

DISASTER MANAGEMENT PLAN

2017-18



PUBLIC HEALTH ENGINEERING DEPARTMENT
GOVERNMENT OF MANIPUR

CHAPTER-I

PROFILE OF THE DEPARTMENT

1.1 Overview of the department

The Public Health Engineering Department is dealing with Planning, Investigation, Execution and Operation and Maintenance of both Urban and Rural Water Supply Schemes in the State. In addition, the Department is also looking after Imphal Sewerage project and Swachh Bharat Mission (Gramin) in the State. As the Government of India (GoI), in recognition of the importance of Disaster Management as a national priority, set up a High-Powered Committee (HPC) in August 1999 and a National Committee after the Bhuj earthquake, Gujarat in 2001, for making recommendations on the preparation of Disaster Management plans and suggesting effective mitigation mechanisms. These efforts led to the enactment of the Disaster Management Act on 23rd December 2005, which envisaged the formation of National Disaster Management Authority (NDMA), headed by the Prime Minister, State Disaster Management Authorities (SDMAs) headed by respective Chief Ministers, and District Disaster Management Authorities (DDMAs) headed by Deputy Commissioner of the concerned district to organize and implement a holistic and integrated approach to Disaster Management. NDMA, as the apex body, is mandated to lay down the policies, plans and guidelines for Disaster Management to ensure timely and effective response to disasters. National Institute of Disaster Management (NIDM) was also established to carry on planning, training and research work in the area of Disaster Management (DM). National Disaster Response Force (NDRF) was created for specialist response to a threatening disaster situation. Section 18 of the Disaster Management Act, 2005 mandates the State Disaster Management Authority (SDMA) to lay down guidelines to be followed by the departments of the Government of the State for the purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects. It will also formulate State disaster management policy and approve the Disaster Management Plan (DMP) prepared by the different departments. All the departments of the State shall prepare their departmental plans. DMPs are to be improved and updated at least once in a year. (Guidelines for various departments under the Disaster Management Act, 2005)

1.2 Objectives and scopes of the plan

Manipur though tiny states of India face frequent floods, drought and earthquake causing deaths and injury to many and worsening the economy. The main objective of the Disaster Management Plan (DMP) is to reduce the risk level through preparedness at various levels.

- 1) DMP helps to bring together the information related to equipment, machinery, skilled manpower and critical supplies.
- 2) It helps to know the standard operating procedures of the department at the time of disaster.
- 3) To fix the role and responsibility of each and every officer for disaster preparedness.
- 4) It helps the Department to assess its own capacity in terms of available resources and get ready to mitigate any unexpected disaster effectively and to prevent the loss of human lives and property through preparedness, prevention & mitigation of disasters.
- 5) To assist the line departments, block administration, communities in developing compatible skills for disaster preparedness and management.
- 6) To disseminate factual information in a timely, accurate and tactful manner while Maintaining necessary confidentiality.
- 7) To develop immediate and long-term support plans.
- 8) To have response system in place to face any eventuality.

1.2.1 Scope of Plan:

As per Disaster Management Act 2005, there shall be a disaster management plan for every department of the State. The Departmental Disaster Management Plan shall be prepared by the Department, after consultation with all stakeholders and having regard to the National Plan and the State Plan, to be approved by the State Authority. The DMPlan shall include-

- To map the areas in the State which are vulnerable to different forms of hazard.
- To take measures for prevention and multi hazards mitigation by the Departments at state level as well as local level
- The capacity-building and preparedness measures required to be taken by the Department at state level and the district level to respond to any

threatening disaster situation. The response plans and procedures, in the event of a disaster, providing for-

- A) Allocation of responsibilities at state and District Level
- B) Procurement of essential resources;
- C) Establishment of communication links and dissemination of information to the public.

1.3 Function of the department

The Public Health Department (PHED) deals various schemes such as

1) Urban Water Supply scheme.

Imphal City Water Supply System (IWSS):

- Area covered : 27 Wards of IMC (30.75 sqkm)
: Greater Imphal (64.63 sqkm)
: Some en-route habitations, institutions etc.
- Census 2011 population (Total) : 586214
- Projected Population (2017) : 6.65 Lakhs
- Water demand (2017) : 120.92 MLD
- Installed capacity of existing 19 WTPs : 104.25 MLD

The Urban Water Supply comprises of Imphal Water Supply and Other Towns.

The present estimated population of Imphal City including Greater Imphal area, en-route habitation and urban fringe area etc is estimated as 6.65 lakh (2017) and expected to reach 8.705 lakh by 2031.

The present water demand is estimated to be 120.92 MLD(2017) and requirement by the year 2031 will be 152.142MLD.

Other Towns

There are 28 other towns, Out of 28 Other Towns, augmentation of Water Supply Scheme works to (1) Bishnupur, (2) Moirang, (3) Kakching, (4) Thoubal and (5) Jiribam has been taken up under the Urban Infrastructure Development Scheme for Small and Medium Town (UIDSSMT) since 2011.

2) Rural Water supply

This is one of the flagship Programmes of the Central Govt. Now under this it is expected to provide household drinking water supply to all the census habitation of the state under the slogan “HarGharJal-SDG 2030” (Launched on 23-03-2017, World Water Day by union Minister). But the

state Government is trying to provide water supply to the entire household in the state by 2022.

3) Sewerage treatment plant

Name of the Project:- Sewerage Project Phase-I for Imphal Town with French Assistance.

Sewerage Treatment Plant at Lamphelpat with 14.54 hect.

Area Covered:- Core area of the Imphal Town mainly Imphal-Municipal Ward Nos. 1, 2, 3, 4, 5, 6, 14,15,24, 25 & 26

Population to be benefitted: - 173245 inhabitants

Type of sewage treatment plant:- Extended Aeration process with sludge treatment and sludge dewatering using belt filters

4) Swatch Bharat Mission Gramin (SBM/G)

This is a flagship Programme of the Central Govt. and under this all the rural individual households (4,47,678 nos.), government schools (3919 nos), Angawadis (1201 nos.) of the state are to be provided sanitary latrine by 2nd Oct. 2019. So far 3,55,769 nos. of individual household latrine (80% completed), 329 nos. of sanitary complex, 3919 nos. of school toilets, and 1201 nos. of angawadi toilets has been constructed.

CHAPTER-II

HAZARD RISK VULNERABILITY AND CAPACITY ANALYSIS

Manipur is highly vulnerable State to a large number of natural as well as man-made disasters. Earthquake and floods has jolted this hilly State many times and caused great losses to the State. Earthquake, flood, fire, landslide and cloud burst are other common natural calamities of the State that are very frequent related to PHED worst affected.

2.1 Nature, Frequency and Intensity of Disasters

The State is vulnerable to many hazards that are listed as follows:-

Table: Major hazards, frequencies and intensities

Sl. No.	Nature	Frequency	Intensity
1	Earthquake	Anytime	High/Moderate/Low
2	Flood	Regular	High/Moderate/Low
3	Landslides	Regular	High/Moderate/Low
4	Drought	Rare	Low
5	Fire	Anytime	High/Moderate/Low
6	Road Accident	Regular	High/Moderate
7	Pest Attack	Rare	Low
8	Epidemics	Anytime	Moderate/Low

2.1.1 Earthquake

Manipur is situated in seismic zone V, which is the most earthquake prone zone in the country (Seismic Zones -India 2001). It keeps on experiencing minor tremors off and on. The seismologists, on the basis of past pattern have

predicted that a major earthquake is almost overdue in the north east region of India.

Earthquakes of low to moderate intensity are recorded here regularly. The state of Manipur, has weathered dozens of large earthquakes the biggest in recent times being the 1988 M7.2 earthquake. Most earthquakes in western Manipur are shallow. But some, especially those recorded in the eastern parts and along and across the Myanmar border have greater depths. Areas in central Manipur are especially vulnerable to damage during earthquakes as they lie in the Imphal Valley, the lowest point of which lies the Loktak Lake. Much of the valley floor provides for strong shaking from even far off quakes as its soft soil amplifies the wave motions.

According to Global Seismic Hazard Assessment Program (GSHAP) data, the state of Manipur falls in a region of high to very high seismic hazard. As per the 2002 Bureau of Indian Standards (BIS) map, this state also falls in Zone V. Historically, parts of this state have experienced seismic activity greater than M6.0-7.0.

