FOREWORD

I have great pleasure to release the Tawang District's ***Disaster Management Plan 2019-20*** it is the commitment of the District Administration to effectively deal with disasters and to ensure that the loss of life and property due to disasters is minimized. The principle "well thought out plan is half work done" is very well followed in the preparation of this plan. In order to prepare the plan, inputs were taken from all the stake holders. The role of a district administration always comes first during a crisis as it gets the first hand information. It has to react and respond during crisis and it has to initiate rescue, relief measures immediately with the available resources. As most of the disasters which may strike the district come without any prior warning hence comprehensive planning is essential The objective of the preparation of the plan was to develop a holistic, co-coordinated, proactive strategy for the management of disasters through a mindset of prevention, mitigation and preparedness to generate a prompt and effective response in the event of an emergency. In the preparation of DDMP for Tawang district, the guidelines given in the National Disaster Management Policy, template provided by the NDMA is fully followed. I am thankful to all the important organizations and departments who work tirelessly in bringing about a comprehensive District Disaster Management Plan for the district. I take this opportunity to thank all the stakeholders who extended their willing support and cooperation to our efforts.

(Sang Phuntsok) IAS
Chairperson ex-officio
District Disaster Management Authority-CUM-
Deputy Commissioner: Tawang

Table of Contents

Chapter I

EXECUTIVE SUMMARY

India has been traditionally vulnerable to Natural Disasters because of its unique geo-climatic conditions. Floods, drought, cyclone, earthquakes and landslides have been a recurrent phenomenon. About 60% of the landmass is prone to earthquakes of various intensities, about 40 million hectares of land is prone to floods, about 8% of the total area is prone to cyclones which covers around 8000 Km stretch of Indian coastline 68% of the area is susceptible to drought. In the past decade, about 4344 people lost their lives and about 30 million people were affected by disasters every year. The loss in terms of private, community and public assets has been astronomical.

The super cyclone of Orissa in October 1999, the Bhuj Earthquake in Gujarat in January 2001 the recent Uttarkhand Cloud burst, Floods in Kashmir, Cyclone Mud-Mud in Andhra Pradesh and Nepal Earthquake underscored the need to adopt a multi disciplinary and multi sectoral approach and incorporation of risk reduction in the development plans and strategies. Over the past couple of years, the Government of India has brought a paradigm shift in the approach to disaster management from relief and rehabilitation to prevention, mitigation and preparedness. The new approach proceeds from the conviction that development cannot be sustainable unless disaster mitigation is built into the development process. Another cornerstone of the approach is that mitigation has to be multidisciplinary spanning across all sectors of development. The new policy also emanates from the belief that investment in disaster mitigation is much more cost effective than expenditure on relief and rehabilitation.

Tawang district is one of the remotest districts of India as well as of Arunachal Pradesh covering an area of 2172 sq. km. The climate of the district is also harsh with prolonged winter and short summer leading to a very short working

season. The agricultural productivity of the district is also low leading to less production and depending on outside sources for

Food. Most of the materials have to come from outside the district which also makes the district very vulnerable. Tawang district had earlier experienced disasters in the form of landslides/ flash flood, fire accidents, forest fires and flooding of river due to snow melt during summer. The district is also vulnerable to Road blockades due to landslides during monsoon and heavy snowfall during the winters. With regard to the threat of earth quakes, the district is located in Zone V of Damage Risk Zone. In addition, fire is a major concern for the district as fire incidents particularly forest fires have raised sharply in the last ten years. As the district is quite remote with a difficult terrain, it is always a challenge to manage disasters in the form of reaching the site of disaster in time with the necessary equipment and manpower support. Mobile and Telephone connectivity is also not up to the mark leading to difficulty in effectively dealing with disaster. Thus there is need for a proper planning to deal with such disasters to avoid loss of life and property and also to get back to normally at the earliest possible. The District Disaster Management Plan of Tawang district has taken into account all possible natural disasters. In the plan, measures for prevention and control of various disasters are elaborated. An attempt has been made to study the capacity of various departments and the needs for capacity addition to be prepared for a disaster are also given. Institutional mechanism is very well elaborated with roles and duties of different players are clearly mentioned. SOP during various stages of disaster are also given concisely. Checklist which comes handy during a time of crisis is also developed for Deputy Commissioner, Addl. Deputy Commissioner, Superintendent of Police and COs is given. The present DDMP- Tawang has to be reviewed in the year 2019 to improve the quality and to add new information and also to correct the short comings if any in the present plan.

Chapter II

INTRODUCTION

"Disaster means a catastrophe, a calamity or mishap, a grave occurrence, which causes Loss of life, human sufferings, damage and destruction of property and degradation of environment and disrupts the normal functioning of societies, governments and adversely affects individuals and families severity"

During an emergency or disaster, the DDMA will take immediate and appropriate action to determine, direct, mobilize, and coordinate resource needs. The DDMA will suspend or cancel normal operations and redirect resources to save lives, relieve human suffering, sustain survivors, protect property, and repair essential facilities.

The DDMA has designed, built, equipped, and staffed an Emergency Operations Center (EOC)/District Control Room, from which all emergency activities will be managed. The District Control Room/EOC will communicate with the State EOC to ensure close cooperation in emergencies and disasters.

The recent major disasters that hit the various part of country has made the people all over the world to think on reduction of enormous economic losses as an immediate fall out of disasters.

Responding to an urgent call of society to change the paradigm from the traditional practice of giving relief towards reducing the risk of disaster, the Government is emphasizing that at all level of administration's primary role should be the preparedness, mitigation, reduction and response of a disaster based on community participation.

It is therefore; we as responsible citizens of this multi-ethnic state think of it and get ourselves prepared for a safer tomorrow. It is our effort to disseminate information on disaster preparedness, prevention, mitigation and response towards disasters.

The District of Tawang situated on the hilly terrain has always been at the centre stage of natural calamities like Earthquakes, Landslides, Avalanches, fire

Accident etc. Keeping in mind, these frequent disastrous happenings in the district that cause major setbacks to lives, livelihoods and property (both

Movable and immovable), the District Administration felt the urgency of the need of staying prepared to face these adverse situations well in advance.

The District Disaster Management Authority shall be the decision making cum advisory body and shall also be the apex institution for implementation of Disaster Management projects in the District. The Authority shall be headed by the Deputy Commissioner, Tawang District; Tawang. There shall also be other Task Forces under District Disaster Management Authority (DDMA).

Objectives:-

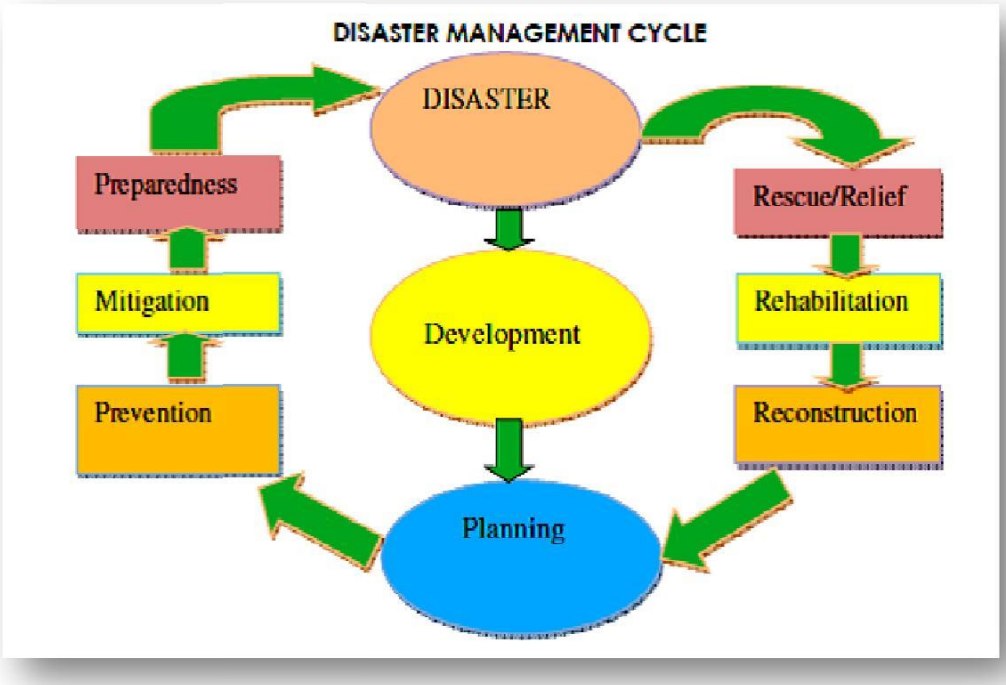
The objectives behind the preparation of the District Disaster Management Plan is

- To mitigate impact of natural and man-made disasters through preparedness at District, Block, Panchayat / Village level.
- To develop immediate and long-term support plans for vulnerable people in/during disasters.
- To create awareness among the people about hazard occurrence and increase their participation in preparedness, prevention, development, relief, rehabilitation and reconstruction process.
- To have response system in place to face any eventuality
- To affect or elicit the least possible disruption to the normal life process when dealing with individuals in disaster
- To ensure active participation by the government administration, communities, NGOs and volunteers at all levels making optimal utilization of human and material resources at the time of disaster.

Disaster Management Cycle

Disaster Management Cycle is a cycle as shown in Flow chart 1, in

which relief is just a step for better development. But at the same time it is to be remembered that none of these steps in Disaster Management cycle are watertight compartments. If disasters are handled professionally with the perspective of a long term development and sustainability, the quantity of relief required could be halved drastically.



Flow chart No.1: Disaster Management Cycle

Since this District Disaster Management Plan (DDMP) is concerned with many hazards to which the citizens may be exposed before, during and after a disaster occurs, responsible authorities operate in accordance with the five phases of Disaster Management:

1. **Prevention**

Preventive actions are taken to avoid an incident or to intervene to stop an incident from occurring. Such actions are primarily applicable to forest fires.

2. **Mitigation**

Mitigation activities actually eliminate or reduce the probability of disaster occurrence, or reduce the effects of unavoidable disasters. Mitigation measures include building codes; hazard and vulnerability analyses updates; zoning and land use management; building use regulations and safety codes; preventive health care; and public education.

Mitigation will depend on the incorporation of appropriate measures in national and regional development planning. Its effectiveness will also depend on the availability of information on hazards, emergency risks, and the countermeasures to be taken. The mitigation phase, and indeed the whole Disaster Management cycle, includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

3. **Preparedness**

The goal of emergency preparedness programs is to achieve a satisfactory level of readiness to respond to any emergency situation through programs that strengthen the technical and managerial capacity of governments, organizations, and communities. These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long-term and short-term strategies, public education and building early warning systems. Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essentials are maintained in cases of national or local catastrophes.

During the preparedness phase, governments, organizations, and individuals develop plans to save lives, minimize disaster damage, and enhance disaster response operations. Preparedness measures include preparedness plans; emergency exercises/training; warning systems; emergency communications systems; evacuations plans and training; resource inventories; emergency personnel/contact lists; mutual aid agreements; and public information/education. As with mitigations efforts, preparedness actions depend on the incorporation of appropriate measures in national and regional development plans. In addition, their effectiveness depends on the availability of information on hazards, emergency risks and the countermeasures to be taken, and on the degree to which government agencies, non-governmental organizations and the general public are able to make use of this information.

4. Response

- Response actions are taken before, during, or after a disaster/disaster to save lives, minimize damages and enhance recovery operations. Such measures include activation of: Emergency Operation Centers/Control Room
- Plans and procedures
- Arrangements and agreements
- Emergency alert system
- Public warning
- Notification of public officials
- Provision of mass care, shelter, search and rescue, and security

The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-

permanent settlement in camps and other locations. It also may involve initial repairs to damaged infrastructure. The focus in the response phase is on meeting

the basic needs of the people until more permanent and sustainable solutions can be found. Humanitarian organizations are often strongly present in this phase of the Disaster Management Cycle.

5. **Recovery**

There is no distinct point at which immediate relief changes into recovery and then into long-term sustainable development. There will be many opportunities during the recovery period to enhance prevention and increase preparedness, thus reducing vulnerability. Ideally, there should be a smooth transition from recovery to on-going development. Recovery activities continue until all systems return to normal or better. Recovery measures, both short and long term, include returning vital life support systems to minimum operating standards; temporary housing; public information; health and safety education; reconstruction; counseling programs; and economic impact studies. Information resources and services include data collection related to rebuilding, and documentation of lessons learned.

Chapter III

DISTRICT PROFILE:-

The Tawang District with its headquarters at Tawang lies in the extreme western corner of Arunachal Pradesh. The District is bounded by Tibet (China) on the north, by the West Kameng District on the east, by Bhutan and West Kameng District on the south and Bhutan on west.

1. GENERAL PROFILE OF THE DISTRICT:

a) **Tawang District**: - Tawang District is situated in western part of Arunachal Pradesh with 2,172 Sq. Km in area.

b) **Tawang District Headquarter**: - Tawang (Hq) is located at an altitude of 3025 Mtrs above MSL. The name 'TAWANG' was given by His Holiness the Mera Lama Lodre Gyatso 'TA' means Horse and 'WANG' means chosen by a Horse owned by Mera Lama Lodre Gyatso.

C) Climate of Tawang during the year' 2019-2020

i) Temperature :- Max.28°C

:- Min. -3° C

ii) Total Rainfall: - 2546.89 ML

d) **Highest Peak in Tawang District**: - Gourichen 22500 feet MLS.

e) **Places of Historical and tourist interest**:- Tawang Monastery, Gyangong Ani Gompa, Brahmdungchung Ani Gompa, Gorsam Chorten, Regyaling Gompa, Urgelling Gompa, P.T.Tso Lake, Tsongatsor Lake, Tawang War Memorial, Jaswant Garh, Gourichen Peak, Sela Pass, Geshela Peak, Nuranang Waterfall, BTK waterfall, Tsechu Hot Spring, Mago Hot Spring etc.

f) **Major Tribes** :- Monpa

g) **Natural Potential**: - Abundant forest resources and Hydro potential.

h) **Major Wild Life Species:-**

i) Wild Animals: - Snow Leopard, Musk Deer, Talken Deer, Bear, Monkey, Leopard Cat etc.

ii) Wild Birds : - Jungle Fowl, Imperial Pigeon, Black breasted kaluge etc.

i) **Important Festivals** :- Losar, Dungyur, Torgya, Choekor,

Gaden Ngamchoe, Drukpa Tse-ze, Zepa Saka Dawa etc.

j) **Main Rivers**: - Tawang-chu and Nyamjang-chu.

k) **Major Domestic Animals**: - Yak, Sheep, Horse, Cattle, Goat etc.

II. **CLIMATE:**

Sl. No.	Particulars	Unit	During the Year' 2019-20
1	2	3	4
1.	Temperature during the year'2019-20		
	a) Summer i) Maximum	In centigrade	28°C (April to September)
	ii) Minimum	In centigrade	1°C (October to March)
	b) Winter i) Maximum	In centigrade	21°C
	ii) Minimum	In centigrade	-3°C
2.	Rainfall from Jan2019 to Aug 2020,	MM	2546.89 mm.

a) **ADMINISTRATIVE SET-UP SHOWING THE SUB-DIVISION S AND CIRCLES OF TAWANG DISTRICT**

Sl. No.	Sub-Division	Circle	Year of Establishment

1	2	3	4
1.	Tawang Sub-Division	1.Tawang Circle	1951
		2.Kitpi Circle	2002
2.	Jang Sub-Division	1.Jang Circle	1994
		2.Mukto Circle	1972
		3.Thingbu Circle	1969
		4.Bongkhar Circle	2003
		5.Lhou Circle	2009
3.	Lumla Sub-Division	1.Lumla Circle	1954
		2.Zemithang Circle	1959
		3.Dudunghar Circle	1999

b) **DISTANCE OF THE CIRCLE HEADQUARTERS FROM THE DISTRICT HEADQUARTERS TAWANG**

Sl. No	Name of Circle Hq.	Distance from the District (Hq)				Remarks
		Motorable Road in	Potter Track in KM	Stage in No	Total Distance in KM	
1	2	3	4	5	6	7
1.	Tawang	0.0	0.0	0.0	0.0	
2.	Kitpi	25	-	-	25	
3.	Jang	42	-	-	42	
4.	Mukto	58	-	-	58	
5.	Thingbu	-	74	2	74	
6.	Bongkhar	-	75	2	75	
7.	Lumla	50	-	-	50	
8.	Zemithang	90	-	-	90	
9.	Dudunghar	78	-	-	78	
10	Lhou	25	-	-	25	

ALTITUDE OF IMPORTANT PLACES OF TAWANG DISTRICT

Sl. No.	Name of Place	Altitude in Meters (Approx)

1	*2*	*3*
1.	Tawang (Hq)	3,025
2.	Mukto (Hq)	2,400
3.	Thingbu (Hq)	3,400
4.	Lumla (Hq)	2,176
5.	Zemithang (Hq)	2,176
6.	Sela Pass	4,000

2.1 DISTRICT WISE POPULATION, DECADAL GROWTH RATE, SEX RATIO AND POPULATION DENTITY FOR THE STATE OF ARUNACHAL PRADESH

SL.No.	**State / District**	**Population 2011**			**Percentage decadal Growth rate of Population**	**Sex-Ratio (No. of Females Per 1000 Males)**	**Population density per sq.km.**
		Persons	**Male**	**Female**	**2001-2011**	**2011**	**2011**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
	Arunachal Pradesh	1382611	720232	662379	25.92	920	17
01	Tawang	49950	29361	20589	28.33	701	23
02	West Kameng	87013	49568	37445	16.64	755	12
03	East Kameng	78413	38974	39439	37.14	1012	19
04	Papumpare	176385	90447	85938	44.57	950	51
05	Upper Subansiri	83205	41974	41231	50.34	982	12
06	West Siang	112272	58589	53683	8.04	916	13
07	East Siang	99019	50467	48552	13.30	962	27
08	Upper Siang	35289	18657	16632	5.77	891	5
09	Changlang	147951	77289	70662	17.96	914	32
10	Tirap	111997	57992	54005	11.63	931	47
11	Lower Subansiri	82839	41935	40904	48.65	975	24

12	Kurung Kumey	89717	44226	45491	111.01	1029	15
13	Dibang Valley	7948	4396	3552	9.30	808	1
14	Lower Dibang Valley	53986	28127	25859	7.01	919	14
15	Lohit	145538	76544	68994	16.44	901	20
16	Anjaw	21089	11686	9043	13.77	805	3

