
- Documentation of response and recovery activities for learning.

9.3 Education and Communication:

Education and Communication initiatives are basically for (1) raising knowledge and understanding to strengthen skills and capacities of deptts./agencies; and (2) raising knowledge and awareness amongst people to strengthen their coping abilities and ensure their participation in preparedness, response, recovery, and mitigation initiatives.

9.3.1 Educational Initiatives aimed at Deptt./Agencies:

- Regular training programmes for government officers humanitarian agencies on various aspects of disaster management
- Regular workshops, consultations for generating better understanding of wider issues of disaster management
- Preparing Checklists and Training Handbooks Manuals for various deptts./agencies and their personnel.
- Inclusion of disaster preparedness, response in the curricula of Teacher Training Courses; specialised training programmes on child-focused disaster preparedness, for school teachers, preparing handbooks for school teachers, community level workers, etc.

9.3.2 Educational Initiatives and communication aimed at people and other stakeholders:

- Preparing flyers, Booklets, Safety Tips and Checklists in vernacular languages for coping with various disasters.
- Carrying out awareness raising activities through mass media: Radio Talks, Panel Discussions on TV, Advertisements in Newspapers, Pamphlets, Posters and telecasting the film, important clips on Earthquake Preparedness, translated and dubbed in the local language through DD and local cable networks, etc.
- The Department of Arts & Culture to prepare theme songs/thematic phrases on Disaster Management/Earthquake Preparedness in major languages for wider dissemination of information.
- Incorporating disaster related themes in school curricula
- Preparing Training manuals for public education on disaster management
- Organising workshops on Earthquake Preparedness by the State Council of Science, Technology & Environment along with the concerned district/block level officers and disseminating the pamphlets through District/Block/Village DM Committees for wider circulation.
- Disseminating the Earthquake Preparedness Guidelines prepared by the MHA, translated in the local languages through the Urban Affairs Department, D.Cs./B.D.O.s amongst those who propose to construct houses.
- To conduct Mock Drills in Schools by the Deptt. of Education in collaboration with the Department of Home Guards & Civil Defence. To undertake regular mock drills with CBOs at Village and Block Levels.
- To provide posters on Earthquake for displaying the same at convenient entry/exit points for information of staff and general public in Secretariat & major govt. offices.

- Preparing booklets on recovery and prevention strategies for different livelihood groups such as farmers, artisans, etc.

• 9.3.4 **Communication:**

Appropriate Communication Initiatives for effective information dissemination in the state will include:

- Identifying target groups and planning communication initiatives on various hazards and counter measures as and when required;
- Making oral and non-verbal communication the mainstay of community-oriented communication initiatives
- Combining verbal and non-verbal modes of communication in preparing pamphlets, posters, and educative picture books for children, etc.
- Printing and disseminating knowledge, information, and educational materials through relevant government agencies.
- Installation of 4 digits line, updating of names and contact numbers of the important State/Dist/Block level officers/personnel and disseminate/circulate to all concerned
- Organising Disaster Preparedness Day every year on 29th October;
- Organising various activities at the State, District, Block and Community & Institutional level to raise awareness on disaster impacts and required counter measures.

9.4 Roles of Different Agencies:

Various agencies will be responsible for carrying out IEC activities at different levels.

a) *Warning Dissemination:*

Govt: All India Radio; Door Darshan; IMD; Department of Information and Public Relations; EOCs at State/District.

Others: Private TV Channels; Print Media, NGOs, Volunteers, Community Workers

b) *Disaster Information Management*

Data/Information Compilation: State Information Task Team, concerned Departments and Administration at State/ District/Block levels;

Alternative Communication System: Wireless/VHF Networks of Police ; Use of satellite phones by District Collectors; NGOs to be encouraged to use HAM Radios; Message Board on Meghalaya State Website accessible by State/District/Blocks & Community Information Centres.

c) *Education and Information Dissemination:*

Awareness Raising: State Awareness Building and Training Team Revenue, Education, Health, Social Welfare Departments, State Council for Education Research and Training and NGOs.

Capacity Building: MATI, State Institute for Rural Development, CTI/Home Guard/Civil Defence, PWD, NGOs, Resource Organisations within and outside the state

Communication: DI & PR, Radio, DD, Local Cable Network, Departments of Revenue, Health, Education, Social Welfare and NGOs, etc

9.5 Monitoring and Evaluation:

State Disaster Management Committee will monitor all IEC activities for Disaster Management. A major role of this committee will be to set timeframes, workout implementation strategies, and monitor outcomes/ impacts of IEC activities. This committee will be assisted by a Sub-Committee on IEC which will draw up annual action plans for achieving targets on different activity and also identify and mobilise resources, skills needed for carrying out the IEC Plan.

Chapter-X

Follow-Up Actions

This chapter discusses follow up actions that will be undertaken by various agencies/departments to operationalise the Plan.

The priority areas which needs immediate attention are:

- 1) Preparation of district, block and village plans and inter linking them with higher and lower level.
- 2) Preparation of Standard Operation Procedures.
- 3) Preparation of various handbooks and checklists for prevention, preparedness, response, mitigation activities
- 4) Modernisation of existing control rooms and strengthening of infrastructure in disaster prone areas keeping in mind the vulnerability to different hazards.
- 5) Preparation and updating technical and quality control aspects of all civil constructions and non civil installations based on review of past disasters.
- 6) Prepare Block level GIS maps giving location of all items/information required for response and recovery measures
- 7) Review existing developmental schemes/ projects and incorporate disaster management principle in all schemes and all plans
- 8) Ensuring sensitivity and incorporation of environment, gender, ethnicity, vulnerability of socio-economically disadvantaged groups (Children, elders and the physically challenged), food and income security, disaster proofing measure in all development initiatives, response and recovery plans
- 9) Updating of existing Laws, Rules and Codes for better administration of relief and recovery measures including revision of Meghalaya Relief manual.
- 10) Enforcement of relevant Laws and Rules pertaining to disaster management: provisions of few acts like Factories Act, Environment Protection Act and Forest Act are some of the relevant acts whose enforcement will assist in minimising risks and ensuring more effective disaster management practices in the State.
- 11) Promoting consciousness and adoption of Insurance and a culture of safety, to follow building codes, norms guidelines, quality materials in construction etc.,
- 12) Encourage research and studies on disaster management issues, techniques and equipments.