In Manipur, while all the districts are vulnerable to earthquake, the damage is most likely to occur in Imphal town, which has multi-storey buildings built without any consideration for incorporation of Earthquake Resistant construction.

Table: Major Earthquakes recorded in Manipur since 1984

Date	Magnitude	Remarks
5 th March 1984	Earthquake Mb 6.2 (HFS)	East of Palel, Manipur (Indo-Myanmar Border region), 21:26:42.0 UTC, 24.5160N, 94.6204E, 67.50kms depth
6 th May 1984	Earthquake Mb 6.0 (HFS)	NE of Aizwal (Manipur-Mizoram Border region), 15:19:11.0 UTC, 24.2152N, 93.5256E, 31.60kms depth
18 th May 1987	Earthquake Ms 6.2 (PEK)	Near Karong, Northern Manipur, 01:53:51.0 UTC, 25.2287N, 94.2076E, 52.80kms depth

6 th Aug 1988	Earthquake Mw 7.2 (HRV)	East of Imphal (Indo-Myanmar Border region), 00:36:24.6 UTC, 25.149N, 95.127E, 91 kms depth. Three people were killed in this earthquake. Tremors were felt over much of eastern and north-eastern India, Bangladesh, Bhutan, Eastern Nepal and Myanmar. Felt as far as Kolkata and Patna. Some damage was also reported from Homalin in northern Myanmar.
15 th April 1992	Earthquake Mb 6.3 (HFS)	NW of Mawalik, Chin Division (Indo-Myanmar Border region), 01:32:11.0 UTC, 24.2680N, 94.9275E, 130.90kms depth
18 th Sept 2005	Earthquake Mb=5.7	A moderate earthquake at Myanmar - Manipur border, 24.653 N, 94.807 E, D=82 kms, OT=07:26:00 at 12:56 IST causing isolated minor damage to property in some parts of Manipur. The earthquake was felt at many places in north-east India and Bangladesh as well as in tall buildings in northern Thailand.
4 th Sept 2009	Earthquake	Myanmar-Manipur border, Mw 5.924.381 N, 94.712 E, D=97.6 kms, OT=19:51:03 UTC. A moderate earthquake struck the Myanmar-Manipur border, at 01:21IST. It was felt widely in north-east India and in Bangladesh.
4 Jan 2016	Earthquake M6.7	The Manipur Earthquake (Mw 6.7) occurred at 04:35 IST on 4th January 2016 with an epicentre 29 km(18 miles) in an isolated remote rugged terrain west of Imphal at a focal point of approximately 55 km with an uncertainty of 1.9 km.

2.1.2 Flood

Manipur Valley (Imphal Valley) located in the central part of the State is nearly oval shaped valley. It virtually comprises of four districts viz. Imphal-East, Imphal-West, Bishnupur and Thoubal districts. The total geographical area of the valley is 1900 sq. km. that falls within the parallels N 24°16' to N 25°2' and meridians E 93°41' to E 94°9'. It is approximately 60-65 km. long and 30-35 km. wide. Physiographically the terrain is an elevated plain surrounded from all sides by structural hills of Disang formation.

Flood is a primary natural hazard in the area during monsoon season damaging the crops and properties of the people. Flash flood occurred almost every year during rainy season due to poor drainage condition. The primary causes of flood in Manipur Valley are heavy run off and less infiltration in degraded watersheds in the upper reaches of the rivers during rainy seasons in the valley.

Manipur Valley is traversed by the major rivers viz., Imphal, Iri, Thoubal, Sekmai, Wangjing, Khuga, Chakpi, Nambul etc. which either fall directly into or indirectly connect (through lakes) with Imphal river which later on known as Manipur river. Thus Manipur Valley is oriented with the Manipur River system. The total catchment area of the Manipur river system is 6332 sq. km., which is the study area of the project.

The climate of the study area is sub-tropical monsoon type. The rainy season of the area is quite long starting sometimes in the early part of May and continues up to the middle of October. Annual rainfall varies from 895 mm to 2135 mm in the valley and up to 3148 mm in the hilly area. Minimum temperature varies from 1° to 10°C and maximum temperature 27° to 36°C. Forest types found in the area are tropical moist deciduous and subtropical pine forests. Manipur Valley is made up of alluvium of fluvio-lacustrine origin. They are usually dark grey to black in colour. The principal constituents are clay, silt and sand. Usually almost all the hillocks within the valley and hill ranges within the study area are made up of Disangshales. The Disangs are dark grey to black splintery shales. However, Barials are found in the western hill ranges of the study area and some hillocks inside the Valley have Barailcappings. The Barials are grey to brownish colour sandstone of fine to medium grain size.