2.2. SUB DIVISION WISE POPULATION OF THE DISTRICT AS PER 2011 CENSUS.

Name of sub division	Sl. No.	Name of Circle	Persons	Males	Females
1	**2**	**3**	**4**	**5**	**6**
L U M L A	1.	**Zemithang Circle**	2926	1439	1487
	2.	Lumla Circle	6172	3055	3117
	3.	Dudunghar Circle	2833	1449	1384
		Total for Lumla Sub Division	**11931**	**5943**	**5988**
T A W A N G	4.	Tawang Circle	7897	4104	3793
	5.	Kitpi Circle	2935	1411	1524
		Total for Tawang Sub Division	**10832**	**5515**	**5317**

J	6.	Lhou Circle	4029	2606	1423
A	7.	Mukto Circle	3655	1926	1729
N	8.	Bongkhar Circle	1256	575	681
G	9.	Thingbu Circle	1592	939	653
	10.	Jang Circle	5480	3288	2192
		Total for Jang Sub Division	**16012**	**9334**	**6678**
		Total For the District	**38,775**	**20,792**	**17983**

2.3 POPULATION IN THE AGE GROUP 0-6, NUMBER OF LITERATE, LITERACY RATE BY SEX RATIO FOR TAWANG DISTRICT 2011

Sl. No.	Population in age group 0 - 6			Numbers of Literates			Literacy		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1.	5630	2808	2282	26861	18200	8661	60.61	68.54	48.75

AGRICULTURE

Sl. No.	Particulars	Unit	Year'2019-20
1	**2**	**3**	**4**
1.	Net area sown	Hact	5170

2.	Total Crops Area	Hact	6450
	Crops	Area Hact	Production (MT
	a) Paddy (Rice)	786	1273.32
	b) Maize	680	1530
	c) Wheat	575	920
	d) Millet	995	1194
	e) Potatoes	352	3721.20
	f) Pulses/L,Beans/L/Moong/ Rajma/ Other Pulses	160	205.9
	g) Oil Seeds	200	262

HORTICULTURE

Sl. No.	Particulars	Unit		Year'2019-20	
1	*2*	*3*			
		Area (Ha)			
		Bearing	*Non-Bearing*	*Total*	*Production (MT)*
1.	Area under Horticulture				
2.	Estimate production of fruits				
	a) Apple	11	04	15	46
	b) Pear	03	01	04	21
	c) Walnut	09	07	16	06
	d) Guava	0.2	0.05	0.5	0.1
	e) Orange	03	02	05	16
	f) Kiwi	03	05	08	32
	g) Plum	05	02	07	02
	h) Vegetable	-	-	908	3171
	i) Spices	-	-	13	24
	j) Peach	05	-	0.5	01
	k) Pomegranate	0.8	-	0.8	0.6
	l) Tomato	-	-	0.1713	1.247

PUBLIC HEALTH ENGINEERING DIVISION

NUMBER OF BLOCKS,AREA,VILLAGES COVERED AND POPULATION SERVED IN TAWANG

Sl. No.	Block functioning	Inhabited villages covered	Population as per BPL Census	Percentage population with drinking water facilities
1.	Tawang	75	7885	89.51%
2.	Lumla	116	10784	84.25%
3.	Thingbu & Mukto	77	8778	89.26%
	TOTAL :-	**268**	**27447**	

FOREST			
Sl. No.	Particulars	Unit	Year'2019 -20
1	**2**	**3**	**4**
1.	Forest Division (territorial)	Nos	1
2.	Forest Range Office	Nos	3
3.	Forest Beat Office		1
	Account Beat	Nos	Nil
	Non-Account Beat	Nos	Nil

4.	**Area Under :-**		
	Reserved Forest	Sq.km	Nil
	Proposed Reserved Forest	Sq.km	Nil
	Anchal Reserved Forest	Sq.km	Nil
	Proposed Anchal Reserved Forest a). Lhou ARF b). Rho/Jangda ARF	 Hac. Hac.	 205 200
	Un-classified State Forest	Sq.km	125

	Forest Under wild life sanctuary	Sq. km	Nil
	Forest under National Park	Sq. km	Nil
	Forest under other purpose	Sq.km	Nil
5.	Other Minor Forest Product		
	Fire-wood	Cu.m	1651.04m^3
	Bellies/Poles	No's	Nil
	Reserved Forest		

POWER

Sl. No.	Particulars	Unit	During the Year'2019-20
1	**2**	**3**	**4**
1.	Electrical Division	No	1
2.	Electrical Sub-Division	No	3
3.	Electrical installed capacity (D.G Set)	KW	1375
4.	Power Generated		
	Hydel	In Kwh	14539687
	D.G. Set	kwh	56,696
5.	Electricity Consumed	kwh	7229537
	Domestic	kwh	33,38,247
	Commercial	kwh	10,36,123

	Industrial	kwh	5607
	Public Light (Street Light)	kwh	291581
	Non-residential	kwh	675108
	Others	kwh	1882871
6.	Town Electrified as on 31-3-2014	No	1
7.	Village Electrified as on 31-3-2014	No	299
8.	Un electrified village (including Hamlet)		169

EDUCATION			
Sl. No.	**Particulars**	**Unit**	**During the Year'2019-20**

1	2	3	4
1.	Colleges	Nos	1
2.	Higher Secondary Schools	Nos	4
3.	Secondary Schools	Nos	9
4.	Middle Schools	Nos	40
5.	Primary Schools	Nos	71
6.	Pre-Primary Schools	Nos	-
7.	Total Number of students	Persons	10236
	Boys	Persons	4576
	Girls	Persons	5650
8.	Total number of Teachers	Persons	622
	Male	Persons	400
	Female	Persons	220

PANCHAYAT RAJ INSTITUTIONS

Sl. No.	Particulars	Unit	During the Year'2019-20
1	**2**	**3**	**4**
1.	No. of Gram Panchayats	Nos	87
2.	No. of Gram Panchayat Members	persons	311
5.	No. of Zilla Parishad Member	Persons	6

FOOD AND CIVIL SUPPLY DEPARTMENT			
Sl. No	**Particulars**	**Unit**	**During the Year'2019-20**
1	**2**	**3**	**4**
1.	Total No. of Fair Price Shops(FPS)	No	63
	FPS run by cooperative society	No	36
	FPS run by private (Individual)	No	27
2.	Procurement of Food Grain from FCI		
I	Rice Total (Monthly allocation)	Qtls.	2724.99 Qtls
	Rice GCH	Qtls.	860.800 Qtls
	Rice PH	Qtls.	1392.74 Qtls
	Rice AAY-H	Qtls.	471.45 Qtls
II	Wheat Total	Qtls.	Nil
	Wheat APL	Qtls.	
	Wheat BPL	Qtls.	
III	Sugar Levy	Qtls.	

MEDICAL AND PUBLIC HEALTH			
Sl. No.	**Particulars**	**Unit**	**Year 2019-20**
1	***2***	***3***	***4***
1.	Total No. of Medical Institutions	Nos.	
	Allopathic	Nos.	22
	Homeopathic	Nos.	02
	Ayurvedic	Nos.	01
	Sowa Rigpa	Nos .	01
2.	Total No. of Beds Installed		35
	Urban area	Nos.	35
	Rural areas	Nos.	16
3.	Medical and Para Medical Personnel		
	a). Doctors	Persons	27
	b) Nurses	Persons	47
	No. of Family Welfare Clinic/Centre	Nos.	01
5.	Total No. of patients treated	Nos.	36127
	Indoor patients treated	Nos.	3510
	Outdoor patients treated	Nos.	32617

ROADS			
Sl. No.	**Particulars**	**Unit**	**During the Year'2019 –20**
1	**2**	**3**	**4**
1.	Total length of road	Km	
	AP PWD	Km	45.75
	RWD	Km	Stage –I - 66.78 Stage – II – 18.774
	BRO	Km	TF – 662.59 2.42 BRTF – 47

Chapter IV

4.1 HAZARD, RISK, VULNARABILITY AND CAPACITY ANALYSIS

Tawang district is highly prone to multi hazards like earthquakes, landslides/ flash floods, fire accidents etc. The list of recent disasters that occurred in the district are as under:

1. 14 (Fourteen) No. of Houses completely burnt down and 3 No. Partially damaged due to a fire accident at Grangkhar village under kitpi Circle on 14/12/2005.
2. A Massive landslide occurred on 7th Aug'2007 at Tarmangdung village, Mukto where 4 (four) person died and 51(fifty one) No. of dwelling houses damaged.
3. A Massive landslide occurred on 7th Aug'2009 at Surbi village where 6(six) No. of dwelling houses along with all belongings completely washed away.
4. Due to heavy rainfall massive landslides occured on the south Western side of the Tawang Monastery in the year 2010.
5. 15 (fifteen) No. of houses gutted down in the fire accident on 20th Dec'2010 at Mukto village and another 28 (Twenty eight) No. of houses were partially damaged.
6. 18 (Eighteen) No. of dwelling houses totally damaged and 4 (four) No. partially damaged under Tawang Circle and 17(Seventeen) No. Severally damaged and 19 (Nineteen) No. houses fully damaged under kitpi circle due to heavy wind / storm on 14th April'2011.
7. Agricultural crops/ fields damaged at many areas under Tawang and Kitpi circle due to heavy rainfall with hailstone in the month of April' 2013 where 222 (Two hundred twenty two) families were affected in an affected area of 24.58 Hectares.

8. 36 (thirty six) numbers of dwelling houses damaged due to heavy wind occurred on 14 – 15th Dec 2013.
9. 1(One) Major and 10 (ten) numbers of Monpa type residential buildings damaged due to tremor of Earthquake on 13th April'2016.
10. A Total Nos of 18(eighteen) people lost their lives in landslides of which two were aged 72 years. 16(sixteen) persons died in the tragic landslide at Famla area on 22nd April'2016 and 2(two) others lost their lives on 23rd April 2016 in the landslide at Thongleng Village. One person was critically injured in the Thonglang village landslide and was evacuated to R K mission Hospital Itanagar and three people including a baby of to months old were injured and admitted in the district hospital Tawang .
11. 152 families are sheltered in the 12 Nos of designated relief camps and large number of affected families have abandoned their houses and shifted to safer places.
12. The department of Education, Health, PWD, RWD, DHPD, WRD, DUDA, DRDA, and CD BLOCKs have reported major damages caused by heavy landslide during the recent rainfall season. The damage has occurred are mainly to buildings, roads, culverts, bridges, road formation cutting etc.

The main features of a disaster area -

- Unpredictability
- Unfamiliarity
- Threat
- Speed
- Urgency
- Uncertainty

Classification of Hazards:

The High Power Committee of Govt. of India has classified hazards as under:

1.	Water and Climate Related	1. Flood and Drainage Management 2. Cyclone 3. Tornadoes & Hurricanes 4. Hailstorm 5. Cloud Burst 6. Snow Avalanches 7. Heat & Cold Waves 8. Thunder & Lightning 9. Sea Erosion 10. Droughts
2.	Geologically Related	1. Earthquakes 2. Landslides & Mudflows 3. Dam Bursts & Dam Failures 4. Mine Fires
3.	Chemical, Industrial and Nuclear Related	1. Chemical and Industrial Disasters 2. Nuclear Disasters
4.	Accident Related	1. Road, Rail, Aviation and other Transportation accidents including Waterways 2. Mine flooding 3. Major Building Collapse 4. Serial Bomb Blasts 5. Festival related Disasters 6. Urban Fires 7. 0il Spills 8. Village Fires 9. Forest Fires 10. Electrical Disasters & Fires
5.	Biologically Related	1. Biological Disasters & Epidemics 2. Food Poisoning 3. Cattle Epidemics 4. Pest Attacks

Hazards Risks for Tawang District:

Common Natural Disasters	Man-made Disasters
Incessant Rainfall	House & forest Fires
Flash floods	Road accidents
Hailstorms	Electrical accidents
Earthquakes	
Landslides	
Thunderstorm/Thunder squall	

Type of Hazards	Time of occurrence	Potential Impact
Earthquakes	Unpredictable	Loss of Life, Livestock and Infrastructure
Flash floods	June and October	Loss of life, crop, infrastructure and Animals
Cyclones (Thunderstorm/Thunder squall)	April, May, October	Loss of life, livestock, crop and Infrastructure
Landslides	May, June and October	Loss of life, livestock, crop and Infrastructure
Fire Accidents	Unpredictable	Human Loss and property damage
Epidemics	Unpredictable	Loss to human life

4.2.1. FIRE:

(A). FOREST FIRE:




The Tawang District being having highly diverse vegetation zone ranging from 900mtr to 600 mte above MSL, having typical inaccessible mountainous terrain. The winter is very dry and windy especially along the belt of Tawang – Chu River. The slight ignition of fire in the valley takes no time to reach the ridges crossing across even the barriers of natural stream and road. Winter is the peak season when graziers burn off their old grazing grounds to facilitate growth of new grasses for their cattle and the agricultural farmers clear their fields to prepare for sowing of various crops. The forest fire prone vulnerable areas can be broadly categorized under following zones:-

a). Broadleaved Forest:-

This occurs below 3000m above MSL. The Alnus, Acer, Quercus, prunus and pine species are the dominating species while Rhododendron, Artemisia, Berberis forms the middle and ground storey. The species are found in areas like Zemithang, Lumla, Kitpi etc. and the trees are usually deciduous thereby causing huge blanket of

bio mass on the ground. Moreover very high biotic interference is seen in this forest (agriculture, grazing etc.)

b). Conifer – broadleaved Forest.

This occurs between 3000 to 4200m above MSL. Fir and Tsuga are the predominant conifer besides larix, Picea. The broadleaved tree species are Rhododendron, Acer and Quercus. Bamboo, Daphne, Rubus and several ferns form the understory. These Species are found in District Headquarter and nearby areas of Tawang Township. The Climate condition is very cold and wet during summer but cold and dry during winter. The tree species are mostly evergreen and ground is covered with mosses and algae. There are fewer biotic interference mostly in the form of grazing, fire wood collection etc. There is no direct report of forest fire in this zone.

Rhododendron Scrubland:

This occurs between 4000 and 4300m. This vegetation fringes the Tree Line. The plant species include Berberis, Rosa, Fagopyrum, Anaphalis, Allium, Pedicularis, Potentilla, Bistorta and rheum, Rhododendron Sps and found in the areas like Bumla, PT TSO, Geshela areas. There is almost negligible biotic interference (only in the form of grazing). There is no report of Forest fire in this Zone.

Causes of Forest Fires:-

Fire being the symbol of power and energy was instrumental in the development of human civilization and it has been out part and parcel since then, to relate with the cause of forest fire, the matter is not separable from human intervention. All the reported cases of forest fire were the result of direct human mischief and carelessness and were rarely due to accidental cases. The District is highly vulnerable to forest fires especially during the winter's i.e the months from October to March.

The huge areas of forest / natural resources has been devastated by forest fires, below are the details of report forest fires in Tawang district in the last five years;-

Sl. No	Date &Year	Location	Area affected in Hect.	Longitude	Latitude	SOI Top sheet No	Remarks
1	15/2/2009	-	-	91’44’06”E	27’39’50 N	78M10	The report detected by FSI through rapid response system based on MODIS satellite Data. Ground truthing could not be done.
		-	-	91’43’15 “E	27’39’43”N		
	17/3/2009	-	-	91’42’14”E	27’34’04”N		
		-	-	91’41’27”E	27’33’46”N		
2	7/1/2010	-	-	92’05’02”E	27’39’03”N	83A02	The report detected by FSI through rapid response system based on MODIS satellite Data. Ground truthing could not be done.
		-	-	92’04’22’E	27’38’56”N		
		-	-	92’04’55” E	27’06’21’ N		
	9/1/2010						
3	2011	Nil	Nil	-	-	-	
4	March 2012	Teli	15 Ha	E91’52’59.3”	N27’23’27.9 ”	78M14	The Fire devoured approximately 5. Oha of plantation

Sl. No	Date &Year	Location	Area affected in Hect.	Longitude	Latitude	SOI Top sheet No	Remarks
5	27/3/12	Gispu	1200Ha			78M10	The Fire consumed 50. 0ha of fuel wood plantation and approximate 1150 hectares of community forests.
6	2013	Nil	Nil	-	-	-	
	02/2/14 to 06/2/14	Thrillam	800.00 Ha	E91’46’20’8’	N27’32’29.5”	78M10	
		Sakyur	400.00Ha	E91’47’48.5”	E91’47’48.5”		
		Bhukyon	250.00H	E91’46’08.2”	E91’46’08.2”		
	07/2/14	Khateng	5000Ha	E-91’46’20.8	N27’23’29.5”		

Corrective measures:-

1. **Compartmentalization** :- Preparation of blocks or compartments as per topography of all fire prone areas and ground working of disaster protocol is required to be kept ready of Tawang District.
2. **Village level fire alert team**: - Constitution of village level fire fighting and alerting team is essential for quick response to calamity like forest fire.
3. **Inventory of water sources:-** Inventory of resources such as river, streams , water channels, lakes, water tanks etc will be a very important mitigating factor in case of forest fires.
4. **Collection of dried leaf litters in peak season:-** Seasonal collection of leaf litters for composting organic manure or as biomass for pine briquette will

reduce the chances of forest fire. More over channelizing of biomass collection will enhance livelihood generation and burden of fuel wood and felling of trees will be reduced.

5. **Firefighting equipment**: - Basic firefighting equipment such as fire rakes, fire beating broom, shovel, helmet and fire extinguisher is required to be kept to be ready and handy.
6. **Awareness campaigns**:- Regular and effective mass awareness programmes at grass root level should be conducted for imparting knowledge regarding the hazards and losses due to forest fires.
7. **Coordination and communication:** - Disaster like forest fire is more impounding threat than any natural disaster like earthquake, landslide and cyclonic storms. This impending threat can be encountered only with collective and participative support from resourceful department like Army, paramilitary, Administration, police and local civilian. The combined coordination can aptly confront any type of natural and manmade calamities. Rather good coordination can itself surpass 50 % of the overhanging threat.

(B). VILLAGE FIRES:

The incident of Fires occurring in rural areas during the winter season is very high and it is compounded by wind. Most of the village Fires occur in the winter season. Fire is manmade disaster and lives and properties worth crores of rupees are lost. Most of the cases caused due to negligence and carelessness of people. The risks can be reduced significantly by structural and non-structural measures. Sprinklers, hoses, hydrants, extinguishers and fire tenders are all well known structural approaches.