Figure: Location Map of Manipur Valley

**LOCATION (of localities) MAP OF MANIPUR VALLEY
(Catchment Area)**

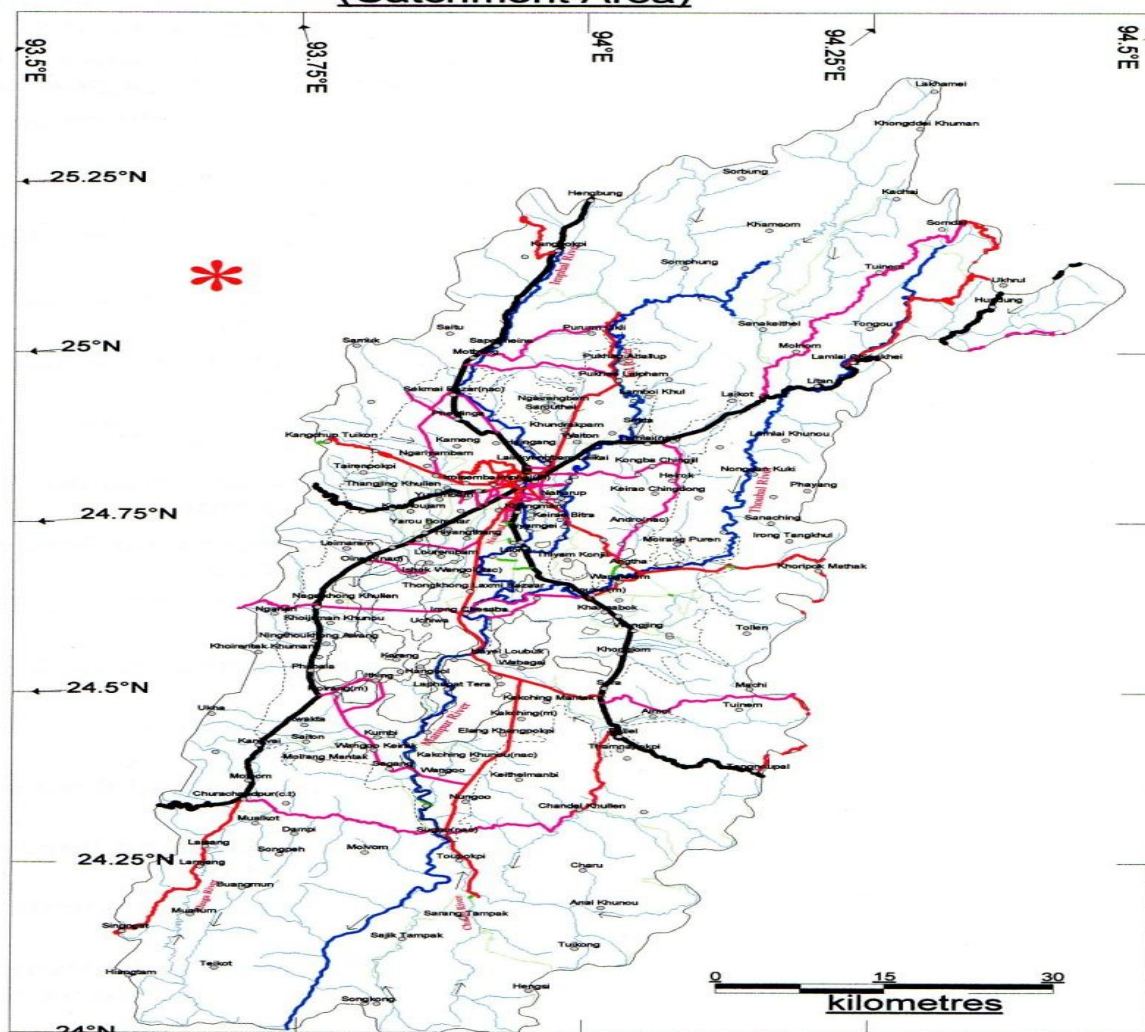


Table: Major Floods recorded in Manipur since 1989

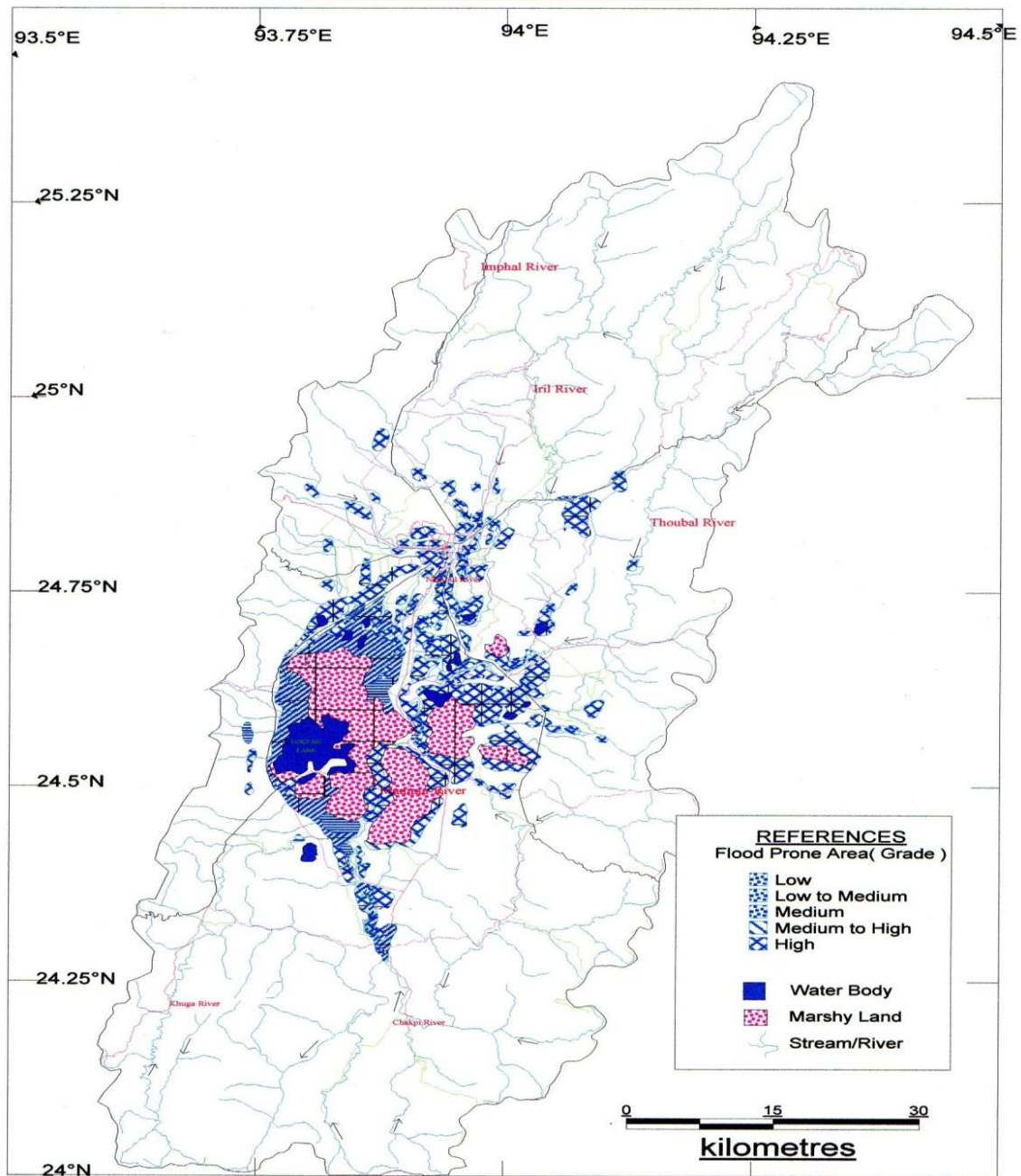
Date , Month & Year	Remarks
July-August 1989	Flood occurred in Manipur Valley at its devastating worst. Altogether 361 localities were inundated. Breached of embankment took place at 40 places. 7 lakhs of people were affected and 97,500 hectares of paddy fields were damaged. Altogether 49,069 houses were damaged and 41,000 domestic animals were affected due to this flood. The magnitude of the flood was severe.

14 th October 1992	Due to the incessant rainfall in the upper catchment area of the major rivers of Manipur Valley, water level of all the rivers rose rapidly from. The daily precipitation in the form of rainfall on 14th, 15th and 16th October 1992 was very high and heavy discharge occurred in the rivers and caused breached, overtopping and piping at some of the places. Serious breaches took place at 4 different places. The flood was of moderate magnitude.
September 1997	Flood occurred in Manipur Valley. All the rivers flowing through Manipur Valley were rising rapidly from 25th September 1997. Breaches of embankments took place at four different places of Nambul River, two places of Wangjing River, one place of Merakhong River, two places of Imphal River, two places of Thongjaorok River, one place of Khujairok River and one place of Khabi River. Due to the flood, damage caused to houses rose up to 4965 numbers. The flood was of high magnitude.
July-August 1998	Flood occurred in the Valley in July 1998 affecting some areas of Iroisemba. In August, breach of river embankment took place at one place of Wangjing River, as a result inundating the areas of LamingNashikhong, LamingLaishramLeikai and some adjoining areas. Magnitude of the flood was low.
September 1999	There was incessant rainfall from 24th August to 3rd September 1999. The flood mainly affected the southern parts of the Valley. Not less than 7,300 houses and 15,300 hectares of paddy fields are affected. The flood was of moderate magnitude.
September 2000	Flood occurred in Manipur Valley. Breaches of river embankment take place at 30 different places. Not less than 2,400 houses and 7,800 hectares of paddy field were affected. Breaches of river embankment take place at 11 places of Thoubal River, 6 places of Wangjing River, 2 places of Arong River, 2 places of Sekmai River and 3 places of Manipur River. The flood was of moderate

	magnitude.
June-July 2001	Flood of low magnitude occurred in some parts of Manipur Valley. On 7th June breach of embankment of Nambol River took place at Nambol, Kongkham: inundating Kongkham, SabalLeikai, Maibam and Naorem. On 1st July Nambul River overflowed, inundating Uripok and Khwairamban Bazar. On 3rd July, Chandranadi River, a tributary of Nambul River overflows on the southern side, inundating cultivated lands of Chajing, Haoreibi and Karam.
August 2002	Severe flood was occurred in Manipur valley. Breach of embankment took place at 59 places. Due to incessant rain in the catchments, all the rivers flowing in and around Imphal, Thoubal and Bishnupur districts were rising from August 11, 2002. On August 13, 2002, the water levels in all major rivers/streams in Manipur valley were rising alarmingly crossing the R.F.L on the same day. The water levels of the major rivers were so high on the above day that even the deckings of the bridges on the rivers were badly submerged under water. The flood mainly occurred in the south eastern parts of Manipur valley. About 10,000 houses and 20,000 hectares of paddy fields were affected.
August 2015	Manipur is battling with the worst flood in 200 years due to incessant rainfall in the past few days with water overflowed from of all main major rivers that wrecks havoc washing away connecting bridges, embankment breach cutting off many villages from the mainland. Worst affected districts are Bishnupur, Imphal East, Imphal West, Churachandpur, Thoubal and Chandel districts
May and June 2017	The State experienced massive flood starting from 30th June, 2017 due to heavy incessant rains and caused extensive damages to dwelling houses, paddy fields, standing crops, infrastructure etc.

Figure: Flood Hazard Zonation Map of Manipur Valley

**FLOOD HAZARD ZONATION MAP OF MANIPUR VALLEY
(CATCHMENT AREA)**



Source: Report on Flood Zonation in Manipur Valley, MASTEC)

ELEMENTS AT RISK: The four valley districts in Manipur, namely Imphal East, Imphal West, Thoubal and Bishnupur are most vulnerable to floods.

2.1.3 Landslides

Landslides are among the major hydro-geological hazards that affect large parts of the country. Most of the north-eastern region is bristling with

landslides of bewildering variety. North-east region, because of its continued evolution, fragile geological formation and structures, is highly prone to mass movement causing landslides. Since landslides are mostly triggered by events of heavy rainfall and seismicity, which could be followed by flood in the plains, the local populace fills the impact of this location caused by landslides.

As it is a hilly state, land-slides and mudslides are quite common. In 2004, severe landslides affected Senapati District. Even at present, mudslides due to construction of Jiribam-Tupul Railway line have affected many families in Tamenglong District. Landslides are one of the natural hazards that affect at least 15% of land area of our country exceeding 0.49 million km².

The Manipur Science & Technology Council (MASTEC) had conducted Landslide Hazard Zonation covering an area of 163 sq.km of Barak Catchment with a linear stretch of 63 kms between Noney-Nungba. During the tenure of the project 18 incidence of landslides have been identified. Most of the landslides fall into active and old slides. The major causes of the slides are both natural and anthropogenic. Geological formation along the road section between Noney-Nungba along NH-53, belong to Barail Group and Surma Group. The constituent litho units are susceptible to weathering and erosion leading to slopes failure and mass wasting on moderate to large scale. The stratified nature of rocks, affected by deformation, plays important role in causing landslides.

Table: Recent occurrence of landslide in Manipur

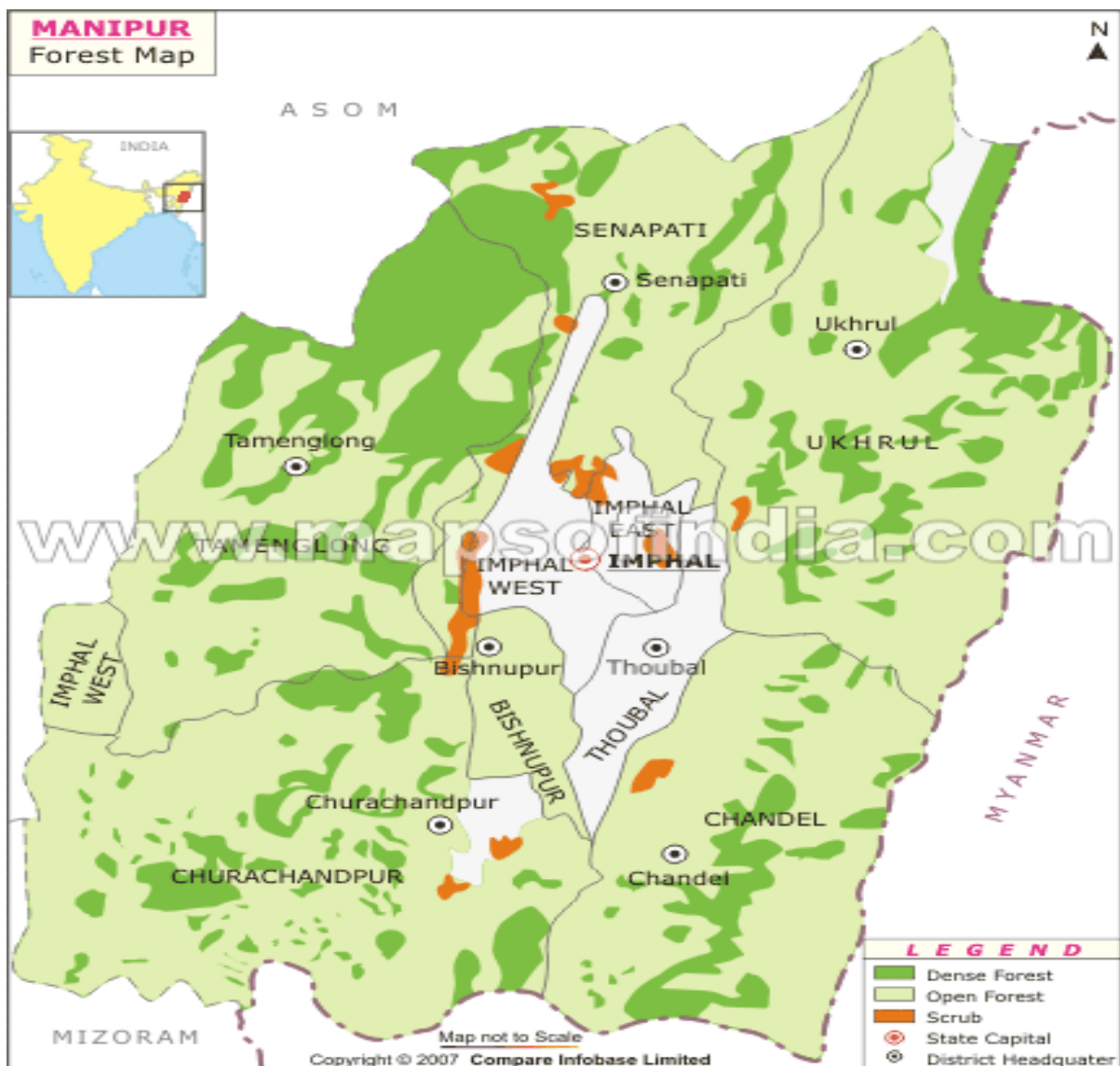
Year	Remarks
1st August 2015	A major landslide in Chandel district on 01 August, 2015 swept away one village claiming about 21 human lives.
June 2017	Hills districts were severely affected by the floods and landslides causing damages to standing crops, infrastructure, roads, human lives, livestock, property etc.

ELEMENTS AT RISK: Hill districts of Manipur i.e. Churachandpur, Tamenglong, Senapati, Ukhrul and Chandel are most vulnerable to Landslides.

2.1.4 Forest Fires

Forest fires are common and frequent in the forest areas all over the State. The incidence of forest fire is more in the forest areas adjoining the valley. Villagers set fire to forests to get flush of new grass for their cattle and for collection of fire wood. Regeneration (natural as well as artificial) is completely wiped out and wildlife including rare plants is severely damaged. The hill forests get burnt every year due to wild fire spreading from the burning of jhum. Most of the fires occur in un-classed forests wherein the Forest Department have very little or no control and maintain the records. The extent of area affected by forest fire is estimated to be about 2000 sqkm annually.

Figure: Forest Map of Manipur



(Source: <http://www.mapsofindia.com/maps/manipur/manipur-forest-map.htm>)

Table:
IncidentsofForestFireinVariousDistrictsofManipurduringFireSeason(FromNovember,2009toMay,2010)

Month	No.ofincidentsofForestFire								
	Cent ral	TBL	BPR	CDL	UKL	TML	SPT*	CCP	Total
Nov, 2009									
Dec, 2009									
Jan, 2010	-	-	-			28.1.201 0-2 31.1.201 0-2 4	30.1.201 0-1 1	31.1.201 0-3 3	8
Feb, 2010	-	-	-	20.2.2010-2 22.2.2010-1 27.2.2010-3 6	1.2.2010-1 4.2.2010-1 13.2.2010-1 15.2.2010-4 20.2.2010-1 24.2.2010-2 10	1.2.2010 -2 2.2.2010 -2 4.2.2010 -4 10.2.201 0-2 13.2.201 0-5 15.2.201 0-13 17.2.201 0-1 26.2.201 0-8 27.2.201 0-3 40	2.2.2010 -4 6.2.2010 -4 13.2.201 0-4 15.2.201 0-9 20.2.201 0-1 27.2.201 0-1 23	6.2.2010 -1 20.2.201 0-3 25.2.201 0-1 27.2.201 0-2 7	86
Mar, 2010	-	-	-	2..3.2010-2 3.3.2010-1	3.3.2010-11 5.3.2010-1	1.3.2010 -25 2.3.2010	1.3.2010 -2 2.3.2010	2.3.2010 -2 3.3.2010	208

(Source: Annual Administrative Report 2010-11- Forest Department, Govt. of Manipur, available at http://manipur.nic.in/annualreport/forest_2010-11.pdf Accessed on 14/12/2012.)

ELEMENTSATRISK: Almost all the districts of Manipur (due to high forest coverage) are vulnerable to Forest Fire. Also, all the districts are vulnerable to domestic fire.

2.1.5 Hailstorm

These are very common throughout the state and cause severe damage to crops and houses. In March and April' 2010, severe hailstorm affected the state,

resulting in deaths of two children, apart from severe damage to buildings. Hailstorms cause heavy damage to crops and vegetation. Secondary hazards like snapping of electric poles due to uprooting of trees, disruption of communication links etc. are also attributed to hailstorms.