VULNERABLE AREAS:

District Administration should generate awareness amongst the officials / civil wardens / Panchayats and sensitize them to be more vigilant and responsible. Houses constructed with thatched materials may be given chemical treatment to make it fire resistant. As per the past experiences most of the villages like Thrillam, Sakyur, Gispu, Kharteng, Teli are vulnerable to fire disasters during winter and dry season.

STEPS TO BE TAKEN DURING FIRE ACCIDENTS:

- Once fire occurs, the people should locally assemble and put it off at the earliest possible opportunities by collecting people and communities.
- If it is adjoining forest area, steps to be taken like fire line clearance so that the fire would not spread from village to the forest areas and vice versa.
- The cattle if any, if they are tied near the fire incident area should be removed as fast as possible by unloosing them.
- Steps to be taken to prevent fire spreading by dismantling structures in adjacent areas and simultaneously pouring water or sand or even beating the fire with fresh twigs.
- Steps to be taken immediately to evacuate, if anyone is trapped in fire.
- Special steps to be taken to remove the children and the aged people from the danger area.
- First Aid is to be given to the injured and they are to be rushed to the nearest hospital. The hospital is to be alerted about the injured and burnt victims on the way.
- The cause of the fire is to be investigated, if there is any criminal involvement, malevolence and it has to be investigated as per law.
- A detailed report is to be prepared about the occurrence and the same be intimated to govt.
- Relief assistance to those eligible and affected are to be given as per govt. provision.
- Insurance against crop, houses, straw, grains stored place, cattle etc. to be encouraged and to be done.

MAJOR FIRE STARTERS:

- Malicious ignition by intruders or residents.
- Misuse / malfunctioning of electrical equipments → Kitchen
- Cigarettes and matches/cracke.
- Mechanical heat and sparks →careless dispersal of ash/amber
- Children playing with matchboxes and crackers.
- Unattended Bhukharis / fire places.

MITIGATION OF FIRE LOSS:

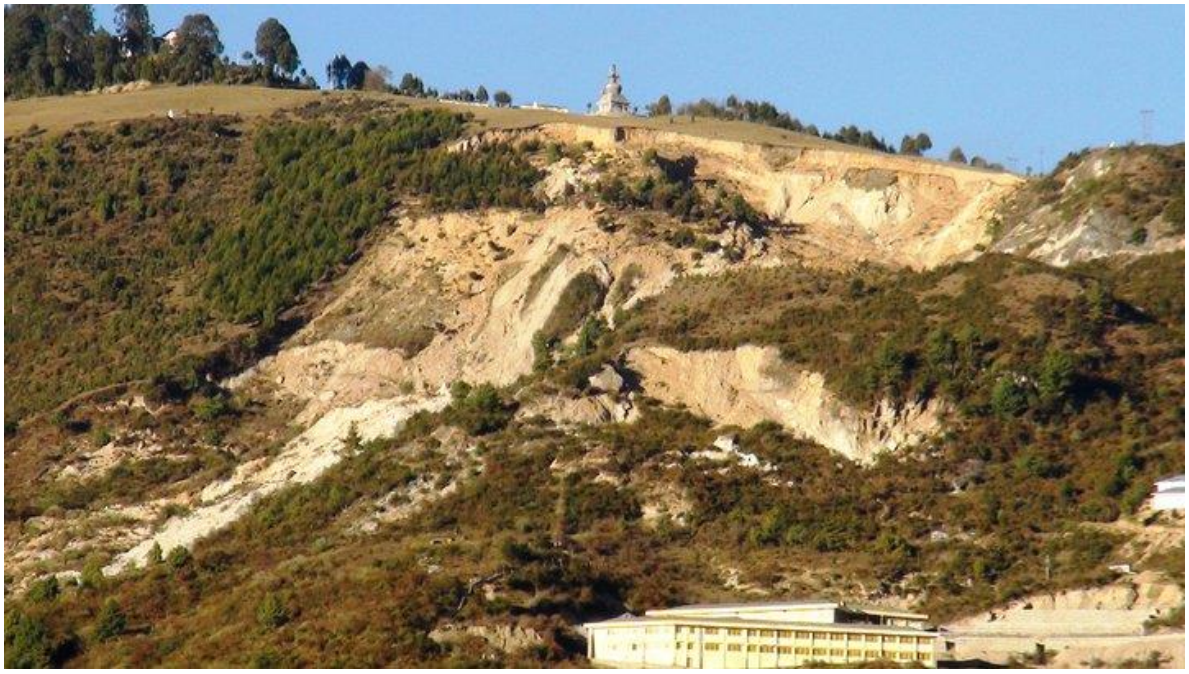
- Training.
- Fire safety plan
- Fire resisting construction.
- Obedience to laid down standards.
- Segregation of risks.
- Good/careful housekeeping.
- Upgrading fire consciousness.
- High standard fire brigade with modern equipment.
- Fire retardant treatment.
- Fire detention and in built fire protection system.

PREVENTION AND CONTROL:

The objectives of a fire prevention and control programme can be stated simply as under:

- To provide fire control and suppression equipment wherever needed.
- To maintain the equipment in readiness.
- To educate and train people.

4.2.2. MUDFLOWS AND LANDSLIDES:



The area around Tawang forms a part of the Higher Himalayan exposing Precambrian crystallines represented by a spectrum of rock assemblage like quartzo-feldspatthic gneiss, high grade schist, phyllite, low grade schist, micaceous quartzite and tertiary intrusive granite. The main central Thrust, an important regional tectonic feature of the active Himalayan tectonogen passes south of the area at Dirang. The disposition of the rock and their spatio -temporal association are largely controlled by the regional tectonic and structural features. The rock of the area have been subjected to multiple phases of deformation leading to the development of intricate fold patterns, different generation of planar and linear fabric and related metamorphism.

Singh (1988) carried out geological mapping of the Tawang Womingla – Geshela area and described that the area is largely occupied by the medium to high grade gneisses of Se La Group succeeded to the north by rocks of Lumla Formation (medium grade metasedimentaries); the contract between the two being marked by profuse intrusions of tourmaline granite and pegmatite . The lithostratigraphic succession proposed by him for Tawang and its suburbs is presented below:

Lithostratigraphic succession of Tawang and its suburbs (Modified after singh, 1988)

Rock Unit **Lithology**

Lumla Formation Schistose quartzite, garnet biotite schist, marble with profuse tourmaline granite and pegmatite intrusions. Sela Group Garnetiferous quartzo-feldspathic gneiss, sillimanite gneiss and garnetiferous biotite gneiss with interbands of feldspathised garnet-biotite schist and migmatites. Intrusion (later of tourmaline granite and pegmatite.

Mudflows (Debris flow) are common types of fast moving landslides that occur during intense rainfall partially in the hills. Its speed would be 15-30 Km/ph. It is quite destructive. The debris continues to flow down the hills carrying along water, mud, sand, boulders, tree and other materials, leading to vast spreading of debris in the form of thick deposits. Landslides are a serious geological hazard common in the hilly regions of India. It is a recurring and annual phenomenon in India. Landslides proneness in North-East is very high. They cause extensive damage to roads, bridges, fields, crops, forests, orchards and as well as animal lives. Ecological loss due to landslides has been increase due to greater frequency of landslides.(In the context of District; the history of landslides may be taken into account and together with identification of landslides prone areas may be drawn). The worst affected and landslides prone areas in the district are Tawang Monastery, Township area, Seru, Surbi, Teli, Urgiling, Lemberdung, Yubu, Paikhar, Mentsangrong, kitpi Villages.

An attempt has been made to characterize the landslide complex near the Tawang Monastery, Particularly in its upper slope segment, on the basis of the guidelines provided by International geotechnical societies' UNESCO working party on world Landslide Inventory (WP/WLI, 1993). Evaluation of the landslide complex

through detailed (1:1000 Scale) geological and geomorphological mapping and subsequent slope stability study has indicated that:

a. The landslide complex is presently “not active” (no perceptible slope movement recorded), but may fall under “reactivated / suspended” category in terms of state of activity. Further , considering the causal factors like shallow overburden cover with high natural moisture content coupled with natural recharge and low shear strength parameters of disturbed material ,there is always a possibility of slow , imperceptible (creep)Movement within the ground crack Zone of displaced material, in which case, the given landslide may be termed as “active”. However, this can only be validated by instrumental monitoring of the ground crack Zone, which is beyond the scope of the present investigation.

b. In terms of distribution of activity, the landslide may be considered “retrogressive “considering the advancement of the crown scarp towards the crest of the spur.

C. Characterizing the landslide complex in terms of style of Landslide activity and Landslide type presents a diversified option since a larger part of the slope forming material comprising the heterogeneous younger loose debris show shallow translational slide (planar debris slide) long the bedrock –overburden interface over a proportionately larger area and to a lesser extent shallow rotational slide near the right crown scarp. The in-situ rock outcrops (NO-5 & 6) towards the left flank of the landslide complex exhibit planar and wedge failure conditions of the jointed rock mass. On the other hand, soil fall and/or soil topple has been identified as the preliminary failure mode along the near –vertical main scarp face. Under the given circumstances, the upper slope segment of the landslide complex may be described as”composite”one.

d. Further for the slide debris towards the centre and right flank, it be pertinent to mention that given the type of soil mass (which is not a free- draining due to high water retention capacity of silt and clay), a sudden alteration in the hydrological condition (like concentrated rainfall for short period, increasing pore water pressure) may change the failure mode from “planar translational debris slide” to “debris flow”.

e. Considering both the upper and lower slope segments together (holistic approach), the given slide may be placed under “successive” category as shallow translational

failure of the younger loose material is the dominant failure type in both the slope segments but do not share the same displaced material or rupture surface.

Stability appraisal of the different slope forming material variably disposed in the slope using rock mass rating scheme, slope-mass rating scheme, etc has indicated that:

i. The apprehension about the stability of the Tawang Monastery which is a function of the immediate gentle slope above the crown scarp hosting in-situ soil cover emerges to be largely stable under existing geological and normal hydrological conditions. But, since the toe of this gentle slope possesses a prominent scarp of variable height (205m), the same needs to be protected to prevent loss of toe support and subsequent advancement of the crown scarp.

ii. For the rock slopes, partially stable conditions along rock outcrop no-2& 3, unstable conditions along rock outcrop no-6 and completely unstable conditions along rock outcrop no-5 has been found.

iii. Since the heterogeneous younger loose material/slided debris covering a major portion of the landslide –affected –slope has been found to be critically stable under existing geological and normal hydrological conditions, it is assumed that any deterioration in existing slope attributes, geological and hydrological conditions can trigger further failure of small to large dimensions. Since the stability of any part of the landslide complex including the gentle slope above the crown is related to the dynamic nature of the immediate lower slopes made up of these heterogeneous younger loose material/ slided debris, the same needs to be stabilized by adopting suitable measures).

The following remedial measures / slope protection measures may be considered by the Govt. of Arunachal Pradesh for implementation at the upper slope segment. It is pertinent to mention that completion of sub-surface studies (drilling and geophysical components) should be considered as a pre – requisite before going for slope stabilization measures. Further, below mentioned recommendations are always subject to necessary modifications after receiving relevant inputs from the sub-surface investigations.

a). <u>Generic recommendations</u>:

i. **Drainage measure**: - The existing lined drain (behind main scarp) may be cleaned periodically to cheek ingress of surface water into the slide zone.

The unguided water courses and the identified seepage points within the landslide complex may be lined to reduce the amount of percolation into the already affected, heterogeneous younger loose material. If required, lined transverse (chute) drains may be planned within ground crack zone on the steep slope. Provision of water collector sumps with impermeable base and perforated upslope part (sump depth depends on thickness of overburden) may be considered at the pondage level (natural slope break, separating both slope segments). The surface water (from precipitation) as well as seepage water from lined drains shall get collected in these sumps which may be designed for open outlet. The Outlet water may be again routed through lined drains up to the edge of the natural bench/near- flat ground and finally be discharged into both the streams descending towered the lower slope segment. From this point of discharge, both the stream banks may be protected by providing gabion walls for some distance along suitable stretches of stream length, if required.

ii. **Biotechnical stabilization** ; The part of the slopes hosting the overburden comprised of the younger loose material may be considered for plantation of some fast growing plant with lateral root-spreading species which will help to bind the top-soil (preventing excess slope wash). The spreading root network, in turn can increase shear strength of the soil mass. Further, this may help to improve the aesthetic look of the present slide zone.

b) <u>Specific Recommendations</u>:-

i. **In –situ soil at the crown;** A few small –scale failure along the near –vertical scarp face having height of more than 2 m way experience soil fall/topple leading to further retrogression of main scarp edge towards the ridge axis, which cannot be ruled out, As a preventive measure, benching may be recommended (1:1gradient) at these localized patches to provide a slope break. Benching will lead to further recession of edge line up slope, accordingly, the existing drain may be suitably re- aligned to a safer distance. Alternatively, soil nailing (for scarp height >2m) may be considered with vertical cladding (if required) for the aforementioned area of the main scarp. Anchoring may be placed over the sound rock while its strength (tension), spacing

and bearing of drive may be worked out by the design engineers, considering the site condition.

ii. **Heterogeneous younger loose debris:** Slope instability (both planar and rotational debris failure with shallow slip surface) within the affected landslide zone may be addressed by slope grading through benching with/ without gabion walls (founded on fresh, in –situ rock and properly back filled). For steeper slope segments (where benching may not be feasible), all existing ground cracks may be sealed with impervious material (preferably clayey soil or bitumen) and properly compacted. The toe of the upper slope segment (just above the pondage level) towards the right and central part of slide may be further strengthened by micro-piling, if the overburden thickness exceeds 10m at toe portion. Cut slope height (for placing gabions, if required) and bench width may be evaluated by the design engineers, after getting overburden thickness along slope length, in consultation with the geologists.

iii. **In-situ rock outcrops:** SMR study of rock exposure for rock outcrop no-5 & 6 towards the left flank of landslide complex revealed potential planar and wedge failure conditions with SMR class-V&IV respectively. Instead of re-excavation (as suggested by Romana, 1985), rock anchoring may be easily applied to stabilize big rock blocks. Further, the chances of loose rock fall/ topple from steep rock face (as depicted by Markland test for both outcrops, may be minimized by applying steel Fibre Reinforced Shotcrete (SFRS) layers on exposed face. Alternately, provision of plain cement shotcrete along with polymer wire mesh (firmly anchored to fresh rock) may be considered. This measure will protect the in-situ rock from weathering and erosion as well as dilation of joints near the slope face.

Drainage hole (opening downward) at regular may be provided on the slope face to reduce built-up of pore water pressure inside the rock mass. Length and optimum angle of anchoring, its bearing and spacing may finally be evaluated by design engineers in consultation with the geologists, considering the slope angle, rockmass class and other site parameters.

REASONS FOR LANDSLIDES

- ***Geologically weak material:*** Weathered materials, jointed or fissured materials, contrast in permeability and contrast in stiffness (stiff, dense material

over plastic materials)

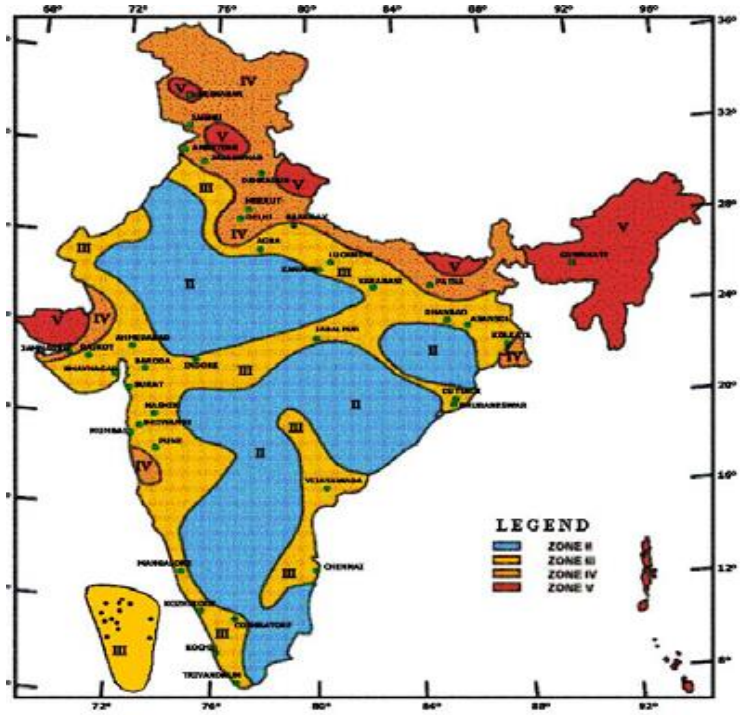
- ***Erosion:*** Toe erosion by mountain rivulet, bank erosion of descending water courses along the hill slope
- ***Intense rainfall:*** Storms that produce intense rainfall for periods as short as several hours or have a more moderate intensity lasting several days have triggered abundant landslides
- ***Human Intervention:*** Excavation of slope and its toe, loading of slope/toe, draw down in reservoir, mining, deforestation, Water Resource, vibration/blast, Water leakage from services
- ***Earthquake shaking*** could trigger landslides in many different topographic and geologic settings. Rock falls, soil slides and rockslides from steep slopes involving relatively thin or shallow dis-aggregated soils or rock, or both have been the most abundant types of landslides triggered by historical earthquakes

LANDSLIDE CONTROL/PREVENTION TECHIQUES:

Check dams, benching/terracing of slopes, road side drains, masonry walls, concrete walls, relocating or changing of the location of the facility to avoid prone areas, revetment, dykes to protect slopes against river and stream erosion, sign boards for the public the areas prone for the landslides to avoid accidents, plantation of trees etc.

4.2.3. EARTHQUAKES:

These strike without any warning and are quite unpredictable. It is therefore often said that earthquakes do not kill but the structures does. Hence, preventive measures for ensuring safety of buildings, structures, communication facilities, water supply lines, electricity and life care of utmost priority. The whole of North East comes under Zone-V of earthquake, which is the most dangerous (Map will help understand better.



Seismicity driven by tectonic processes of continent- continent collision between Indian & Eurasian plate along Himalayas, Subduction of Indian plate

underneath Burma plate in the east and intra- cratonic or intra-plate activity in peninsular domain renders Indian subcontinent vulnerable to Earthquake Hazard. As per seismic Zoning of the country over 59% of Indian‘s land area lying in zone III, IV and V is under threat of moderate to severe seismic hazard.

North – East India wedged with the collision boundary of the Himalayan plate in the north and indo – Burmese plate in the east is one of the most Seismically active region of the ward and has been effected by two great earthquake of 1897 and 1950(M> 8.5) and several earthquakes of magnitude more than 6 causing huge loss of life and destruction of property .Entire Himalayan belt is considered prone to great earthquake of magnitude exceeding 8.0. Recent scientific research points to the like hood of occurrence of very severe earthquake in Himalayan region, which could adversely affect the lives of several million people in India.

The Vulnerability Atlas of India prepared by the Building Materials and technology promotion council (BMTPC) in 2006, Ministry of Urban Development denotes that about one million houses of NE Indian region are in very high risk due earthquake ground shaking.

Seismic Hazard and Risk Microzonation (SHRM) is the process of estimating response of soil layers under earthquake excitations and thus the variation of earthquake ground motion characteristics on the ground surface. It provides an important tool in generating site specific parameters such as (i) frequency dependent accelerations at each site at bedrock level on future seismic shaking, (ii) site amplification due to soft sediment present at the site, (iii) probable manifestation of earthquake hazard in terms of induced ground fissuring , Land deformation-Landslide & liquefaction and (iv) vulnerability of the built environment vis-a- vis Time periods of oscillation structures and the foundation domain.

‘Seismic Hazard and Risk Microzonation’ of vulnerable urban areas shall therefore be the national priority, because realistic hazard and risk assessment are not possible in the absence of such studies.

The Indian Meteorological Department is the nodal agency in earthquake monitoring. The observatories are being setup keeping in view of the operational requirement. They help in generation of data to understand the genesis of earthquakes and regional risk appraisal. In has been inferred by several investigators that with

present earthquake dataset and level of location accuracy of earthquake epicenter, seismicity in NE region appears to be diffused, except those occurring along indo-Myanmar subduction zone.

The North – East Indian region is seismically one of the six most active regions of the world, the other five being Mexico, Taiwan, California, Japan and Turkey.

In order to strengthen the near real time monitoring of earthquake activity in NE India region, a regional VSAT bases seismic telemetry network has been setup in the region. The detection of smaller magnitude earthquake with the help of this network will also enable to study spatial temporal variations in seismicity patterns, changes in focal mechanism before large earthquake, fault identification and its status. The results will enables to develop a seism tectonic model upon which reliable methods for hazard analysis can be evolved.

The intense seismic activity in the region is attributed to the large – scale horizontal crustal movements. The complex tectonics of the northeastern India is ascribed to

(i) Continent – continent collision along the Eastern Himalayan Boundary Thrust Zone,

(ii) Thrusting and strike slip movements related to subduction of the Indian lithospheric slab eastward beneath the Burmese Plate in the Burmese-Andaman- Arc System

(iii) Syataxis zone of Himalayan arc and Burmese arc (Mishmi Hills)

(iv) Plate boundary zone of the shillong plateau, Assam valley and Bengal basin.

(v) Plate boundary zone of Tripura Mizoram fold belt.

The complex tectonic and geological setup of the region and intense continental convergence of the northward moving Indian plate and presence of several lineaments / faults in Brahamaputra basin, Shillong plateau and neighboring regions makes the whole of northeast Indiana seismically very active. Many earthquake events were recorded by the Network in the NE India notably;

i) December 31, 1984(M5.5)

ii) September 10, 1986 (M 5.5)

iii) May 18, 1987 (M5.5)

iv) February 6, 1988 (M5.8)

v) August 6, 1988 (M6.8)

vi) January 10, 1990 (M 6.1)

vii) May 6, 1995 (M 6.4)

viii) May 6, 1997 (M 5.6)

SEISMIC HAZARDS: Seismic hazards are defined as those earthquake – related geologic processes that have the potential to 'produce adverse effects on human activities "(Earthquake Spectra November 1984), whether the threat is to life, constructed works, or real estate.

SEISMIC RISK ASSESMENT: Seismic risk assessment is defined as the evaluation of potential economic losses, loss of function, loss of confidence, fatalities, and injuries from earthquake hazards. Given the current state of knowledge, little can be done to modify the hazard by controlling tectonic processes. However, there is a variety of way to control the risk or exposure to seismic hazards. The most important component in seismic risk assessment an evaluation of earthquake hazards and preparing hazards zonation maps.

SEISMIC ZONING MAPS: Seismic Zoning maps are prepared on the basis of seism tectonic provinces and the premise that the earthquake would re- occurs in the same tectonic province where they have occurred in the past. These maps broadly define the geographical zones with level of expected hazard in the area either in terms of expected intensity of damage ranging between l-XII on intensity scale or Peak Ground Acceleration (PGA) in units of g'.

SOIL LIQUEFACTION: Liquefaction of water saturated sands is believed to occur when the pore pressure approaches the confining pressure. It can initiate movement of large blocks of soil (lateral spreading), causing extensive damages to manmade structures (Youd, 1991). In common usage, liquefaction refers to the loss of strength in saturated, cohesion less soil due to increasing pore water pressures during dynamic loading. A more precise definition of Soil liquefaction is given by sladen et al. (1985). " Liquefaction is a phenomenon wherein a mass of soil loses a large percentage of its shear resistance, when subjected to monotonic, cyclic ,or shock loading, and flows in a manner resembling a liquid until the shear stresses acting on the mass are as low as the reduces shear resistance".

Evaluation of liquefaction is to be attempted in three stages.

1. Identification of Liquefaction Susceptibility of Soil (Level A study)
2. Evaluation of liquefaction potential (Factor of Safety) (Level B study)
3. Generation of Liquefaction map.

BUILDING VULNERABILITY IN NORTH EAST INDIA:

Typical earthquake management cycle has six elements covering basically two phases of disaster management viz. Post – disaster which includes Rescue, Relief & Rehabilitation (3R) and Pre-Disaster which includes Prevention, Mitigation and Preparedness (PMP).

All over the world therefore , there is paradigm shift for the management of earthquake disaster from the response – centric regime i.e' Rescue; Relief and 'Rehabilitation (3R); to mitigation and preparedness – centric regime i.e pre- disaster management which includes, Prevention , Mitigation and Preparedness (PMP), where efforts and funds will be used to address the underlying causes of Vulnerability and for preparedness. Damage to the life and property that is caused by an earthquake, can be greatly reduced by proper land use planning, engineering approaches, strengthening of existing structures etc.

POSSIBLE IMPACT:-

a) Destruction and or damage of built environment- buildings, roads, bridges, dams etc leading to loss of human and animal lives and injuries.

b) Fires.

c) Landslides-damage of fields and settlements.

d) Epidemics.

e) Disruption of transport and communications.

HOW TO HANDLE AN EARTHQUAKE:

Before a quake:

Develop a family plan and locate the following:

- Safest places in the houses.
- Most dangerous places like kitchen, electric current etc.
- Exits and alternatives exist.
- Turn off electricity and gas.

- Keep flashlights batteries, candles and match box.
- First aid kit.
- Dry food (like biscuits, maggi etc.) and drinking water bottles.
- Place heavy objects on lower shelves.

During:

- Keep calm, don't panic
- Rush to the ground floor.
- Keep all the heavy materials on the floor of the houses.
- If enable to leave the room, take up shelter under table, cot etc.
- Don't use stairs or lift.
- If driving, stop, avoid bridges, electric poles etc.

After:

- Check for injuries, give first aid, cover seriously injured with blankets to prevent shocks.
- Check for gas leak, electric fault.
- Do not attempt to drive anywhere, roads may be damaged or blocked.
- Turn on a battery-operated radio and listen for information on what to do.
- Keep do calm and expect aftershocks.
- Stay out of damages and already weakened houses.
- Do not touch downed power lines or objects in contact with power lines.

In seismically, earthquakes of a magnitude of 8.0 and above are considered very destructive. India has experienced four such destructive earthquakes in the 20th century. These are:

1. 8.25 in Kanpur on April 4, 1905.
2. 8.25 in Bihar on Jan, 1934.
3. 8.1 in Andaman on 26-6-1994.
4. 8.6 in Assam on 15.8.1952.

STRATEGIES ADOPTED BY THE DISTRICT:

Awareness programmes like training and mock drills, distribution of pamphlets / leaflets, installation of hoardings, wall paintings etc. were organized at district as well as block level on regular intervals involving various departments, Organizations, general public and teachers & students. Further, in connection to bring awareness amongst the Civil Engineers and persons involved in the construction fields a day one seminar on "Seismic Resistant Designed and Construction of Building" was conducted in the district on 10-05-2014. The programme highlighted various aspects on earthquakes and required measured to be kept in construction of buildings. The new concept of building construction i.e. confined masonry use in building was discussed and to put this concept of construction into field, a project "Construction of Stone Masonry Residential Cum Guest House" at Teli Mahabhodi Centre, Tawang is being taken up by the department of PWD Tawang.

4.2.4. HAILSTORMS:

Although, hailstorm rarely involves physical injury, their economic impact can be severe. The extent of damage depends upon the duration and intensity of storms and the size of hailstorms.

The main hazard associated with hailstorm is damage to crops (in the context of Twang District) viz- Potato, fruit orchards etc. Crop insurance could reduce the loss.

The maximum hail activity has been recorded in the Brahmaputra Valley, Imphal, Agartala and Bihar**.**

4.2.5. CLOUD BURSTS:

It is a sudden occurrence and severe heavy rain and of very high intensity in a limited place. It creates a sudden flood in both plain and hilly areas, causes big landslides, brings down boulders and uproots trees. Due to this, torrential rain shall occur in a limited area. Cloud bursts cause heavy damages in the flood prone plain area. Due to sudden rain or water flow, breaching of banks and over flowing of dams could happen. It causes landslide, traffic obstruction and damages to houses. Periodically, in the cloud burst areas, people have to construct houses in higher elevation than in the flood prone places. This has to be enforced very strictly for saving people. If anyone is marooned, they have to be rescued by the District Administration. District Administration to be vigilant and identify the areas of recurrence. There has to be awareness creation to officials/ civil wardens/ Panchayats to be made vigilant. People should avoid rivers and drainage channels during cloudburst as sudden flooding may endanger their lives. Cloud burst brings a lot of debris & boulders and silt larger areas and make it uncultivable. The most vulnerable areas could be the plains adjoining the hills. All the measures outlined at Sl. No. 4.2. in landslide and mudflows for combating them are relevant.

4.2.6 CHEMICAL DISASTERS

Chemicals, being at the core of modern industrial systems, have attained a very serious concern for disaster management within government, private sector and community at large. Chemical disasters may be traumatic in their impacts on human beings and have resulted in the casualties and also damages nature and property. The elements which are at highest risks due to chemical disaster primarily include the industrial plant, its employees & workers, hazardous chemicals vehicles, the residents of nearby settlements, adjacent buildings, occupants and surrounding community. Chemical disasters may arise in number of ways, such as:-

Process and safety systems failures

-Human errors

-Technical errors

-Management errors

Induced effect of natural calamities

Accidents during the transportation

Hazardous waste processing/ disposal

Terrorist attack/ unrest leading to sabotage

Status of Chemical Disaster Risk in India

India has witnessed the world's worst chemical (industrial) disaster "Bhopal Gas Tragedy" in the year 1984. The Bhopal Gas tragedy was most devastating chemical accident in history, where over 2500 people died due to accidental release of toxic gas Methyl Iso Cyanate (MIC).

Such accidents are significant in terms of injuries, pain, suffering, loss of lives, damage to property and environment. India continued to witness a series of chemical accidents even after Bhopal had demonstrated the vulnerability of the country. Only in last decade, 130 significant chemical accidents reported in India, which resulted into 259 deaths and 563 number of major injured.

There are about 1861 Major Accident Hazard (MAH) units, spread across 298 districts and 25 states & 3 Union Territories, in all zones of country. Besides, there are thousands of registered and hazardous factories (below MAH criteria) and un-organized sectors dealing with numerous range of hazardous material posing serious and complex levels of disaster risks.

Safety initiatives taken in India to address chemical risk

The comprehensive legal/ institutional framework exists in our country. A number of regulations covering the safety in transportation, liability, insurance and compensations have been enacted.

Following are the relevant provisions on chemical disaster management, prevailing in country:-

Explosives Act 1884	- Petroleum Act 1934
Factories Act 1948	- Insecticides Act 1968
Environment Protection Act 1986	- Motor Vehicles Act 1988
Public Liability Insurance Act 1991	- Disaster Management Act 2005.

Government of India has further reinforced the legal framework on chemical safety and management of chemical accidents by enacting new rules such as MSIHC Rules, EPPR Rules, SMPV Rules, CMV Rules, Gas Cylinder Rules, Hazardous Waste Rules, Dock Workers Rules and by way of amendments to them.

The National Disaster Management Authority (NDMA) of India had come out with very specific guidelines on Chemical Disaster Management. The guidelines have been prepared to provide the directions to ministries, departments and state authorities for the preparation of their detailed disaster management plans. These guidelines call for a proactive, participatory, multi-disciplinary and multi-sectoral approach at various levels for chemical disaster preparedness and response. Further, NDMA has

provided specific inputs to the GOM for avoidance of future chemical disasters in the country, along with suggested amendments on the existing framework. NDMA is also working on revamping of CIFs (Chief Inspectorate of Factories) to strengthen chemical safety in India. In addition, MoEF and NDMA are in process of finalizing the National Action Plan on Chemical Industrial Disaster Management (NAP-CIDM), which will act as the roadmap for chemical disaster management in India.

Precautions to be taken during and after the Chemical (Industrial) Accidents

1. Do not panic, evacuate calmly and quickly perpendicular to wind direction through the designated escape route
2. Keep a wet handkerchief or piece of cloth/ sari on face during evacuation
3. Keep the sick, elderly, weak, handicapped and other people who are unable to evacuate inside house and close all the doors and windows tightly.
4. Do not consume the uncovered food/ water etc open to the air, drink only from bottle
5. Change into fresh clothing after reaching safe place/ shelter, and wish hands properly
6. Inform Fire & Emergency Services, Police and medical services from safe location.
7. Listen to PA (Public Addressal) System of the plant/ factory, local radio/ TV channels for advice from district administration/fire/health/police and other concerned authorities
8. Provide correct and accurate information to government officials.
9. Inform others on occurrence of event at public gathering places (like school, shopping centre, theatre etc.).
10. Don’t pay attention to the rumours and don’t spread rumors.
11. General Precautions During Normal Time
12. Do not smoke, lit fire or spark in the identified hazardous area
13. Sensitize the community living near the industrial units and they should be more vigilant about the nature of industrial units and associated risks.

14. Keep the contact numbers of nearest hazardous industry, fire station, police station, control room, health services and district control room, for emergency use.
15. Participate in all the capacity building programmes organized by the government/ voluntary organizations / industrial units.
16. Take part in preparing disaster management plan for the community and identify safe shelter along with safe and easy access routes.
17. Prepare a family disaster management plan and explain it to all the family members.
18. Make the family/ neighbours aware of the basic characteristics of various poisonous/ hazardous chemicals and the first aid required to treat them.
19. Adequate number of personal protective equipments needs to be made available, to deal with emergency situation.
20. Prepare an emergency kit of items and essentials in the house, including medicines, documents and valuables.

The threat of Chemical disasters is quite low in Tawang as no Chemical Industry is established in the district. However Hazards like burning of FUEL DUMPS unit, Gas Leakage are present for which the above guidelines / measures are quite relevant.

4.2.7 BIOLOGICAL DISASTERS

Biological disasters are causative of process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Examples of biological disasters include outbreaks of epidemic diseases, plant or animal contagion, insect or other animal plagues and infestation. Biological disasters may be in the form of:-

Epidemic affecting a disproportionately large number of individuals within a population, community, or region at the same time, examples being Cholera, Plague, Japanese Encephalitis (JE)/Acute Encephalitis Syndrome (AES); or,

Pandemic is an epidemic that spreads across a large region, that is, a continent, or even worldwide of existing, emerging or reemerging diseases and pestilences, example being Influenza H1N1 (Swine Flu).

BEFORE THE DISASTER

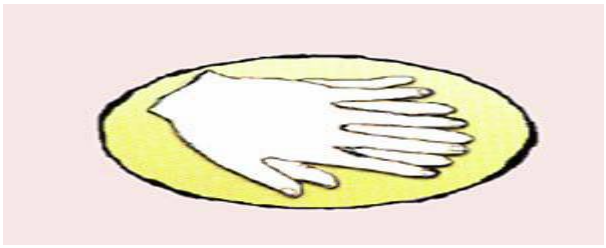
A. Plan for Family Biological Disaster Plan.

B. Preparation by ensuring Prevention measures:-

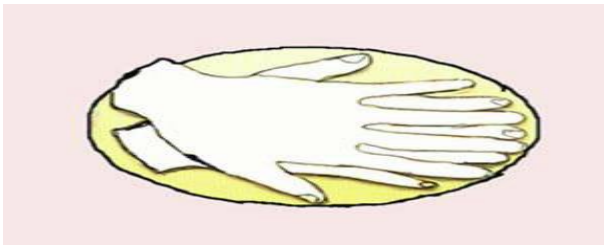
(a) Personal cleanliness - daily bath, don't grow long nails and wear clean clothes.

(b) Hand Hygiene (Wash hands with soap and water before preparing food or eating, after passing stools, coughing or sneezing). The steps of hand washing are:-

(i) Step 1 : Wash palms and fingers



(i) Step 2 : Wash back of hands.



(iii) Step 3 :Wash fingers and knuckles

(iv) Step 4 : Wash thumbs

(v) Step 5 : Wash fingertips

(vi) Step 6: Wash wrists

(c) Eat nutritious and balanced food.

(d) Immunisation state should be upto date.

(e) Prevent overcrowding.

(f) Good ventilation.

(g) Protect from hot and cold weather.

(h) Health Education.

(i) Surveillance.

C. Take a First Aid and Cardio-Pulmonary Resuscitation (CPR) training.

D. Subscribe to a Medical Insurance Plan.

3. DO's & DON'TS

A. <u>DIARRHOEAL GROUP OF DISEASES INCLUDING CHOLERA</u>

Do's

1. Hand Hygiene.
2. Encourage drinking of water from a safe source or water that has been disinfected (chlorinated). Add bleaching powder in all community wells at regular intervals. Use water pumped out from India Mark II hand pumps, if installed in the village/community.
3. Drink boiled potable water in an emergency that has been boiled for at least 15 minutes and consumed it the same day.
4. Promote storage of water in narrow mouthed container.
5. Cook food thoroughly especially meat, poultry, eggs and seafood until it is steaming and eat it while it is still hot.
6. Ensure cooked meat and poultry is safe and no part of the meat discoloured or foul smelling, or in the case of egg, their shells are not cracked.
7. If food is not eaten immediately, reheat cooked until it is steaming hot prior to serving.
8. Keep food items covered.
9. Increase fluid intake as soon as diarrhoea starts by drinking ORS solution or home-made preparation of Table Salt 5 grams (1 teaspoon) in and 20 grams (4 teaspoons) of Sugar dissolved in 1 liter of drinking water.