ELEMENT AT RISK: Almost all the districts of Manipur (due to high forest coverage) are vulnerable to Forest Fire. Also, all the districts are vulnerable to domestic fire.

2.1.6 Lightning

A few cases of deaths and fire accidents occur frequently in the state and all the districts are vulnerable.

2.1.7 Pest attack

A very peculiar phenomenon takes place in the north east India where bamboo grows extensively. These plants flower once in 50 years. When the seeds develop, rodent population, which eats these seeds, proliferates. These rodents then attack the rice fields destroying all the crops leading to famine (Bagla 2001). This phenomenon started in Manipur in 2006 and caused severe crop failure in Churachandpur, Tamenglong and Chandel Districts, forcing the State Government to take special measures to provide food grains to the public.

2.1.8 Drought

For some years now, the state has been facing the prospect of drought due to diminishing rains, which are a direct result of loss of forest cover, due to excessive felling of trees. In context of Manipur, causes of drought are natural and human activities both. Several types of weather changes have also altered the normal rainfall pattern in the area leading to a proneness to drought. In last few years, it has been observed that human activities like soil erosion, and deforestation, have also caused drought. In 2009, all 9 districts were affected by the drought. The State Government of Manipur declared drought in respect of all nine districts on 25.6.2009. The deficit in rainfall upto the end of July, 2009 was 47 percent. Rainfall from 1st to 12th August was 51.8mm as against 87.4mm during the corresponding period in 2008- a shortfall of 40.7 percent. Total 1.02 lakh ha. area remained unsown against a total Kharif Crop Area of 2.34 Lakh Hectare.

2.1.9 Accidents

Manipur has its own share of accidents. It witnessed the loss of an Indian Airlines Flight on 16th August, 1991, resulting in death of all the passengers and crew (Statement by Minister: Accident of Indian Air Lines Aircraft near Imphal 1991). Due to hilly terrain, many times, the buses fall in gorges, leading to loss of life and injuries.

Table: Road Accident Data for Manipur for the Last 5 Years

Sl. No.	Year	No. of Accidents	No. of Deaths	No. of Grievous Injuries	No. of Minor Injuries	Remarks
1	2012	771	158	571	820	(a) 2 accidents occurred in a day & one person killed in every 2 days till 2014. (b) In 2015, one person killed in every 2.6 days. (c) In 2016, 1.4 accidents occurred in a day & 1 person killed in every 4.5 days.
2	2013	736	171	379	912	
3	2014	602	168	274	1021	
4	2015	571	139	264	937	
5	2016	538	81	186	769	

(Source : CID/Crime Branch, Manipur)

Table: Road Accident Parameters for 2014 and 2015:

Parameter	2014	2015	% change over previous year
Accidents	4,89,400	5,01,423	2.5
Persons killed	1,39,671	1,46,133	4.65
Persons injured	4,93,474	5,00,279	1.4
Accident severity	28.5	29.1	2.1

No. of persons per 100 accidents.

Table: Comparative 2016 & 2017 (Jan – September):

January-September, 2016			January – September, 2017		
No. of Accidents	No. of Deaths	No. of Injuries	No. of Accidents	No. of Deaths	No. of Injuries
410	66	692	435	99	771

Remarks:

(i) Increase in fatality during the above corresponding Period = 33 (50% rise) which is quite alarming.

(ii) Alarming rise in fatalities & injuries was due to the fact that a series of fatal road accidents were occurred in the State particularly along the n/Hs, S/Hs & DRs/ODRs during the last part of March, 2017 & in the month of April, 2017.

(iii) No. of injuries is the total of grievous & minor injuries sustained during the above corresponding period with marginal increase of 79 injuries (11.41% rise).

2.1.10 Epidemics

As Manipur valley is overcrowded, occurrence of water and airborne epidemics cannot be ruled out. In 2007 almost 150,000 poultry birds had to be culled and safely disposed after the H5N1 strain of the Avian Influenza Virus was detected in some dead birds (Parsai 2007). In 2009 one case of Swine Flu has been reported from Manipur (Manipur reports first swine flu case, alerts sounded 2009). In 2010 six people reportedly died following outbreak of Japanese Encephalitis in Manipur.

2.3 Vulnerability to Various Hazards

Public Health department is often considered a critical infrastructure since a disruption in one of its components can have significant impact on the economic and social well-being of a region of a nation. From an economic standpoint, the impacts of disasters are dependent on three factors;

- 1) the nature and level of incidence of disasters;
- 2) the level of exposure of populations and infrastructures and;
- 3) the level of vulnerability of populations and infrastructures.

There are several factors that have an impact of the threats and risk level of disasters on transportation systems:

- **Extreme weather events:** Many weather events such as storms occur regularly and tend to have minimal impacts on transport/ drinking water systems with delays, partial closures or diversions. Others, such as floods, cyclones (hurricanes), tornadoes and droughts can be of disastrous proportions. Tropical cyclones (hurricanes) are particularly harmful since they cover wide areas (a mid-sized cyclone can cover an area of 500 km in diameter), are moving slowly (25 km/hr) and are associated with high winds and rainfalls. Regional air transport and public transit systems are usually shut down and land transportation can be seriously impaired.
- **Geophysical:** Tectonic activity is the source of the most serious geophysical disasters. Earthquakes are salient forms of geophysical threats since they are difficult to predict. The damage by the high magnitude earthquake is significant.
- **Accidents:** The outcome of technical failures or human errors and where modes, infrastructure or terminals can be damaged, even destroyed, which includes injuries, the loss of life and property damage. Small scale accidents occur very frequently, particularly over road transportation systems. However, transportation-related accidents are rarely considered as disasters because they are mostly very punctual events not related to a massive loss of life and damage.
- **Infrastructure failure:** Transportation infrastructure can fail due to a lack of (or deferred) maintenance, improper management, design flaws or handling more traffic than they are designed for. Bridges and other similar structures are particularly vulnerable, especially from a system-wide perspective where aging (or poorly maintained) infrastructure can impact many components within a similar timeframe.
- **Conflicts, terrorism and piracy:** Conflicts such as wars and civil unrest often result in the damaging of infrastructure with transportation commonly a voluntary or involuntary target.
- **Economic and political shocks:** They are likely to play a growing role in the future, particularly financial issues as most developed nations have accumulated a staggering amount of debt that is likely to be defaulted on. Such an event would be associated with a lack of capital available for infrastructure construction, maintenance and oversight, rendering elements

of the transport system more prone to risks, such as accidents and infrastructure failure.

Also, the Department is handling various schemes which are directly benefiting the poor and rural population. These schemes and programmes are highly vulnerable to various hazards. Various hazards to which the Department is likely prone to are discussed in the following table.

Nature of Hazards	Outcome
Flood	Damage to roads and official buildings, other infrastructures, diseases, food shortage, etc.
Earthquake	No communication & transportation, Loss of Life, Loss of homes, Damage of infrastructure
Drought	Migration Low economic activity Loss of Crops & Food Shortage
Landslide	No communication & transportation, Loss of Life, Loss of homes
Heatwave	Injury Loss of Life Damage to Crops
Lightning, Heavy Rain, Whirl wind, Heavy Rain	Injury, damage to transportation, Loss of Life Damage to Crops

2.4 Risk Analysis

The likelihood of an event and its potential impacts should be comprehensively assessed, such a low to high probability over a defined time frame and over a specific area. This should provide a prioritization of risks, but it remains a very uncertain process.

Sl.No	Hazards/Disaster	Risk
1	Flood	High Risk Damage to departmental buildings, Vehicle Terminals and depots, disruption in road network
2	Drought/Heat wave/Lightning/ Heavy Rain/Whirl Wind	Risk is Moderate Food Shortage, Water scarcity, Loss of Life, Disruption to Transport networks.
3	Earthquake	Low Risk As the prevalence is less. Damage to departmental buildings, Vehicle Terminals and depots, disruption in road network

Table: Types of risks in Transport dept. while exposed to different Disasters

The Hazard and Risk vulnerability analysis has been prepared based on the available data and past experiences. Similarly, each district may need to undertake district specific vulnerability analysis and tie up such analysis with the District Disaster Management Plans.