10. Encourage banana eating, which provides potassium.
11. Continue feeding children when they are sick and to continue breastfeeding if the child is being breast fed.
12. Refer the diarrhoea case to the nearest health facility in case of the following: Child is irritable, restless or lethargic or unconscious: eating or drinking poorly; child has marked thirst; child has fever or blood in stool.

Don'ts

1. Do not drink water from unsafe sources.
2. Do not eat uncooked food unless it is peeled or shelled.
3. Do not leave cooked food at room temperature longer than 2 hours.
4. Do not consume cut fruits from vendors.
5. Do not defecate in open area.
6. Do not give access to rats and houseflies in your premises.

B. <u>RESPIRATORY GROUP OF DISEASES LIKE TUBERCULOSIS, INFLUENZA, CHICKENPOX, MENINGITIS</u>

Do's and Don'ts:

1. Avoid close contact with people who are having respiratory illness.
2. The sick person should stay at home, and avoid going into the community, school/office, public places for at least 24 hours after symptoms have resolved.
3. Sick persons at home should keep distance from others.
4. Respiratory Hygiene/Cough Etiquette:-

   (a) Cover the nose/mouth with a handkerchief/ tissue paper when coughing or sneezing which should be disposed off in dustbins;

   (b) Perform hand hygiene (e.g., frequent hand washing with soap and water, alcohol-based hand rub, or antiseptic hand wash) and thoroughly dried preferably using disposable tissue/ paper/ towel after

contact after having contact with respiratory secretions and contaminated objects/materials.

5. Triple layer surgical Mask of standard and certified make should be worn by Suspected/ probable/confirmed cases of influenza or by the care provider in home care settings and close family contacts of such cases undergoing home care.
6. Get plenty of sleep, be physically active, manage your stress, drink plenty of fluids, and eat nutritious food.
7. Avoid smoking.
8. Persons who have difficulty breathing or shortness of breath should seek immediate medical attention and report to the nearby hospital.
9. If sick persons must go into the community (e.g., to seek medical care), then they should wear a face mask or use a handkerchief or tissues to cover any coughing and sneezing so as to reduce the risk of spreading the infection in the community.
10. Immunization status should be up to date as per National Universal Immunization Programme.

C. MOSQUITO BORNE DISEASES LIKE MALARIA, DENGUE, FILARIA, CHIKUNGUNYA

Do's

1. Follow "sun-down sleeves-down" approach. Wear clothes that cover arms and legs.

2. Prevent water collections on ground and other places to prevent malaria breeding.
3. Empty water containers at least once a week.
4. Remove water from coolers from time to time.
5. Cover and seal any septic tanks.
6. Use Mosquito Nets preferably Insecticide Treated Bed Nets (ITBN).
7. Apply insect repellants while sleeping to keep away mosquitoes.
8. Seek medical advice in case of rashes, mental irritation or Unconsciousness.

Don'ts

1. Do not encourage children to wear shorts and half sleeved clothing.
2. Do not allow water to stagnate.
3. Do not allow discarded items to accumulate such as tires, tubes, empty coconut shells, household items and objects wherein water may collect.
4. Do not bathe in village ponds and allow cattle to take bath in the Same pond.

4.2.8 NUCLEAR AND RADIOLOGICAL DISASTERS:

The growth in the application of nuclear science and technology in the fields of power generation, medicine, industry, agriculture, research and defence has led to an increase in the risk of occurrence of Nuclear and Radiological emergencies.

India has traditionally been vulnerable to natural disasters on account of its unique geo climatic conditions and it has, of late, like all other countries in the world, become equally vulnerable to various man-made disasters.

Any radiation incident resulting in or having a potential to result in exposure and/or contamination of the workers or the public in excess of the respective permissible limits can lead to a nuclear/radiological emergency.

Sad memories of the use of nuclear weapons dropped on Hiroshima and Nagasaki, and the wide publicity given to the reactor accidents at Three Mile Island (TMI) in USA, Chernobyl in erstwhile USSR, FUKUSHIMA Plant in Japan have strongly influenced the public perception of any nuclear emergency or disaster to be most often linked, erroneously though, to only these events. Even though such situations may not easily be repeated, one must be prepared to face nuclear/radiological emergencies of lower magnitudes and ensure that the impact of such an emergency (which for a given magnitude, is likely to be much greater today because of higher population densities coupled with an enhanced urban infrastructure due to economic prosperity) is always kept under control.

For improving the quality of life in society, India has embarked upon a large programme of using nuclear energy for generation of electricity. As on date, India has

17 power reactors and five research reactors in operation along with six power reactors under construction. It is also planned to explore setting up Thorium based reactors to meet its ever increasing energy needs. Further, the country utilizes adioisotopes in a variety of applications in the non-power sector, viz., in the field of industry, agriculture, medicine, research, etc. Due to the inherent safety culture, the best safety practices and standards followed in these applications and effective regulation by the Atomic Energy Regulatory Board, the radiation dose to which the persons working in nuclear/radiation facilities are exposed to, is well within the permissible limits and the risk of its impact on the public domain is very low.

However, nuclear emergencies can still arise due to factors beyond the control of the operating agencies; e.g., human error, system failure, sabotage, earthquake, cyclone, flood, etc. Such failures, even though of very low probability, may lead to an on-site or off-site emergency. To combat this, proper emergency preparedness plans must be in place so that there is minimum avoidable loss of life, livelihood, property and impact on the environment.

Do's &Dont's

The probability of a major accident at nuclear facilities leading to the release of large quantities of radioactivity into the environment is always ensured to be negligibly small. However, even in the event of a major release into the environment, the prompt and effective implementation of countermeasures can reduce the radiological consequences for the public.

Preparedness for Nuclear/Radiological Emergencies

The handling of nuclear emergencies requires coordination among different service groups of the nuclear facility. In the event of potential radiological consequences in the public domain, all the authorities at the three levels, i.e., district, state and central, will play a vital role.

Handling Off-Site Emergencies

On recognizing the potential for an uncontrolled release of radioactivity into the public domain, the concerned district authorities are alerted to be on standby for emergency response operations. In addition to all the provisions applicable in plant emergency and site emergency, the following additional provisions are to be ensured for handling a nuclear emergency in the public domain:

1. Pre-identification of plant conditions which can lead to an emergency in the public domain.
2. An assessment of the radiological status at the site boundary and in the public domain.

For handling of an off-site emergency condition in an NPP, there is an off-site emergency committee headed by the district magistrate of the concerned district and supported by the district subcommittee, which include chiefs of all public service departments relevant to emergency management in the district and also the Head of the Site Emergency Committee of the nuclear facility for technical advice. This committee takes decisions pertaining to the handling of a nuclear emergency outside the site boundary and ensures implementation of countermeasures such as sheltering, prophylaxis and evacuation and resettlement, including maintenance of law and order and civil amenities. All the activities pertaining to the handling of an off-site emergency are guided and coordinated from a pre-designated emergency response centre located outside the boundary of the nuclear facility. The information and broadcasting department of the district, in association with an authorised information officer, ensures the smooth flow of information to the media to avoid panic and spreading of rumours.

DO's

1. Go indoors. Stay inside.
2. Switch on the radio/television and look out for public announcements from your local authority.
3. Close doors/windows.
4. Cover all food, water and consume only such covered items.
5. If in the open, cover your face and body with a wet handkerchief, towel, dhoti or sari. Return home, change/remove clothes. Have a complete wash and use fresh clothing.

6. Extend full cooperation to local authorities and obey their instructions completely -- be it for taking medication, evacuation, etc.
7. You must be aware of nuclear radiation hazard. Discuss on Nuclear radiation safety among children and family members, to reduce their fear of radiation.

Dont's

1. Do not panic.
2. Do not believe in rumours passed on by word of mouth from one person to another.
3. Do not stay outside/or go outside.
4. As far as possible, AVOID water from open wells/ponds; exposed crops and vegetables; food, water or milk from outside.
5. Do not disobey any instruction of the district or civil defence authorities who would be doing their best to ensure the safety of you, your family and your property.

VULNERABILITY TO VARIOUS HAZARDS:

- The valleys of Tawang Chu river and Nyamzang Chu River and other small streams / river like Mengtsangrong, Kangteng nalla, Urgelling- ungharrong,

Lehtseme rong areas and few stripes of flat land and small stream/river like at New Market, HDS Colony in Tawang headquarter are vulnerable to landslides/ flash floods.

- 100% area of the district comes in seismic zone-V and vulnerable to earthquakes.
- Apart from the above said areas rest major part of the district is hilly and vulnerable to landslide.
- Whole district is vulnerable to fire during winter/dry season.

Hazard calendar:

Sl No.	Type of hazard	Jan-march	April-June	July-Sept	Oct-Dec
1.	Flood/Erosion	_	√	√	_
2.	Landslide	_	√	√	_
3.	Earth quake	√	√	√	√
4.	Fire	√	-	-	√

<u>Identification of safe shelters and open areas in the district:</u>

In case of Tawang district, in all the blocks there are community Centers, schools and other government buildings and the same will be utilized at the first

instances in case of a disaster. People should more to the nearest above said infrastructures in case of a disaster warning and also during disaster so that relief work will be very easier to carry out. And, the District Administration has identified open spaces adjacent to schools. The main and important open areas are listed in Table.

AREA	LOCATION	ALTITUDE
General Prade Ground	Near Kalawangpo Hall Tawang	9714ft.
Higher Secondary Ground Tawang	Near Govt. Sec School Tawang	9232 ft.
SSB Ground	Near 38th BN SSB Tawang	9664 ft.
Bomba Sec School Ground	Near Govt. Sec School Bomba	8292 ft.
Seru Sec School Ground	Near Govt. Sec School Seru	8299 ft.
Kitpi Sec School Ground	Near Govt. Sec School Kitpi	7601 ft.
Lhou Sec School Ground	Near Govt. Sec School Lhou	8128 ft.
Jang Sec School Ground	Near Govt. Sec school Jang	7900 ft.
Mukto Sec School Ground	Near Govt. Sec School Mukto	7812 ft.
Lumla Hr Sec School Ground	Near Govt Hr Sec School Lumla	7952 ft.
Dudunghar School Ground	Near Govt. ME school Dudunghar	3857 ft.

MITIGATION STRATEGIES FOR DIFFERENT HAZARDS:

Short Term Measures:

As the disasters are inevitable, the only way to manage them to mitigate their impact. The major Short Term Measures / steps are to provide immediate relief,

reducing the response time to avert any losses, provide the vulnerable and affected people with the basic needs, supply of minimum essential items to those who have lost their properties and movables, grant of long/short term loans at a concession rate.

Long Term Measures:

The Long Term Measures to be followed include taking up earthquake resistant construction designs of buildings and structures in a big way / protection walls at vulnerable locations, tree and vegetation plan to times at landslide prone areas, collection and conversion of flammable biomass into useful fuel, scientific construction of roads etc.

4.3. RESOURCE INVENTORY/ CAPACITY ANALYSIS OF VARIOUS IMPORTANT DEPATRMENTS/ ORGANISATIONS

Considering the backwardness of the district it is analyzed that sufficient resources are not available within the district. Material resources, monitory resources and human power are not

Sufficient to manage major calamities.

4.3.1. Health Department Tawang

SL/No.	Name of the Sub-Div Block/Tehsil, Village	Category of Establishment (District Hos./PHC etc	Official Manpower Available Doctors, Para-Medic. In each Est. area wise	Emergency Equipments/ Machinery/beds Available(within Location) Vehicles Fire Tenders, Med.Eqpts required during	Stock((material/Med cines/Food items) available All the time	Place Where Tem. Hospitals during the occurrence of disaster can be est. such as schools, colleges	Required in terms of Eqp/Machinery and

				Emergency Wireless sets.	In different godowns	community Halls(Sub-Div/Block/village	stocks for disaster Preparedness: Hospitals which need to be reinforced for all type of disasters(Sub-Div/Block-Tehsil/ Village)
1.	Tawang HQ	District Hospital	15 doctors, staffs(nurse,LHV, ANM, Pharmacist, Attendant, Field staff etc)	Male ward-50 beds, female ward-50 beds& emergency equipments and machineries like first aid kits, mobile lab service, mobile medical Van,4 wheel vehicle, ambulance etc.	Yes	CHCs,PHCs,School buildings,Community halls	
2.	Jang Sub-Div	Jang CHC	3 doctors, 4 staff		yes	PHCs, School buildings, community halls	
3.	Mukto Circle	Mukto PHC	1 doctor, 2 staff		yes	School buildings, community halls	
4.	Lhou Circle	Lhou PHC	1 doctor, 2staff		yes	School buildings, community halls	
5.	Thingbu Circle	Thingbu Sub Centre	1 ANM		yes	School building,	

						community hall Thingbu	
6.	Mago Village	Mago Sub Centre	1 N/A		yes	Community hall mago	
7.	Rho Village	Rho Sub Centre	1 WB,		Yes	School building, community hall Rho	
8.	Jangda Village	Jangda Sub Centre	1 HA		Yes	School building, community hall Jangda	
9.	ShyaroVillage	Shyaro Sub Centre	1 MPW		Yes	Shyaro School building	
10.	Kitpi Circle	PHC	1 doctor, 4 staff		Yes	Community halls, School buildings	
11.	Lemberdung Area	Lemberdung Sub Centre	1 ANM		yes	Community halls, school buildings	
12.	Seru Village	Seru Sub Centre	1MA		yes	School building Seru`	
13.	Lumla Sub-Div	Lumla PHC	13Doctor & 4 staff		yes	Community halls and school buildings	
14.	Dudunghar Circle	Dudunghar Sub Centre	2 Doctor, 4 Staff		yes	Community halls and school buildings	
15.	Zemithang Circle	Zemithang PHC	1 SN , 2 Staff		yes	Community halls, shool buildings	
16	Thongleng village	Thongleng Sub centre	1 MPW		yes	School building Thongleng	
17	Shakti village	Shakti Sub Centre			---	Community hall	
18	Bongleng Village	Bongleng PHC	1 Doctor , 2 Staff		Yes	PHC Building, Community	

						Halls, School Building	
19	Khet Village	Khet S/C	1 SN		Yes	S/C Building, Community Hall, School Building	

4.3.2 EDUCATION DEPARTMENT TAWANG:

SL/NO	Name of the Sub-Div Block/Tehsil, Village	Official Manpower Available (area wise)	Manpower that could be made available with a short notice of one hour	Temporary shelters during the occurrence of disaster can be est. such as schools, colleges community Halls(Sub-Div/Block/village	Required in terms of Eqp/Machinery and stocks for disaster Preparedness: Hospitals which need to be reinforced for all type of disasters(Sub-Div/Block-Tehsil/Village)
1.	Tawang Block	1 BRCC-cum-BEO & 1 CRCC	2	40 schools(including private schools)	School Building

		Ph. No. 946632990			
2.	Kitpi Block	1 BRCC-Cum-BEO & 1CRCC Ph. No. 9436631822	2	12 Schools	School Building
3.	Jang-Thingbu Block	1 BRCC-cum-BEO & 2CRCC Ph. No. 9436092044/ 9436428512	3	22 Schools (including private schools)	School Building
4.	Mukto-Bongkhar Block	1 BRCC-cum-BEO & 2 CRCC Ph. No. 9436258428	3	11 Schools	School Building
5.	Lumla Block	One BRCC-cum-BEO & 1 CRCC Ph. No. 9402034996	2	22 Schools (including private schools)	School Building
6.	Zemithang-dudunghar Block	1 BRCC cum BEO & 2 CRCC Ph. No. 9402948044	3 Bonghar circle	25 schools	School Building

4.3.3. District police Tawang :

SL No	Name of sub-division/ circle/ block	Official manpower available	Manpower that could be made available with a short notice of one Hour.	Equip/machinery available (with locations) i.e JCB, Dozers, Cranes, Buses/Vehicles, Fire, Tenders, Medical Equips required during Emergency wireless sets	Stock (material/ medicines/ food items) available all the time in different godowns.	Temporary shelter during the occurrence of disaster such as School, Community Halls, Colleges, rest house, Gonp, Masjid, Church (Sub	Requirement in Terms

						division/block/ Tehsil/ Village	
1	Distt. Police Tawang	214	34	**Vehicle:** 1. Truck=2 2. Bus= 2 3. F/ Tender(709)-2 4. TUV-300-1 5. Gypsy-6 6.T.sumo-5	a)Extinguisher=15 b) Shovel=4 c) F/ Bucket =10 d)Aluminum ladder-1 e) Breathing apparatus-1 f) stretcher-3 g) Fire bitter-5 h) spade-4 I) Hydrolic combitule -1 J) Crobar-6 k)Shovel-4 l)Crowbar-6	No such life line buildings and safe shelter available with Distt. Police right from PS level to Dist. HQ.	
2	Lumla	11	11				
3	Jang	17	17		a)Axe-01 b) Rope-02 c) Search Light-02 d) Fire Extinguisher Cylinder -02		

4.3.4. Fire and Emergency Service Station, Tawang

SL. NO.	Location	**Manpower available**	**Fire Fighting equipments**		**Remarks**
			Fire Tender 709	Equip/machinery available (with locations) i.e JCB, Dozers, Cranes, Buses/Vehicles, Fire, Tenders, Medical Equips required during Emergency wireless sets	
1.	Tawang HQ	11	2	a) Stretcher – 02 Nos b)Fire Bitter -05 Nos c) Fire Bucket -10 Nos d) Shoval-03 Nos e) Rope –01 f) Chain Saw-01	Need for more Fire Tenders at Dist. HQ as well as at Jang & Lumla Sub-Divisions.

				g) CO2 Extenguiser-04 h) Dry Chemical Powder- 04 i) Bolt Cutter – 01 j) B.A set –01 k) Crowbar-05 l) Foam tender –01 m) Spade-03	

4.3.5. 38th BN SSB Tawang

SL/ NO	Name of sub-division/circle/block	Official manpower available	Manpower that could be made available with a short notice of one hour.	Equip/machinery available (with locations) i.e JCB, Dozers, Cranes, Buses/Vehicles, Fire, Tenders, Medical Equips required during Emergency wireless sets	Stock (material/ medicines/ food items) available all the time in different godowns.	Temporary shelter during the occurrence of disaster such as School, Community Halls, Colleges, rest house, Gonp, Masjid, Church (Sub division/block/ Tehsil/ Village	Requirement in Terms