Organizational structure

CHAPTER-III

PREVENTION, MITIGATION AND PREPAREDNESS PLAN

3.1 Necessary Measures

A natural disaster could occur due to an immediate extreme events or it could be result for long duration process, which disrupt normal human life in its social traditional and economic system to a considerable extent. Disaster is commonly used to denote any extreme event, be it natural or man-made, which bring about loss of life, property, infrastructure, essential services and means of livelihood to an extent that it becomes difficult to cope with the situation due to it beyond the normal capacity of the affected communities to deal with unaided.

Severity of the disaster is assessed on the basis of disruption to the normal pattern of life; impact like loss of property, injury hardship, adverse effect on health; community needs, specially shelter, food, clothing, medical assistance and social care; damaged to infrastructure, building communication and the requirement of rehabilitation.

Whole landmass of the Manipur is in Seismic Zone V. An Earthquake of magnitude 8 or above will lead to large number of injuries, loss of life, and damage to infrastructure. In such a scenario human life is in more danger. If no action is taken right now, the problem will worsen due to population growth, construction of unplanned buildings and poor knowledge of private construction agencies regarding EQ resistant design and geotechnical considerations in making risk resistant construction.

- i. Basic disaster awareness and sensitization
- ii. Detailed guidelines shall be prepared & circulated to key functionaries of Department in the event of any impending disaster like situation.
- iii. Preparation of Emergency Preparedness Plans.
- iv. Conduct of Mock drills to test the plans and organized response
- v. Discuss emergency plan with stake holders.
- vi. All the Govt. life line buildings shall be evaluated as per safety and security plan to identify the potential risk of damage. The safety evaluation report will be examined at State/ Circle level by competent authorities for necessary action every year.
- vii. Discuss earthquake safety at home and in the office.

3.2 Preparedness measures taken by the department are as follows:-

- a) Distribution of the safe drinking water through tankers.
- b) Distribution of chemicals such as bleaching powder, chlorine tablet, alum etc. to the affected area.
- c) Periodically monitoring of the damaged pipes and structures.
- d) Drilling of wells including installation of hand-pumps done on routine basis.
- e) Construction of community ponds and check dams at possible area.
- f) Checking of the hand pumps or repairing of tube-wells wherever required is done by the official staff.

CHAPTER-IV

RESPONSE PLAN

4.1 Mechanism For Early Warning And Dissemination

After getting warning from State Disaster Management Authority or District Disaster Management Authority, information shall be disseminated to the field by the State/District Incident Response Team. Mass media like TV, Radio, and Press shall also be included for awareness. The State and District Control room will be activated to function round the clock in the affected district. The State IRT shall furnish the status report about the establishment of control room at Circle level. S.E.'s will be responsible to provide all kinds of support to the control room at district level.

4.2 Trigger Mechanism For Response

After issue of early warning, Superintending Engineer PHED of the vulnerable Districts will explain the detailed response plan at District level meeting of District Disaster Management Authority constituted in every district in conformity with GOI guidelines for planning, coordinating and implementing various activities.

4.3 Response Plan for Responding Effectively And Promptly

The S.E.s of non-affected districts will prepare separate teams of field staff for deployment to the affected areas on the request of State IRT. The first team will be replaced after specified time say 7 days by second team and so on. All the field staff will be asked to remain at their respective head quarter with necessary preparations as per the standard operating procedure. The control room will collect, collate and transmit information regarding matters relating to the natural calamities and relief operations undertaken, if any, and for processing and communicating all such data to concerned quarters. The list of volunteers and community resources that are already available should be in readiness to support response measures. The Control Room shall be manned round the clock during the peak period of disaster till the relief operations are over. For this purpose one officer, one assistant and one peon will be on duty in suitable shifts.

The Officer-in-Charge of the Control Room shall maintain a station diary and such other records as may be prescribed by the department. The particulars

of all the information received and actions taken should be entered in the station diary chronologically. The S.E.'s shall furnish a daily report to the Head office on the important messages received and actions taken thereon. The head office shall indicate the particulars to be released for public information.

4.4 Appointment of Nodal Officers

EO-Chief Engineer will be the nodal officer at state level and will be supported by 5 SEs (Urban, Planning & monitoring, R1, R2, R3) will serve as a support agency for regulating relief/ restoration operations. The department will also assist the District administration for spreading the information of do's and don'ts to the people of the affected areas. S.E.,s of the concerned Circles will be the nodal officer at the Circle level to perform emergency support functions.

4.4.1 Roles and responsibilities of the nodal officers:

Roles and responsibilities of the nodal offices are as under:-

1. Act as the focal point for disaster management activities of the department. The department may ensure that he/she has the mandate to work immediately without waiting for directions from the higher authorities. This will save time.
2. Provide his/ her contact and alternate contact details to SDMA/DDMA and, State and District Emergency Operation Centre, all line departments and agencies.
3. Accountable to any communication/actions related to disaster management of the department.
4. Take lead to prepare the department disaster management plan, Emergency Support Function (ESF) plan and Standard Operating Procedure (SOP).
5. Constitute the Incident Response Team (IRT) in the department as per the need and organize training for members.
6. Help the department to procure the equipment's necessary for search and rescue, first aid kits and disburse the same to IRTs and for the department if required.
7. Provide regular information on disaster or task assigned to him to SEOC during and after disasters in consultation with the department head.

8. Attend Disaster management meeting, trainings, workshops or any related programme on behalf of the department.
9. Identify an alternate nodal officer and build his/her capacity.
10. As per the need of the department, set up control room and assign other official (s) for control room duty.
11. Identification and staffs for deployment on site operation centres (on site control room during a disaster).
12. In consultation with the department, make arrangement of alternative communication system for the department.
13. Mobilize resources for disaster response activities as per the resource inventory put in the department DM Plan if it is needed by the department or other line departments.
14. Organize regular awareness programmes in the department.
15. Organize the periodic mock drills at least twice a year as per the suitability of the department and update the plans at all levels and ensure participation of the department in mock drills of other agencies and other departments.
16. To have liaison with other departments and functionaries working in the field of DM.

4.5 Formation Of The Incident Response Teams

Incident Response Teams (IRTs) will be constituted at State, Circle & Division level to deal with any disaster.

Sr. No	Designation	Role
1	Additional Chief Engineer	Chairman
2	SE Urban	Member
3	SE Planning & monitoring	Member
4	SE R1	Member
5	SE R2	Member
6	SE R3	Member
7	EO to CE	Member
8	SW to CE	Member

Fig 4.5: Table for IRT at State level

Role and Responsibility of the State Incident Response Team is:-

- i. To coordinate with SDMA, NDMA, and other concerned Government Departments.
- ii. Visit the spot and assist the Circle level Response Team for pre-disaster planning.
- iii. To prepare a status report regarding the disaster.
- iv. To facilitate execution of orders for declaring the disaster.
- v. Assess the staff and other logistic requirement for field operation and monitor effectiveness.
- vi. To attend training and refresher courses for how to respond after receiving any information related to disaster.
- vii. IRT should be familiarized with the SOP/ESF/DM plan of the department as well as State DM Plan and their roles and responsibilities.
- viii. IRT should prepare and update the DMP periodically by incorporating the views of stakeholders for the effectiveness of the plan.
- ix. To ensure availability of funds at District level to meet contingency expenses.
- x. To develop the media messages so as to update the status of disaster mitigation and response work.
- xi. To monitor and guide the District Response Teams.
- xii. To maintain an inventory of all related guidelines, procedures, action plans, district maps and contact numbers.
- xiii. To document the lessons learnt at different stages of disaster management and make suggestions for necessary addition/alteration.
- xiv. The department needs to plan to depute officials for the purpose or to plan new recruitment if needed.

IRT at State level shall meet at least twice in a year. 1st meeting will be held in the 1st week of April and 2nd meeting in the 1st week of October.

4.5.1 Circle Level IRT:

For circle level IRT members are shown in table below:-

Sr. No.	Designation	Role
1	SE	Chairman
2	EE	Member
3	EE	Member
4	EE	Member
5	EE	Member
6	AE	Member
7	AE	Member
8	AE	Member
9	AE	Member

Note: Committee mentioned above is for all 4 circles i.e., planning & monitoring, Urban Circle, Rural Circle No.1, Rural Circle No.2 of the department.

Role and Responsibility of the Circle level Incident Response Team is:-

- i. To coordinate with DDMA.
- ii. To activate Disaster Management Plan.
- iii. To procure required resources as per incident specific action plan.
- iv. To manage the overall response activities in the field.
- v. To deploy adequate staff for the response and monitor its effectiveness.
- vi. To attend training and refresher courses to know how to respond after receiving any information related to disaster.
- vii. IRT should be familiarized with the SOP/ESF/DM plan at District and State level of the department as well as State DM Plan and their roles and responsibilities.
- viii. IRT should prepare and update the district DMP periodically by incorporating the views of stakeholders for the effectiveness of the plan.
- ix. To develop the media messages to update the status of disaster mitigation and response work.
- x. To collect and store disaster related information for post incident analysis
- xi. To visit the affected areas to assess the extent of damage.

- xii. A proposal may be sent to the State headquarter for deputation of officials (if required during disaster event).

4.5.2 Divisional level IRT

Sr. No.	Designation	Roles
1	EE	Chairman
2	AE	Member
3	AE	Member
4	AE	Member
5	SO	Member
6	SO	Member

Note: Committee constituted above will be remains same for all the 16 districts / all divisions.

Role and Responsibility of the Divisional level Incident Response Team:

- 1) Preparation of the disaster management plan.
- 2) Evaluation of the Disaster Management plan.
- 3) Carrying out the mock drill twice a year.
- 4) Updating of the plans at regular intervals (at least once a year, and after any Significant disaster) to ensure that the plan is workable.
- 5) Look into the structural safety requirements for various hazards (Earthquake, floods, Road accident etc.)
- 6) During a disaster the IRT shall coordinate with District control room/ EOCs.
- 7) To help and monitor the working of different teams engaged in relief operation during emergency in the Division.
- 8) Media management to be carried out by the IRT.
- 9) Mobilizing relief and external support in case of necessity for those who have taken shelter in the departmental buildings / space.

Divisional IRT shall meet at least twice in year after fifteen days of the meeting of Circle IRT. Similarly, Circle IRT shall meet twice in a year within fifteen days after getting the proceedings of the meetings/ instructions/ guidelines from State IRT. State IRT's 1st meeting shall be held in the 1st week of April and 2nd meeting in the 1st week of October every year.

4.6 Delegation of Authority:

At the Circle & Division level, quick response in case of any disaster is hampered due to want of earmarked funds and power to spend. Therefore, a financial power needs to be delegated to the Superintending Engineers to facilitate rescue and relief measures in case of any disaster. The expenses should be made from district fund and can be reimbursed later on after sanction of funds from Relief department.

4.7 Reporting Procedures And Formats

The Ex. Engineer will be responsible to collect and compile the statutory reports determined by the department for disaster management. The first choice for sending the report will be through E-mail. The following regular reports will be collected. The other occasional reports will be collected as per the need specific to disaster.

- a) Pre assessment of institution wise vulnerability.
- b) Department Buildings affected and loss thereof.
- c) Loss of life and other infrastructure.
- d) Relief measures needed.

Sr. No.	Preparedness Measures	Action taken / Remarks
1	Update Disaster Management Plan once a year specifically with reference to the resources available.	
2	Check upon communication network such as phones, wireless, fax, internet etc. every month.	
3	Identify and determine Hazard wise most vulnerable & risk prone pockets quarterly	
4	Activate Control Rooms.	
5	Designate In-charge officials	
6	Check the availability and deployment of resources and mobilize them.	
7	Convene meetings with concerned Authority on a regular interval	
8	Convene meetings with NGOs, PRIs etc. and prepare a list with their Functional Specialization and Geographical Coverage.	
9	Check the availability of transportation modes and their	

	functioning	
10	Prepare a media plan for dissemination of information to the people of the district; local newspaper , radio, TV and cable, etc.	

Fig : Reporting format procedures

4.8 Role Of NGOs, Volunteers And Coordination Thereof

Emerging trends in managing natural disasters have highlighted the role of non-governmental organizations (NGOs) as one of the most effective alternative means of achieving an efficient communications link between the disaster management agencies and the effected community. In typical disaster situation, they can be of help in preparedness, relief and rescue, rehabilitation and reconstruction and also in monitoring and feedback.

The role of the voluntary agencies and the CBOs which operate at the grass root level is crucial. Such organizations can be helpful in motivating and mobilizing community participation for ensuring uninterrupted schooling during disasters as they have close linkages with the local population, flexibility in procedural matter and can provide a suitable alternative as they have an edge over governmental agencies for invoking community involvement. Some NGOs are already active in conducting mock drills in schools and fixing non-structural elements.

4.9 System of Assessing The Damage

The concerned Ex. Engineers will keep all the record of the damage to property. The amount of loss and damage will be submitted to Deputy Commissioner and concerned S.E. PHED in the prescribed format.

4.10 Roles, Responsibilities And Coordination

The Role of Response Team is crucial and need to be performed sincerely and within shortest possible time of occurrence of disaster. The details of the Role are given in the following Table.....

Items	Response System			
	Preparedness	Pre-disaster	During disaster	Post-disaster
Circle Control Room	Setting up control room and ensure	Monitor functioning of DCR	Dissemination of information regarding	•Report to State Control Room

	<p>round the clock functioning</p> <ul style="list-style-type: none"> • Assigning responsibilities to district IRT members • Vehicle arrangement • Coordination with NGOs/Contractors • Ensure functioning of warning and communication systems • Ensure Mock Drill 	<ul style="list-style-type: none"> • Coordination with officials • Assigning duties to NGOs • Holding DDMC meetings 	<p>status of the disaster and submission of report to PHED Head office</p>	
DDMC	<ul style="list-style-type: none"> • Assign responsibilities to all concerned officials 	<ul style="list-style-type: none"> • Arrangement of all important telephone numbers 	<ul style="list-style-type: none"> • Coordinate with Distt. Administration on a regular interval 	<ul style="list-style-type: none"> • Report to Dist. Control Room
SDMC	<ul style="list-style-type: none"> • Ensure formation of Division level disaster management Teams • Coordinate with local NGOs working in the area 	<ul style="list-style-type: none"> • Ensure institutions are risk free • Monitor mock drills • Ensure safety plans are updated regularly 	<ul style="list-style-type: none"> • Open GP office and other Shelters available • Rescue operation and Relief Measures 	<ul style="list-style-type: none"> • Report to Authority

4.11 Disaster Specific Response Plan

Disaster specific response for the PHED is summarized in given below table.

Sr.No	Major disaster	Measures	Mobilization required	Cost involved
1	Earthquake	Provision of temporary sanitary toilet structures, safe drinking water, Pump sets with pipes to relief camps/ affected area.	Labour, machineries and material of Dept. and contractors in the area.	Repair of damaged sewerage pipelines; dislocate drinking water pipelines & health sanitation.
2	Flood			
3	Cloud Burst			
4	Landslide			
5	Fire			

Table: Disaster specific response plans for PHED.

4.12 Supplies

Identification of supplier for departmental supplies and pre-contracting supplies in case of emergencies.

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CHAPTER -V

RELIEF, REHABILITATION AND RECONSTRUCTION

This phase is post-disaster phase which defined as decisions and actions taken after a disaster with a view to restoring or improving life and assets of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk. In addition, this is the phase of new cycle, where the opportunity to reconstruction and rehabilitation should be utilised for building a better and more safe and resilient society.

Occurrence of any disaster will be immediately communicated to the Circle control room and DDMA. The responsibility of communication lies with the warning and information cell of the Dept. This cell should immediately appraise the circle headquarters of the calamity and the action which has already been taken. If there is disruption in telecommunication facilities, special messenger should be sent to communicate with Circle headquarters. In case of severe nature of calamity the Superintending Engineer of the concerned Circle should get in touch with the Chief-Engineer. Chief-Engineer will brief the SDMA about the nature of the natural calamity and the action which he/she has already taken and further assistance required by him/her. This should be done without any loss of time.

PHE department will provide assistance for provision of water to the worst affected area during disaster. The PHED staff will also help to extendservices in the inaccessible areas. There is a wide network of Community Based Organizations and voluntary agencies in Manipur. Regular meetings will be held at more frequent intervals to face any untoward incident. Such co-ordination meetings can be held at district level under the chairmanship of concerned District Deputy Commissioner. The role of the voluntary agencies and the Community Base Organizations which operate at the grass roots level is crucial in motivating and mobilizing community participation in disaster response measures for ensuring safe drinking water and for improving community coping mechanism during disasters because of their close linkages with the local population and condition and flexibility in procedural matter.