1	Tawang District	07 Coys (Service Coy)	01 Coy (service Coy)	**Location-38th bn SSB Tawang (AP)Vehicles** a) Heavy vehicles-03 b) Medium Vehicles -04 c) Light Vehicles- 03 d) Ambulances -01 **Emergency Medical Equipment:-** 1) Oxygen Cylinders B type -02 nos 2) Stretchers-02 nos 3) Suction Machines -01 nos 4) Resuscitation kits -01 nos **Fire Equipment :-** 1) Fire Axe with rubber handle -06 nos 2) Axe filling with handle -03 nos 3) Pick Axe with handle -03 nos. 4) Shoval with handle -03 nos 5) Fire hook with pole -06 nos 6) Fire Beater with pole -17 nos . 7) Crow Bar CM long -03 nos 8) Aluminum Ladder 7.5 mtr GTH-01 nos . 9) Fire bucket -17 nos 10) Fire extinguishers 09 ltr capacity water coz -12 nos 11) Fire extinguishers 09 ltr. Foam type Chemical / Mechanical - 15 nos 12) Fire extinguisher 03 kgs .Carbon dioxide -02 -nos 13) First Aid kit -06 nos **Communication equipment :-** i).Mobile communication :- a) HF Radio set with smart (data /voice) b) VHF Radio set with smart (data /voice) c) HF Radio set with smart (data /voice) ii)**Static Communication**:-	**Medicines :-** Life saving drugs available for at least 20-30 personnel at a time **Dry items :-** Atta, Rice , Refined oil, Dal chana , dal mung , dal masur , dal arhar , dal gora chana , dal rajma, dal uradh, green motor , sugar , tea leaf , salt, milk power, kaju kismiss , jam, white kubuli, pickle , milk TD, butter, baison, vit 'C' tab, MV tab, SK/oil LPG refilled cylinder 19 kg commercial . **Fresh Items :-** Onion , potato, and Egg **Condiments items :-** Dhania powder , haldi powder, Chili powder, punch puran , chicken masala, meat masala , chana masala, jeera powder, small Eliaiche, gota jeera & black pepper powder .	1.Tent.E.P.I.P. complete set -02 set 2. Tent.80kg complete set -130 sets 3. Tent.50kg extendable set -15sets 4. .Tent.20kg extendable set -28 set 5. Store tent complete-08 Set 6.Latrine Tent -17 sets 7. Latrine Tent screen -35 sets 8. 01 Pucca Building premises at Bn campus is alternative shelter during Exigencies.	

				a). Fax b). V-sat (ku-Band) c). PSTN Line d). WAN(Under process of installation)			

61st Bn SSB Lumla:

SL/No	Name of sub-division/circle/block	Official manpower available	Manpower that could be made available with a short notice of one hour.	Equipment / machinery available (with locations) i.e JCB, Dozers, Cranes, Buses/Vehicles, Fire, Tenders, Medical Equips required during Emergency wireless sets	Stock (material/ medicines/ food items) available all the time in different godowns.	Temporary shelter during the occurrence of disaster such as School, Community Halls, Colleges, rest house, Gonp, Masjid, Church (Sub division/block/ Tehsil/ Village	Requirement in Terms
01	61st Bn.SSB Lumla	180	30	H/Veh-02 M/Veh-01 L/Veh-03 Ambulance-01 FA Kit VHF 25 Watts-05 VHF 5 Watts-05 LHP 219 HF-02	**Medicines-** Available in small Qty. **Food Items** Rice-100 Kg Atta- 100 Kg Dal – 40 Kg Sugar – 40 Kg Vegetables – 40 Kg	Temporary – Very limited (for 05 Persons only)	

4.3.6. Public Works Division (PWD), Tawang:

Sl.No	Name of Sub-Division / Circle / Block	Official Manpower available	Manpower that could be made available with a short notice of one hour.	Equipment/ Machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during	Stock (material/ medicines/ food items) available all the time in different godowns.	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp, Masjid, Church (Sub – division / block/ tehsil / village	Requirement in terms

				emergency wireless sets.			
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1.	Tawang	116	116 Nos Man power is ready for deploym ent in case of natural disaster	Vehicle-Nos (Seporpio-2nos Bolero-1no & Gypsy-1no).	Nil	Circuit House-1 No	

4.3.7. Horticulture Department, Tawang:

Sl.No	Name of Sub-Division / Circle / Block	Official Manpower available	Manpower that could be made available with a short notice of one hour.	Equip/ Machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.	Stock (material/ medicines/ food items) available all the time in different godowns.	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonpa Masjid, Church (Sub – division / block/ tehsil/ village	Requireme nt in terms
1.	2	3	4	5	6	7	8
1.	Tawang	18 DHO-1	18	1(one) Bolero 1(one) Gypsy	Nil	Nil	

		HDO-2, HFA-1, Grafter -3, Fieldman-2 LDC-1, Driver-2, peon-1, Mali-6 contg-6,					
2.	Lumla	5(Five)	5	Nil	Nil	Nil	
3.	Mukto / Jang	5(Five)	9	Nil	Nil	Nil	
	Total	28	28	1			

4.3.8. Agriculture Department, Tawang:

Sl.No	Name of Sub-Division / Circle / Block	Official Manpower available	Manpower that could be made available with a short notice of one hour.	Equip/ Machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.	Stock (material/ medicines/ food items) available all the time in different godowns.	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonpa Masjid, Church (Sub – division / block/ tehsil/ village	Requirement in terms
1	2	3	4	5	6	7	8
1.	Tawang Sub-Division	P.P-1					

	Agriculture Circle 1. Tawang	38 (Twenty Eight)		1(one) Bolero pick up		Nil	Vehicle (Truck) off route & need to be repairing / replacement in terms of Disaster management at Tawang
	2. Kitpi Circle	5(five)					
	3. Lumla Circle.	3(three)					
	4. Zemithang Circle	1(one)	Could be made				Vehicle (Truck) need to be repairing / replacement in terms of Disaster management Tawang
	1. Mukto circle	3(three)		Nil		Nil	
	2. Jang Circle	2(two)					

4.3.9. Public Health Engineering Division Tawang:

Sl.No	Name of Division / circle/ Block	Official manpower available	Manpower that could be made available with a short notice of one hour	Equip/ machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.	Stock (material/ medicines/ food items) available all the time in different godowns	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp, Masjid, Church (Sub –division / block/ tehsil/ village	Require ment in terms

1	2	3	4	5	6	7	8
1.	PHE& WS Division	Executive Engineer	1	Scorpio -1(one) NO Bolero 3 (three) Nos (Tawang) Tata Mobile - 1(one) No (Lumla) Bolero 1(one) (Jang)	GlP/ Socket, GIU/ Socket, GI Bend and GIE Lbow & pipes Dl Pipes & another Fitting items available	Nil	Nil
2	Tawang	Asstt. Surveyor of works (ASW)	1		G.		
3.		Asstt. Engineer	1				
4.		Junior Engineer	6				
5.		Draught Man-II	-				
6.		Surveyor	2				
7.		Head Asstt. (HA)	1				
8.		UDC	3				
9.		U DC (Ad – hoc) -	3				
10		Lab Assistant	2				
11.		Tracer	1				
12.		Chainman	6				
13		Driver (Adhoc)	8				
14		Sweeper (Adhoc)	5				
15.		Chokidar	7				
16		Peon	3				
17		Ferro printer (Adhoc)	1				
18		Consultant (contractual basic)	4				
19.		Block co-ordination (contractual Basic)	8				
20		Handyman (AD- hoc)	1				
21		WC Fitter	10				
22		WC Assistant Plumber Fitter	2				
23		WC Mazdoor	18				
24		WC mate	2				
25		Chowkidar(Ad-hoc	3				
26		WC Driver (Adhoc)	2				
27		Fixed pay Fitter	1				
28		WC Computer Operator	1				

29		WC Typist	1				
30		Casual Staff	225				

4.3.10. Department of Power (Elect.) Tawang:

Sl. No	Name of Division / circle/ Block	Official manpower available	Manpower that could be made available with a short notice of one hour	Equip/ machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.	Stock (material/ medicines/ food items) available all the time in different godowns	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp, Masjid, Church (Sub –division / block/ tehsil/ village	Require ment in terms
1.	2	3	4	5	6	7	8
1	Tawang Elect. Sub-Division	AE(E)-1No JE(E)-3Nos LDC-1No WC Staft-64 Nos Casual Staff 74Nos	AE-1, JE-2 WC-10& Casual -10	Tata 12 10Truck-1No Mahindra pick up 1 No			
2.	Jang Elect. Sub Division	AE(E)- 1No JE(E)-3Nos LDC-1No WC Staff-28 Nos Casual staff-36 Nos	AE-1, JE-2 , WC-8 & Casual -7	Mahindra pick up -1No			
3.	Lumla Elect. Sub Division	AE(E)- 1No JE(E)-2No LDC-1No WC Staff-33 Nos Casual staff-39 Nos	AE-1 , JE-1, WC-5 & Casual -6	Tata truck -1No Bolero Pick up 1 No.			

4.3.11. Rural Works Department Tawang:

Sl. No	Name of Division / circle/ Block	Official manpower available	Manpower that could be made available with a short notice of one hour	Equip/ machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required	Stock (material/ medicines/ food items) available all the time in different godowns	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp,	Require ment in terms

				during emergency wireless sets.		Masjid, Church (Sub –division / block/ tehsil/ village	
1	2	3	4	5	6	7	8
1.	Tawang Division Executive Engineer 9435591681(M) 03794-222277(O)	1	1	Scorpio-1			
2.	Assistant Engineer 9862604570(M) 03794-223042(O)	1	1				
3	Assistant Surveyor of works (Contact no. 9436272192)	1					
4.	Junior Engineer	5	-5				
5.	P.A	1	1				
	Junior Estimeter	2	2				
6	UDC	2	2				
7	Driver	4	2				
8	LDC	4	4				
9	Tractor Handyman	1	1				
10	Chowkidar	1	1				
11	Peon	4	1				
12	W/l	3	3				
13	Casual Labour	22	22				
14	WC Mazdoor	5	3				
15	Surveyor	1	1				
	Sub Division Jang						
1	Assistant Engineer (contract No. 9862604570)	1	1				
2	Junior Engineer	4	4				
3	UDC	1	1				
4	LDC	2	2				
5	Surveyor	1	1				
6	Tractor Handyman	2	2				
7	WC Mazdoor	5	5				
8	Peon	1	1				

9	Chokidar	1	1		
10	Casual Labour	4	4		
	Sub Division Lumla				
1	Assistant Engineer (contract No. 7085193004)	1	1	Scorpio-1	
2	DPIU-II-Lumla No. 0814811443	1	1		
3	Junior Engineer	5	5		
4	UDC	1	1		
5	LDC	3	3		
6	Surveyor	1	1		
7	Driver	3	3		
8	WC Mazdoor	5	5		
9	Peon	2	2		
10	Chokidar	1	1		
11	Casual Labour	6	6		
12	Rollar Operator	1	1		
13	Chainman	2	2		

4.3.12. Water Resources Department, Tawang:

Sl. No	Name of Division / circle/ Block	Official manpower available	Manpower that could be made available with a short notice of one hour	Equip/ machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.	Stock (material/ medicines/ food items) available all the time in different godowns	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp, Masjid, Church (Sub –division / block/ tehsil/ village	Requirement in terms
1.	2	3	4	5	6	7	8
	Tawang Sub Divn)	1. EE – 1NO 2. AE-3Nos 3.ASW-1 4.JE-6Nos 5. UDC-2Nos 6. LDC-3Nos 7. Chainman -2 8. Peon-1No 9. Chowkidar-3Nos	209 Nos	3 Nos Vehicles	NA		

		10. Driver-3Nos 11. W/C W I- 4 nos 12.W/C Mate -5 13. Ferrow Printer -1 14- Casual Labour-68Nos 15.C/Driver-3 16. WC(T)- 6					

4.3.13. Animal Husbandry & Vety. Department, Tawang:

Sl.No	Name of Division / circle/ Block	Official manpower available	Manpower that could be made available with a short notice of one hour	Equip/ machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.	Stock (material/ medicines / food items) available all the time in different godowns	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp, Masjid, Church (Sub – division / block/ tehsil/ village	Requirement in terms.
1	Tawang HQ & Kitpi Circle	48(forty Eight) DVO-1 VO-2 UDC-2 LDC-1 SI-1 Enumerator-3 AV-2 Lab Assistant-Vacant Driver-4 H/Man-1 D/A-2 F/A-3 CA-3 Attendent-1 Peon -1 Contg. Worker -13	-	Tata Sumo-1 Bike-1 Bolero-1	Medicine	District Veterinary Hospital -1 Dispenasry-1Nos	
2.	Lumla Circle / Zemthing	16Nos A/V-1 S/M-2 F/A-1 D/A-1 Contg worker-11	-	-	-Do-	CUC-2No Dispensary -3	

3.	Thingbu /Jang / Mukto/ Bonghar / Lhou Circle	22 Nos VO-1 S/M-4 D/A-2 F/A-2 Milkman -1\ AV -3 Contg Worker-9		-	-Do-	CUC-1 Dispensary -2 VAC- 2 SWEC-2	

4.3.14. Social Forestry Division, Tawang:

Sl.No	Name of Division / circle/ Block	Official manpower available	Manpower that could be made available with a short notice of one hour	Equip/ machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.	Stock (material/ medicines/ food items) available all the time in different godowns	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp, Masjid, Church (Sub –division / block/ tehsil/ village	Require ment in terms.
1.	1.Divisional office Tawang 2. Lumla Range. 3. Jang Range 4.Tawang HQ Range.	13 Nos Regular & 22 Contingency.		1. Tata Mini Truck 1 (one) No. 2. Bolero-2(Two) Nos 3. Scorpio Mahindra 1(one) No 4. Tata Moblie 1(0ne) No 5. Gypsy King 1(one)no 6. M/ Cycle-Yamaha / TVs / Royal Enfield/ Bajai Pulsar 5 (Five)Nos 7. Generator 2Nos 8. Walky Talky 7 (seven) Nos		Forest Rest House 3+ 2 =5 Rooms.	

4.3.15 District Fishery. Tawang

Slno.	Name of Division / circle/ Block	Official manpower available	Manpower that could be made available with a short notice of one hour	Equip/ machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.	Stock (material/ medicines/ food items) available all the time in different godowns	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp, Masjid, Church (Sub – division / block/ tehsil/ village	Requirement in terms.
1.	Tawang HQ	10 Nos Contingency.-1		Bolero-1no	Nil		

4.3.16. 763 Border Road Task Force, Tawang.

125 RCC (GREF):

Sl. No	Name of Division / circle/ Block	Official manpower available	Manpower that could be made available with a short notice of one hour	Equip/ machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.			Stock (material / medicines/ food items) available all the time in different godowns	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp, Masjid, Church (Sub – division / block/ tehsil/ village	Requirement in terms.
1	125 RCC(GREF)	225	160	Name of Equipment	Qnty. Nos	Location	Medicines available		
				Veh/Eqpt a)JCB/Excavator/ Wheel loader	a) 10	BCT road-3, PTSO-Yjn road-2, Yjn Klemta-Bumla-1,Nasar-C2-LGG-2 & LGG to Damteng-2			
				b) Dozer	b) 7				

				c) Bus d) Tipper **<u>Medical Eqpt</u>** a) Suction apparatus b) Oxygen cylinder c) Nebulizer d) BP apparatus **<u>Wireless Set</u>**	c) 1 d) 34 4	Yjn Klemta-Bumla-2, Nassar-C2-LGG-2, LGG to Damteng -4 HQ 125 RCC Various locations HQ 125 RCC HQ 125 RCC			

117 RCC (GREF)

Sl. No	Name of Division / circle/ Block	Official manpower available	Manpower that could be made available with a short notice of one hour	Equip/ machinery available (With locations) i.e. JCB, Dozers, Cranes, Buses / Vehicles, Fire/ Tenders, Medical Equips required during emergency wireless sets.	Stock (material/ medicines/ food items) available all the time in different godowns	Temporary shelter during the occurrence of disaster such as school, community Halls, colleges, rest house, Gonp, Masjid, Church (Sub –division / block/ tehsil/ village	Requirement in terms.
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	HQ 117 RCC located at Mangnam(Lumla)	195	50	**<u>Veh/ Eqpt :</u>** JCB-01 No. Dozer-01 No. Bus-01 No. H/Veh.-02 Nos. **Medical Eqpt;** Amb- 01, Fracture management, first aid equipment/ management. **<u>Wireless set :</u>** Connecting Mangnam, Gorsam, T/ Gompa, Khrimu.	1. MI Room facilities- all symptomatically. 2.Ration Stock -8.0 Ton for GREF / Army Personal.	Badminton Hall - 01 at 117 HQ.	

<u>CONTACT NUMBERS OF OFFICERS AT THE TIME OF OCCURANCE OF DISASTER (117 RCC):</u>

SL. NO	NAME	RANK	DESIGNATION	CONTACT NUMBER
1	Rawat	Maj	OC	26421

90 RCC (GREF)

Sl. No.	Name of Sub-Divn/ Circle / Block	Official Manpower available	Manpower that could be made available with a short notice of one hour	Equip/ Machinery available (with location) i.e JCB, Dozer Cranes, Buses/ Vehicles , Fire , Tenders , Medical Equip required during Emergency wireless sect	Stock (material/ Medicines/ food items) available all the time in different godowns.	Temporary shelter during occurrence of disaster such as school, Community Halls, Colleges, rest house , Gonp, Masjid Church (Su division / Block/ tehsil/ Village	Requirement in terms.
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1.	Jang	60	40	(a) HQ RCC – JCB= Nil Dozer= Nil Crane= Nil Bus=01 Vehicle=06 Fire Tender= Nil Med Eqpt=O1 (b) RA-3 & Sela – JCB=O2 Dozer= O3 Crane= Nil Bus-01 Vehicle=08 Fire tender=Nil Med Eqpt=Nil (C) JRS road – JCB=01 Dozer=02 Crane= Nil Bus-NIl Vehicle=03 Fire tender=Nil Med Eqpt=Nil (d) LGG& Mukto:- JCB=01 Dozer=01 Crane= Nil Bus-NIl Vehicle=03 Fire tender=Nil Med Eqpt=Nil (e) BJG Road :- JCB=01 Dozer=02 Crane= Nil Bus-NIl Vehicle=04 Fire tender=Nil	a) <u>HQRCC:-</u> Material Medicine40persx 10days Food b) <u>RA -3 & Sela :-</u> Material Medicine30persx 10days Food c)<u>JRS Road</u>:- Material Medicine20persx 10days Food <u>d)LGG& Mukto:-</u> Material Medicine 5persx 10days Food <u>e)BJCRoad:-</u> Material Medicine10 persx 10days Food	(a) HQ RCC:- (b)Jaswant hall -01 BROWWA Hall-01 Badminton Hall -01 Others -03 (b) <u>RA-3 & Seal</u> :- Road side camps-03 c)JRS Road:- Road side camps-04 d)<u>LGG & Mukto:-</u> Road side camps-03 e) <u>BJG Road:-</u> Road side camps-01	

				Med Eqpt=Nil			

DHPD, LHOU Division

Sl. No.	Name of Sub-Divn/ Circle / Block	Official Manpower available	Manpower that could be made available with a short notice of one hour	Equip/ Machinery available (with location) i.e JCB, Dozer Cranes, Buses/ Vehicles , Fire , Tenders , Medical Equip required during Emergency wireless sect	Stock (material/ Medicines/ food items) available all the time in different godowns.	Temporary shelter during occurrence of disaster such as school, Community Halls, Colleges, rest house , Gonp, Masjid Church (Su division / Block/ tehsil/ Village	Requirement in terms.
1	2	3	4	5	6	7	8
1	DHPD , Lhou	22 (twenty two)		Maruti Gypsi-III- 1 Mahindra Pick-up -1 Mahindra Bolero-1 Mahindra scorpio-1 Gypsy -1 DG set 125 KVA (kitpi) DG set 125 KVA(shaikangchu)			

CONTACT NUMBERS OF OFFICERS AT THE TIME OF OCCURANCE OF DISASTER (90 RCC):

SL. NO	NAME	RANK	DESIGNATION	CONTACT NUMBER
1	RD Fernandez	Maj	OC	254820

Chapter V

5.1 INSTITUTIONAL MECHANISM FOR DISASTER MANAGEMENT

For prevention and mitigation effects of disasters and for undertaking a holistic, coordinated and prompt response to any disaster situation it has been decided by the Government to enact a law on disaster management to provide for requisite institutional mechanism for drawing up and monitoring the implementation of Disaster Management Plans and ensuring measures by various wings of Government. The Disaster Management Act, 2005 provides for the effective management of disasters and for other matters connected therewith or incidental thereto. The Disaster Management ACT, 2005 under section 3, 14 & 25 seek to provide for establishment of National, State and District Disaster Management Authorities. The main functions of each authority are as under:-

5.1.1 INSTITUTIONAL MECHANISM AND THEIR FUNCTIONS

DM Mechanism	**Institutions/ Nodal Department**	**Functions**
National Level Mechanism	National Disaster Management Authority (NDMA)	For better coordination of disaster management at national level, National Disaster Management Authority (NDMA) is constituted. This is a multi disciplinary body with nodal officers from all concerned departments/ministries/ organizations. Apart from these developments, the government of India has its National Contingency Action Plan

		prepared by the nodal ministry of disaster management. Also a National Emergency Operation Centre (NEOC) has been started functioning in the Ministry of Home Affairs with all sophisticated equipments and most modern technologies for disaster management.
State Level Mechanism	State Disaster Management Authority (SDMA)	State Disaster Management Authority (SDMA) is constituted under the chairmanship of the Chief Minister and Ministers of relevant Departments as members. The Department of Disaster Management has been identifies as nodal department to tackle disasters, being the Director (DM) as its Nodal Officer of the SDMA.
District Level Mechanism	District Disaster Management Authority (DDMA)	District Disaster Management Authority (DDMA) is constituted under the chairmanship of Deputy Commissioner Tawang and Chairperson ZP Tawang as Co- Chairperson, ADC as CEO, SP Tawang, EE PWD, EE PHED, DMO as members and DDMO as Convener

5.1.2 DISTRICT LEVEL MECHANISM IN TAWANG;-

As per section 25 of the Disaster Management ACT, 2005 the District Disaster Management Authority Tawang has been formed under the chairmanship of Deputy Commissioner Tawang. The DDMA Tawang is a 8 member high-powered committee.

1. Deputy Commissioner : Chairperson ex-officio
2. Chairperson (ZPC) : Co- Chairperson
3. Additional Deputy Commissioner : Chief executive officer

4. Suptd. Of Police : Member
5. District medical officer : Member
6. DDMO/FO : Convener
7. Executive Engineer (PWD) : Member} Nominated by DC Tawang
8. Executive Engineer (PHED) : Member} Nominated by DC Tawang

The District Disaster Management Authority works as the District planning body for coordinating and implementing Disaster Management activities and taking various measures for the purpose of Disaster Management, in accordance with the guidelines laid down by the National or the State authority. The Powers and Functions of District Authority as per Section 30 of the DM ACT, 2005 are as under:-

1. Prepare a disaster management plan including district response plan for the district.
2. Coordinate and monitor the implementation of the national policy, State policy, National plan, State plan, and District plan.
3. Ensure that the areas in the district vulnerable to disaster are identified and measures for the prevention of disasters and mitigation of its effects are undertaken by the departments of the governments at the district level as well as by the local authorities.
4. Ensure that the guidelines for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the national authority and the state authority are followed by all the departments of the government at the district level and the local authorities in the district ;
5. Give directions to different authorities at the district level and local authorities to take such other measures for prevention or mitigation of disaster as may be necessary;
6. Lay down guidelines for prevention of disaster management plans by the departments of the government at the district level and local authorities in the district;
7. Monitor the implementation of disaster management plans prepared by the departments of the government at the district level;

8. Lay down guidelines to be followed by the departments of the government at the district level for purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefore;
9. Monitor the implementation of measures referred to in clause (viii);
10. Review the state of capabilities for responding to any disaster or threatening disaster situation in the district and give directions to the reverent departments or authorities at the district level for their up gradation as may be necessary.
11. Review the preparedness measures and give directions to the concerned departments at the district level or the other concerned authorities where necessary for bringing the preparedness measures to the levels required for responding effectively to any disaster or threatening situation ;
12. Organise and coordinate specialized training programmes for different levels of officers, employees and voluntary rescue workers in the district;
13. Facilitate community training and awareness programme for prevention of disaster or mitigation with the support of local authorities, governmental and nongovernmental organizations;
14. Set up, maintain, review and update the mechanism for early warning and dissemination of proper information to public;
15. Prepare, review and update district level response plan guidelines;
16. Coordinate response to any threatening disaster situations or disaster;
17. Ensure the department of the government at the district level and the local authorities prepare their response plans in accordance with the district response plan;
18. Lay down guidelines for, or give directions to the concerned departments of the government at the district level or any other authorities within the local limits of the district to take measures to respond effectively to any threatening disaster situation or disaster ;
19. Advise, assist and coordinate the activities of the departments of the government at the level, statutory bodies and other governmental and nongovernmental organization in the district engaged in the disaster management ;

20. Coordinate with, and give guidelines to ,local authorities in the district to ensure that measures for prevention or mitigation of threatening disaster situation or disaster in the district are carried for carrying out their functions ;
21. Provide necessary technical assistance or give advice to the local authorities in the district for carrying out their functions;
22. Review development plans prepared by the departments of the government at the district level statutory authorities with a view to make necessary provision therein for prevention of disaster or mitigation.
23. Examine the construction in any area in the district and if it is of the opinion that the standard for prevention of disaster or mitigation laid down for such construction is not being or has not been followed , may direct the concerned authority to take such action as may be necessary to secure compliance of such standard ;
24. Identify buildings and places which could , in the event of any threatening disaster situation to disaster ,be used as relief centers or camps and make arrangement for water supply and sanitation in such buildings or places;
25. Establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice;
26. Provide information to the state authority relating to different aspects of disaster management;
27. Encourage the involvement of nongovernmental organization and voluntary social –welfare institution working at the grassroots levels in the district for disaster management;
28. Ensure communication systems are in order, and disaster management drills are carried out periodically;
29. Perform such other functions as the state government or state authority may assign to it or as it deems necessary for disaster management in the district;
30. Follow the guidelines mentioned in the DM act, 2005 under section 25 to 34.

Powers and Functions of District Authority in the event of any threatening disaster situation or disaster as per section 33 under DM ACT, 2005:-

a) Give directions for the release and use of resources available with any Department of the Government and the local authority in the district.

b) Control and restrict vehicular traffic to, from and within, the vulnerable or affected area.
c) Control and restrict the entry of any person into, his movement within and departure from, a vulnerable or affected area.
d) Remove debris, conduct search and carry out rescue operations.
e) Provide shelter, food, drinking water and essential provisions, healthcare and services.
f) Establish emergency communication systems in the affected area.
g) Make arrangements for the disposal of the unclaimed dead bodies.
h) Recommend to any Department of the Government of the State or any authority or body under that Government at the district level to take such measures as are necessary in its opinion.
i) Require experts and consultants in the relevant fields to advise and assist as it may deem necessary.
j) Procure exclusive or preferential use of amenities form any authority or person.
k) Construct temporary bridges or other necessary structures and demolish structures which may be hazardous to public or aggravate the effects of the disaster.
l) Ensure that the non-governmental organizations carry out their activities in the equitable and non-discriminatory manner.
m) Take such other steps as may be required or warranted to be taken in such a situation.

5.2.INCIDENT RESPONSE TEAM

The implementation / response under Incident Response System will be Taken at the District Level by the ***Incident Response Team*** notified as follows:

1. Response Officer : Deputy Commissioner
2. Incident Commander : Addl. Deputy Commissioner

3. Deputy Incident Commander : PD, DRDA
4. Safety Officers : Supdt of Police
5. Liaison Officer : DFO & District Disaster Management Officer
6. Information & Media Officer : DIPRO
7. Operation Section Chief : Supdt of Police
   a) Staging Area Manager : EE, PWD/DDSE
   b) Rescue & Response Branch:
      i) Natural Disaster : Fire Officer
      ii) Epidemic & Health Hazard : District Medical Officer
      iii) Manmade Disasters : Dy Supdt of Police
   c) Transport Branch (Road)
      Rail, Water & air Unit (MV) : District Transport Officer/EAC
8. Planning Section Chief : Addl. Deputy Commissioner
   a) Situation Unit : EAC/DDMO/OC PS
   b) Resource Unit : DPO/DHO & DAO/MO
   c) Documentation Unit :DIPRO/DDMO/DIO(NIC)
   d) Demobilization Unit : SDO(Sadar)/EAC(MV)/Dy SP/DDMO/DTO-Foreman
9. Logistic Section Chief:
   a) Service Branch : EAC (Nazarath)
      i) Communication Unit : DIPRO/DDO/DIO NIC
      ii) Medical Unit : DMO
      iii) Food Unit : DF&CSO
   b) Support Branch : SDO Sadar/EAC
      i) Resource Provisioning Unit : EE, PWD
      ii) Facilities Unit : EE, RWD/Elect/HPD
      iii)Ground Support Unit : EE, PHED/WRD
   c) Finance Branch : ADC
      i) Time Unit : EAC, Judicial/DDMO
      ii) Compensation Unit : DDMO/EAC Judicial

iv) Procurement Unit : Finance & Accounts Officer/DDMO

v) Cost Unit : Treasury Officer/DDMO

The District Level Incident Response Team (IRT) will be activated by the Responsible Officer in the event of any major disaster.

5.3 RESPONSIBILITIES OF INDIVIDUAL OFFICERS

ROLE OF THE CHIEF EXECUTIVE OFFICER: ADC:

In absence of chairperson he shall do all the works of the Chairperson

ROLE OF THE CONVENER: DDMO/FO

The preparedness of District Administration depends upon the preparedness of various govt. departments, available manpower, the training equipment and resources available with them. So the main function of the Convener will be:

1. To coordinate with various departments and collect the information of each department about their preparedness for tackling and mitigating disasters.
2. He should have an abridged list of the public and private resource inventory. It should cover all relevant details like medical shops, phone numbers, vehicles, tents, building and all those, which could be used during disasters.
3. He shall organize and coordinate the training of man power, updating and Rehearsal of Disaster Management plan.
4. Shall be responsible for warning for each likely type of emergency.
5. To declare any Panchayat, village, circle to be disaster prone from a particular disaster after analyzing relief/ compensation claims of previous years. Once a year area is declared disaster prone from a particular disaster, inhabitants will have to get their property/crops/building insured with insurance companies, failing which no compensation claims will be entertained from such areas for such disasters.

ROLE OF THE SUPERINTENDENT OF POLICE:

1. Communication establishment with District and Block/ Circle Control rooms and departmental offices within the division.
2. An officer to be appointed as nodal officer on his behalf.
3. The Superintendent of police must work in close co-ordination with the Deputy Commissioner on receiver of warning or information on an emergency situation.
4. During normal times, the police department under SP must assess the Preparedness level and reports the same as per format to the EOC/DC.
5. To take care of law and order problems in cases it arises during rescue relief and rehabilitation process.
6. Take care of fire hazards.
7. Wireless services of police to be made free of charge for communication of messages during disaster.
8. Provide guards as needed for supply depots, convoys for relief materials, relief camps, Hospitals and medical centers, etc.
9. Assist district administration for taking strict action against hoarders, black marketers and those found manipulating relief materials.

ROLE OF THE DISTRICT FOOD AND CIVIL SUPPLY OFFICER:

There is always shortage of essential commodities in the market during disaster and soon after the disasters. So his main job will be:

1. He shall take personal care in ensuring that the essential commodities like Rice, Salt, K oil, Atta, Fuel, Gas etc. should be in adequate supply during and after disasters.
2. He shall co-ordinate with FCI and other cooperatives so that extra food items needed during disasters is made available.
3. If needed he shall open a temporary mobile FPS in the site of disaster occurrence and depute 2-3 persons especially for that.
4. He may take the help of NGOs, Village welfare committee in ensuring fair distribution of food supplies.
5. He should keep buffer / reserved stock of food grains and also keep stock of both petrol and diesel at least 10, 000 litres each during the monsoon.
6. An officer to be appointed as nodal officer.

ROLE OF THE DISTRICT MEDICAL OFFICER.

1. His assigned duty is to care for the health aspects during disasters. It includes first aid, treatment of casualties, ready ambulance for transporting serious patients, etc.
2. He shall open on site medical units in case of need. It will play important role in safeguarding the lives and giving health facilities.
3. Psychological relief centers, trauma centers counseling centers to be opened in close collaboration with NGOs and community based organizations.
4. Especially after disasters like Floods, Cyclones, earthquakes etc. have occurred; there is great danger of outbreak of epidemics. DMO along with Malaria officers to take all preventive and precautionary measures to control the outbreak of such epidemics.
5. Check stocks of equipment and drugs which are likely to be most needed after the disaster. These can be categorized generally as :
   a. Drugs used in treatment of cuts and fractures, such as tetanus, analgesics and antibiotics.
   b. Drugs used for the treatment of diahorea, water born diseases and flu (including oral dehydrating supplies.)
   c. Drugs required for the treatment of burns and for fighting infections.
   d. Drugs needed for detoxification including breathing equipments.
6. He shall organize camps in normal times.
7. To educate public regarding health and hygiene.
8. To organize blood donation camps, this is very much needed after Disasters have occurred.
9. Take help of school children for donations for the victims' medical care.
10. An officer to be appointed as nodal officer

ROLE OF THE DISTRICT VETENERARY OFFICER:

1. Communication establishment with District and Block/ Circle Control rooms and departmental offices within the division.
2. An officer to be appointed as nodal officer on his behalf.
3. Listing of animal population with category
4. Stock piling of emergency medicines, medical equipments, water, fodder, animal feed etc.
5. Arrange of anesthetic drugs/ vehicles for transportation of injured animals
6. Identification of places for opening of operational sites.

ROLE OF THE DIPRO

1. Giving warning to the people in advance through media and other communication networks (PA system) regarding likelihood of the disaster taking place.
2. Giving News to press, media.
3. Setting up of counter in DC office from where people can get information about the casualties and other related information.
4. Dissemination of information including do's and don'ts in Local News paper.
5. Warning of further risks and hazards.
6. An officer to be appointed as nodal officer

ROLE OF THE DISTRICT TRANSPORT OFFICER.

1. Keep a list of all government and private vehicles.
2. Coordination with other departments regarding their needs for vehicles.
3. Especially during disaster, organize frequent checking of vehicle permits, driving licenses, pollution control standards etc. a apart of the fine realized may be put in the emergency fund with permission from the concerned / higher authority.
4. An officer to be appointed as nodal officer

ROLE OF THE EXECUTIVE ENGINEER, PWD, RWD; DD, DUDA AND PD, DRDA.

1. To give manpower, equipment and other resources for rescue and evacuation of victims.
2. Clear the debris/ obstructions from roads and making it free for transport.
3. To repair damaged bridges, government building etc.
4. Help in make shifted arrangement rehabilitation camp infrastructures etc.
5. Removal of debris, demolition of unsafe structures, construction of temporary shelters, temporary bridge for emergency evacuation.
6. An officer to be appointed as nodal officer

ROLE OF THE EXECUTIVE ENGINEER, PUBLIC HEALTH AND ENGINEERING DEPARTMENT.

During the disasters, there is a chance of non-availability of clean drinking water which greatly suffers the victims. It may cause diseases, spread of epidemics increase of casualties.

1. The EE PHED has to take prompt action in ensuring at the disaster sites, relief and rehabilitation camps / alternate water supply arrange in feeding centers/ cattle camp.
2. He shall have to provide mobile water tanks as per need.
3. Construction of dug- wells at the disaster sites and rehabilitation camps.
4. To avoid contamination of water and prevent diseases, water supply in polythene sachets will be better.
5. An officer to be appointed as nodal officer.

ROLE OF THE EXECUTIVE ENGINEER, POWER.

1. Take preventive measures to safeguard power installation during disasters.
2. Immediate restoration of normal power supply as far as possible.
3. Immediate repair and maintenance of power lines, transformers etc. during or post disasters.

4. Standby arrangements of electric supply at the sheltered places. Generators may also be use if available.
5. An officer to be appointed as nodal officer
6. Give warning to people through media or other available communication network regarding the mishap during the disasters like electric fires, electric shocks etc.
7. Inspection and repair of high-tension lines/ substations/ transformer/ poles etc.
8. Clearing of damaged poles/ salvaging of response operations.

ROLE OF THE EXECUTIVE ENGINEER, WATER RESOURCES DEPARTMENT

1. Communication establishment with District and Block/ Circle Control rooms and departmental offices within the division.
2. An officer to be appointed as nodal officer on his behalf.
3. Activation of flood monitoring mechanism.
4. Methods/ Communication arrangement of altering officers on various sites established.
5. Identification of materials required for response operations.
6. Repair/ under construction activity are well secured.
7. Watch and ward of weak embankments and stock piling of repair materials at vulnerable points.
8. Guarding of weak embankments.