They will be involved for raising awareness of the communities, information dissemination, advocacy and planning, providing immediate safe drinking water supply and health hygiene sanitation on temporary basis.

5.1 Damage and Loss Assessment

The Executive Engineer based at the Block level or District level will keep all the record of the damage of pipelines, water sources in the disaster affected area. The loss and damage data will be submitted by him / her, which will be compiled at district level for onward transmission to Chief - Engineer, PHED, Manipur in the prescribed format. The assessment will be done by Section Officer along with departmental field staff and compiled by the District Executive Engineer as per the prescribed format.

5.2 Norms of Relief

After the disaster first attempt will be to open the roads, quick assessment of water line damaged and contamination, supply of water tankers to disaster affected communities, deploy response teams to repair and restore water supply lines, quick assessment of water contamination levels and taking steps to restore clean drinking water. Assistance for search and rescues operation shall be provided to the administration. Relief measures will vary with the nature and degree of natural calamity. Information of the amount of damage done will help in deciding the extent of relief, reconstruction or rehabilitation. The detailed loss of life and property will be assessed immediately after the completion of relief and rescue operations. The following measures may require to be taken in the event of a calamity:- The losses to the sewerage pipelines, dislocation of pipes, drinking water pipelines, hand-pumps and sanitation structures will be reported on the prescribed formats as per guidelines. This should be followed up with detailed report containing description of the event, damage/loss details, causes, pictures etc.

Standard reporting format for damage reporting during monsoon or any other occasion specifically desired by the Principal Secretary (Relief & Disaster Management) is given at Annexure – C. (PWD source)

Generally in case of large scale and monsoon damages the State submits memorandum to the GOI for allocation of funds out of NDRF. For this purpose the consolidated report of damages for the District/Circle should be sent in form given in Annexure – II. In case of disaster like earthquake a damage assessment reporting format is given at Annexure – III should be more relevant.

5.3 Minimum Standard of Relief

In case of a severe earthquake or other natural calamity the homes of people & other infrastructure may be destroyed at mass level in the State. Temporary sanitary toilet facility, pump sets with pipes, safe drinking water, chemicals for water contaminated treatment like alum, chlorine tablet will be provided to the affected area for relief.

5.4 Rehabilitation Plan

A very important task before the SDMC or CDMC is to create access to relief camps, hospitals without any loss of time. PHED will mobilize all labour, material & machineries owned by the Dept./ Contractors for immediate repair, retrofitting & restoration of sewerage, hand-pumps, dislocation of pipelines etc. PHED management cell will provide all the human and material resources till the rehabilitation of affected areas in association with DDMA, SDMA and NDMA.

A close relationship between government and community actions will be established till restoration of basic and alternative means of shelter and mobility is not achieved.

Annexure.....Contact numbers of PHED

Sr. No	Name of Officers & Designation	Place of posting	Tel No./ E-mail	Work allocated
1	H. Sunil Singh, Chief Engineer	Chief Engineer, PHED Govt. of Manipur	7085521769 cephedmanipur@gmail.com	PHED
2	L. Swamikanta Singh Addl. Chief Engineer	Addl. Chief Engineer, PHED Manipur	9436890275 ccdumanipur@gmail.com	PHED
3	V. Shangreiphao Superintending Engineer	Rural Circle No.II, PHED Manipur	9402678750 vashumsp@gmail.com	Five (5) Divisions
	A Ch. Lokendra Singh, Executive Engineer	Imp-West PHE Division, PHED Manipur	9862103043 eeiwphed@gmail.com	
	B L.S Thole, Executive Engineer	Senapati PHE Division, PHED Manipur	9436685296 ee.senapati@yahoo.com	
	C Alaw Gabriel Apam, Executive Engineer	Kamjong PHE Division, PHED Manipur	7085187651 alawgabriel79@gmail.com	
	D Kh. Brajakumar Singh Executive Engineer	Ukhrul PHE Division, PHED Manipur	9436027012 brajkrkh@gmail.com	
	E Jeevanlata Devi, Executive Engineer	IPD Division-I, PHED Manipur	9402881754 jeevanlata.tgb@gmail.com	
4	H. Bigadhon Singh, Superintending Engineer	Rural Circle No.I, PHED Manipur	8414067075 hbigadhonsingh@yahoo.in	Four (4) divisions
	A L. Brojendra Singh, Executive Engineer	Kakching PHE Division, PHED Manipur	9862027281 EEKAKPHED@gmail.com	
	B Joel Rangnamei R,	Tengnoupal	8413991518	

		Executive Engineer	PHE Division, PHED Manipur	joelrangnamei@gmail.com	
	C	SeigoulenLhungdim, Executive Engineer	Chandel PHE Division, PHED Manipur	9485237166 seioulenRh@gmail.com	
	D	Md. AbdusSamad, Executive Engineer	Thoubal PHE Div, PHED Manipur	9436032352 phedtbddivn@gmail.com	
5		RK. Premee Devi, Superintending Engineer	Plg& Monitoring Circle, PHED Manipur	9436032352 rkpremee@gmail.com	5 (five) Divisions
	A	K. Rameshwar Singh, Executive Engineer	Imphal-East PHE Division, PHED Manipur	9612096851 keishamrameshwar2016@gmail.com	
	B	T, Arun Singh, Executive Engineer	Noney PHE Division, PHED Manipur	9402678774 tongbramarun@gmail.com	
	C	K. Shantipur Singh, E.E	Jiribam PHE Division	8729844695 jiribamphed@gmail.com	
	D	Ksh. Sushil Kumar Singh, Executive Engineer	Tamenglong PHE Division, PHED Manipur	8729930962 ee.tmlg@gmail.com	
	E	A Bhabeshchandra Sharma, Executive Engineer	Monitoring & Evaluation Division, PHED Manipur	9436033210 abhabeshchandrasharma@gmail.com	
6		N. Ghambir Singh, Superintending Engineer	Urban Circle, PHED Manipur	9612170572	Five (5) Divisions
	A	Ksh. Lakshaheb Singh, E.E	Maintainance Division-I, PHED Manipur	9436021526 kshlakshaheb@gmail.com	

	B	N. Nirmalkumar Singh, EE	Maintainance Division-II, PHED Manipur	9862566074 nirmalningthoujam@gmail.com	
	C	DorendraRajkumar, EE	Project Construction Division, PHED Manipur	8257806849 dorenrk@gmail.com	
	D	A.Ibohal Singh, EE	Drainage & Sewerage Div. PHED Manipur	9612884988 arambamibohal@gmail.com	
	E	L. Irani Singh, EE	Water Supply Store Div. PHED, Manipur	9856467047 laishramirani24@gmail.com	
7		L. Dhaballo Singh, Superintending Engineer	Rural Circle No. III, PHED Manipur	9436206203 idhaballosingh@gmail.com	Five (5) Div.
	A	L. Gokulchandra Singh, EE	Bishnupur PHE Div. Manipur	9862093602 eebprphe@gmail.com	
	B	Th. Baite, EE	CCpur PHE Division Manipur	8974680750 eeccpphe@gmail.com	
	C	I.Gojendra Singh, EE	Mechanical & Electrical Engg. PHED Manipur	9856405718 iromgojendro@gmail.com	
	D	N. Sanjitkumar Singh, EE	Pherzawl PHE Div	7005093979 sanjit.bam@gmail.com	
	E	R.K Deben Singh, EE	Kangpokpi PHE Div	8974020032 eedpi@yahoo.com	
8		Ksh. Lalitbabu Singh, Director	CCDU PHED, Manipur	9612289102 ccdumanipur@gmail.com	SBM (G), NRDW P (support)
		RK Somio, Consultant	CCDU PHED. Manipur	9774271042	SBM (G) NRDW P (support)

9		Ng. Roman Singh, DFA	o/o the Chief Engineer, PHED, Manipur	9862272614 roman_ng@rediffmail.com	Account matter of PHED
10		S. Devenkanta Singh, Chief Chemist	State Laboratory Lamphelpat PHED, Manipur	9856215984 slabphedmanipur@gmail.com	
11		L. Shyamsunder Singh, EO to CE	o/o the Chief Engineer, PHED	8837327062 loitamshyamsunder@gmail.com	
12		L. Gopal Singh, A.O to CE	o/o the Chief Engineer, PHED Manipur	9436289609	
13		Th. Priyobrata Singh, SW to CE	O/O the Chief Engineer, PHED Manipur	9856138321	