ROLE OF THE DISTRICT AGRICULTURE AND HORTICULTURE OFFICER:

1. They have important role to play especially related with weather related disaster management like landslides/ floods, droughts, cyclones etc.
2. Their main role is more significant in pre as well as post disaster management of these disasters. They have to disseminate awareness among the farmers about the variety of crops best suited accordingly to climate and season, soil condition, and terrain. In drought season which crops to grow in floods prone areas, also means and ways to minimize crop loosen the landslides prone areas, jhum cultivation to be substituted by horticultural crops.

3. To help the Disaster management Department in mitigating all kinds of disaster with manpower, material and technical knowhow.
4. An officer to be appointed as nodal officer on his behalf.

ROLE OF THE DIVISONAL FOREST OFFICER

1. To provide all kinds of help to district administration during management.
2. Since forests along the natural vegetation cover are the best natural protections against disasters like flood, drought, cyclone etc. Its role in long term mitigation (plantation) is crucial.
3. In setting up of relief camps and make shift shelter, to arrange for bamboo and firewood in the cases of need.
4. Awareness to public to gradually shift from jhum cultivation to horticulture, plantation etc.
5. Awareness programme at grass root level should be conducted for imparting knowledge regarding the hazards and losses due to forest fire.
6. Co-ordinate with the District Administration during forest fire.

ROLE OF THE DEPUTY DIRECTOR OF SCHOOL EDUCATION:

1. To get help of school children in relief, rescue and rehabilitation in case of severe disaster.
2. Fund collection by school children by door-to-door visit.
3. Awareness generation through them to their parents regarding disaster prevention and management.

ROLE OF THE DISTRICT STATISTICS OFFICER:

1. To provide the exact data and statistics about the affected site in terms of population, cattle, basic amenities etc.
2. To cross check the fraudulent relief claims by unscrupulous elements. It may happen that the applicants for relief compensation outnumber the total population of the locality like in the instance of the Orissa Super Cyclone.

ROLE OF THE SDO(T) BSNL:

1. Communication establishment with District and Block/ Circle Control rooms and departmental offices within the division.
2. An officer to be appointed as nodal officer on his behalf.
3. Providing immediate communication through various means like satellite phone to control room etc.
4. An officer to be appointed as nodal officer on his behalf.
5. Inspection and repair of telephone lines / poles etc.
6. Identification of materials required for response operations.

ROLE OF THE THREE-TIER PRI BODIES :

The major role of the Panchayati Raj Bodies in respect of disaster management is in the preparedness planning and its implementation during the impact and post-impact phase as this is the most crucial period for the people facing the disaster. The village people are the most vulnerable for disasters and therefore the village panchayats have to play a major role in association with the higher level bodies of PRIs as well as with the Government agencies. The involvement of Panchayats is also necessary as this alone can provide quick response and also make people to withstand the threat of the disasters and minimize their dependence on Government response for rescue and relief operation at the time of any crisis. The most important tasks to be performed by the village, Block and the District Panchayats along with the government machinery at the respective levels during the three phases of disaster management are listed hereunder.

Phase –I Tasks to be performed by 3 –tier Panchayat bodies for preparedness planning

	Gram Panchayats	Block/ Panchayat Samities	Zilla Parishads
1	Convening meetings of ward members to ensure proper information regarding the warning signals reached the people through all media modes.	Supervise preparedness of the Gram Panchayarts.	Before the onset monsoon (May) and Likely periods of cyclone (May-June & Oct-Nov), the District Collector should have a meeting of all District Heads of the Sectoral, Department and the Members of the ZP for preparedness.

2	Updating information on civic amenities population Government and panchayat properties Housing and cattle/livestock population.	Consolidate village wise information on items listed under GP.	All the concerned department ,specially Roads & Buildings, major and Minor irrigation , PDS, Communication police ,Revenue e Electricity ,etc., to take up necessary repair and maintenance and related works for preparedness to counter Flood & cyclone Disasters.
3	Selection of location for shifting people /livestock safer places	Stock taking with respect to *primary health centers, preparedness of medical staff, medicines, etc. *Arrangements for transport to assist Gram Panchayats for evacuation *Keep cyclone shelters/safer building like schools in ready condition for temporary shelter for the people *Arrangements for establishing relief and rehabilitation centers and materials required there of *Arrangements for supply and storage of food and other items of basic necessities.	
4	Special arrangements evacuation of handicapped children and expectant mothers	Engineering staff at the Block I Mandal level should repair drainage/ canal/roads etc.	To identify and enlist NGOs who are useful in extending help during disasters.

Phase-I Tasks to be performed by 3- tier panchayat bodies for preparedness planning

	Gram Panchayats	Block/ Panchayat Samities	Zilla Parishads
5	Medical sanitation requirements relief camps	Contacting Ex- army / security forces personal / volunteers to organize a task force to assist people in emergency	Check the inventories of items required at a short notice for rescue and relief operations during the impact of disasters.
6	Arrangements disconnecting lines during winds/ gales	Procure and keep rescue materials including boats ready	At the first warning call the meeting of the crisis Management all concerned at Block and village levels.
7	Stocking food grains, drinking water and other necessities	Function as link between the district and village level counter disaster activities	All the members of the crisis Management Group(CMG) should be asked to keep their personnel in full preparedness , at all levels down the line.
8			The District collector should be the Leader of the CMG and establish a control room which should managed by senior officers round the clock during the crisis.

PHASE-II Tasks to be performed by panchayats for rescue and relief before and during the impact of disasters

1	At the on –set warning of a disaster, the Gram panchayat Leaders, with the help of District and Block Level officers should start preparation for countering Disaster. Establishment of temporary shelters relief camps should start immediately.	With the final warning of cyclone , flood disaster, identify the villages likely to be affected and send teams of Task Forces/ Volunteers to the village to supervise counter disaster measures.	In the event of on—set of a cyclone / flood disaster monitor the situation, identify the blocks and villages most likely to be affected and issue warnings at close intervals to all concerned.
2	With the final warning operations for the evacuation of people and the livestock should start so that all are at safer places before the disaster strikes.	Arrange transport facilities to evacuate people from villages likely to be affected and help GPs to shelter them in temporary relief camps.	Activate control room and keep full watch on the situations
3	Along with evacuation of people and livestock, storage of food and water for the people and the livestock should be made.	Arrange for emergency communication facility through police wireless Ham radio, etc.	Arrange emergency communication system with the help of police wireless Ham Radio, etc.
4	The Volunteers and the task forces should be kept in full readiness to take rescue operation at the shortest notice.	Arrange and assist GPs to establish temporary shelters/relief camps.	Activate CMG and put them on job for assisting Block and village panchayats for taking counter disaster measures.
5	Medical and other relief teams from the district and block may be asked to take position at strategic points and coordinate with the village volunteers/task forces.	Arrange for the supply and transport of necessary food and other items to relief camps in adequate quantities	Arrange transport for the evacuation of the people and livestock.
6	Veterinary aid teams for taking care of livestock and removal and disposal of carcasses and measures for protecting animals from any probable epidemic.	Supervise the rescue and relief activities along with District Level officers.	Arrange for temporary emergency shelters/ relief camps and supply and transport of all essential food and non-food items to relief camps.
7	After the impact manage the relief centers to provide food, water, medical aid and other necessary services to the affected people.	Inform the CMG in case specific help for rescue and relief operation is required from the police and security forces including Army, Navy and Air Force.	Requisitioning of the assistance of the Armed Forces if the need arises.
8	Disposal of dead bodies and measures to prevent any epidemic with the help of medical teams.	Assist the Armed forces in rescue and relief operations	Monitoring of the rescue and relief operations at the village level.
9	Assessment of dead persons, livestock, and damage to houses and properties of individuals, agriculture, etc.		Assisting the block and village panchayat in mobilizing task forces/ volunteers/ NGOs for rescue and relief operations
	Assessment of the damage to the public properties, infrastructure and community assets.		Maintain minute to minute information on the situation during and immediately after the impact and keep read Ay to meet any specific emergency

PHASE-III

Reconstruction and long term planning

1	Assist in the identification of the victims of the disaster and eligible for various types of compensations and assist in the distribution	Assist planning and implementation of Rehabilitation of affected people; Repair and reconstruction and damaged house, physical infrastructure etc and return to normal economic activities including farming etc.	Planning implementation of Rehabilitation of affected people , repair and reconstruction of amaged house, physical infrastructure ,etc and return to normal economic

			activates including farming etc.
2	Formulate reconstruction plan for individual houses, community and Govt. buildings, roads and other physical infrastructure within the jurisdiction of the GP with the assistance of the technical departments from block and district level.	Assist GP Panchayats in identification of persons eligible for different types of compensation and its distribution.	Compensation for loss of lives, properties of individuals should begin
3	Enforce minimum code or specifications for the construction of individual houses, community and Government building roads and other physical infrastructure.	Based on hazard and vulnerability prepare village and block level mitigation plan and consolidate and integrate into block plan	Mapping of hazard and vulnerability should be initiated; if it not available detailed maps should be prepared for each block and district and should be placed in both district and blocks.
4	Help district, and block level organizations in organizing awareness camps for management and mitigation of disasters and ensure the participation of the village.	Assist execute repair and reconstruction activities,	The repair and reconstruction actives should be integrated with a long term mitigation planning so that the quality of the reconstruction and repair is in consonance with the specification provided for disaster resistant structures.
5	Organize village level Task Force/ Volunteers and train them in counter disaster measures.	Assist for enforcing the specified code or specification for the construction of houses and building ,roads and other physical infrastructure	The long term mitigation plan should integrate normal development plan in such manner that protective and preventive measures against the disasters adhered in the implementation of all development projects under each and every sector.
6	Assist block and District level agencies in all activities related to disaster management and mitigation.	Assist in the formulation of long term mitigation planning and its integration with the development plan of block the district.	Special fun dings should be made available for the construction of physical infrastructure to include disaster resistant technologies particularly in the construction of houses, roads, electric transmission lines, drinking water facilities, culverts, telecommunication ,irrigation canals, tanks and reservoirs etc for the sections which are most vulnerable
7	Assist block and district level agencies in the supervision and the monitoring of the reconstruction and development projects within the village construction and development activities.	Provide technical assistance to the GP for identifying preventive and protective measures required for countering disaster, planning for them and help in the execution of such projects.	Supervise all construction and development activities.
8	Encourage village people to use insurance cover for all their assets/ lives and other aspects. This should be made mandatory for all those who can afford and also take	Supervise and monitor all project implemented by the GPs and block panchayat relating to reconstruction and long term mitigation of Disaster.	

	Govt. help for others who can partially/ not afford it.		

ROLE OF THE ARMED FORCES:

The District has a significant presence of the Indian Army and the Para-military forces like SSB and the ITBP owing to its Geographic location bordering China and Bhutan. While the primary role of the forces is to defend and guard the borders, the Army / Para-military forces have historically been very helpful to the District Administration in managing disasters (both the natural and manmade). On it's part, the District Administration also regularly solicits the assistance of the Armed Forces due to their superior manpower and equipment, as the District Administration on it's own has a limited availability of equipment and manpower which cannot be mobilized at short notice. Thus in the short run the district administration will have to majorly relay on the Armed forces to assist in management of disasters, both natural and manmade.

5.4 Institutional Mechanism and SOP during various phases of Disaster

Fire accident/ Landslides/ Flash flood/ Earth quake

5.4.1. PRE DISASTER PERIOD

PREPARATION	OBJECTIVE	ACTION
Convening District level Committee on Natural Calamity – in the month of May-June	To suggest the least of Relief works to be undertaken, advise on the precautionary measures to be taken, for stocking of food articles in strategic or key points	DC/ADC
Identification of vulnerable Points	Stocking of the sand bags Altering people near Highly vulnerable pocket	CO/ DDMO/ EE WRD
Identification & Indent of essential commodities the	Stocking of food grains in Block Head quarter.	DDMO/ DF&CSO

inaccessible/scarcity pockets		
Selection of shelters	Connection Road Maps, Served Villages with capacity, suitable management.	Concern Circle Officer / EE PWD & RWD and DDSE will Co-ordinate.
Requirement of medicine and life saving drugs, earmarking mobile teams, identifying probable epidemic area	Stocking of medicines	DMO
Arrangement of Food and fodder for bovine population	Stocking of the same	DVO
Checking operation of Already VHF systems		Dy SP / Communications
Monitoring	To take stock of overall situation	DC / ADC

5.4.2 IMMEDIATE PRE-DISASTER

PREPARATION	**OBJECTIVE**	**ACTION**
Receipt of information	Police Control Room. Also from News Buellton of All India Radio& Doordarshan From Internet Website	DEOC
Dissemination of Information	From DEOC to All ADC/CO/ All Line Departments	DEOC [Emergency] – ADC/CO/ Head of Line Departments

Immediate setting of Control Room round the clock & Making it functional.	ADC/CO/ Head of Line Departments	DEOC [Emergency] – ADC/CO/ Head of Line Departments
Rescue and evacuation	To evacuate vulnerable people to identified shelters for the time being and logistic arrangement for the shelters	Units: Police personal, Armed Forces, OC, Fire services,Volunteers of Civil Defence, ADC and COs.
Arrangement of Free kitchen	To provide immediate food to the evacuees	DC/ ADC/DDMO/SDMO
Sanitation and medicine		DMO/ EE PHED
Requisition of sufficient numbers of vehicle, Light/Medium/Heavy.	To be kept in readiness with POL	DTO (Transport)
Immediate freezing of 75%stock of POL Bunkers in the district	POL is to be used during the time Disaster followed by scarcity	DF&CSO
Arrangement of Road Cleaners/Power saw etc	To clean the road, cut the fallen and remove the garbage	EE PWD, RWD

5.3.3 DURING DISASTER

PREPARATION	**OBJECTIVE**	**ACTION**
Alertness & Remain in readiness to gear up in action immediately after the disaster is over	Listening to Radio, watch Television etc	All Actors in Disaster Management
DEOC to functioning 24x7	Receive information from all corner of the district and intimate the same to SEOC	District Emergency Operation Center, All line deptt., All Administrative Circle Officers.

Monitoring	To stake of overall situation	DC at District level & ADC at Sub-Division level

5.4.4 POST DISASTER

FOLLOW UP ACTION	OBJECTIVE	ACTION
Distribution of Relief / Emergent Relief as per the provision of centre/state guidelines	To provide immediate flooding to save affected people from starvation	Standing Committee constituted by DC
Assessment & enumeration of damage	To ascertain the exact loss for projection before Govt.	All line Department/ Concerned COs
Monitoring Relief Operation organized by outside agencies /UN Agencies/ Red Cross/NGOs / PSUs / other states etc through District Administration.	To maintain uniformity of Relief administration	DC at District level & ADCs at sub Divisional level
Restoration of Communication – Roads	For timely and prompt Delivery/transportation of relief articles/deployment of rescue team	Executive Engineer of PWD, RWD, ARMY & Para Military Forces. Police Personnel
Restoration of Electronic communication system	To ensure proper coordination linkage	NIC, BSNL/ Police Signals.
Immediate arrangement	To avoid starvation and further deterioration both health and environment	DC/ADCs /COs/ DDMO/ SDMO/Religious Org /NGOs

of free kitchen in the cut off /shelter camps and inaccessible areas.		
Ensuring transportation of Relief Materials to affected pockets.	To reach immediately after abatement of calamity with helping hands for development of confidence among affected people.	DC/ADCs /COs/ DDMO/ SDMO
Ensuring safeguarding of belonging of the evacuees & maintenance of Law and Order.	To prevent anti-social Activities	SP Police
Ensuring safe availability of Drinking water. Provision of Medical facilities and Minimum sanitation.	To check health hazards especially during calamity	DMO/ EE PHED
Removal of debris and disposal of carcasses	For environmental Equilibrium	DUDA, Police Personal, NGOs
Helping the evacuees to return to their homes.	For settlement of the evacuees with their belongings after normalcy	DC at district level & ADCs at Sub-Division Level
Special care to Children, Lactating Mothers, Old & Infirm.	To prevent deterioration of health and multiple complicacy afterwards affecting humanity	COs, MOs, CDPOs, NGOs
Meeting Officers of both	For better coordination and cordial carrying of	DC at District level and ADCs in Sub-Division level

District level and Field level in every 24 hours to take stock of the situation.	every kind of relief operation and to ascertain the progress there of.	
Collection of information and submission of daily situation report to Govt./SDMA/NDMA	Triangular linkage between Field, District and State Control Room and other State level Officials for taking further follow up actions on war footing.	DC/ADCs/COs/DDMO/SDMOs

5.5. DISTRICT EMERGENCY OPERATION CENTER & LINKAGES WITH OTHER CONTROL ROOMS: Co-ordination and linkage with District level officer and field officers

S. No	**Time**	**Coordination Linkage**
1	**PREPAREDNESS**	Considering the gravity of situation the Deputy Commissioner shall convene the district level National Calamity Meeting when ever required.
2	Pre-crisis After warning	□ Meeting with district level officials/Officials at Head quarter and chock out emergency plan with vulnerable areas and resource list □ Co-ordination meeting of NGOs/Rural institutions □ Assignment of duties. □ Pre-positioning of staff in the likely cut off areas □ Arrange food and other basic requirement for emergency response. □ Collect information from different areas and to act accordingly.

3	During crisis	□ Co-ordination meeting with official at Headquarters by 12 hours intervals and 24 hours intervals with the field officials. □ Regular collection of situation report of the risk and vulnerable areas from the officers assign for the purpose. □ Provision for administering emergent relief and the other basic needs □ Keep informing DF&CSO for supply of food articles /procuring from FCI/Whole sellers. □ Deputation of Volunteers to different probable affected areas. □ Keep regular link with Control Room
4	Post Crisis	□ Helping the evacuees for returning to their houses. □ Immediate arrangement of free kitchen in the cutoff and inaccessible areas □ Relief distribution. □ Monitoring of Relief distribution. □ Provision of drinking water. □ Provision of Medical facilities. □ Repair/Restoration of Roads. □ Transportation of Relief and Human Resources. □ Regular touch with State Authorities SDMA,NDMA etc

ARRANGEMENTS IN THE DISTRICT CONTROL ROOM.

Ensure that the DCR is equipped with

- District Disaster management Plan.
- District maps showing identified School Building/Shelters
- School Building and High elevated places identified as shelters.
- List of Resources Persons with contact address.
- Data base on Resources & Inventory.
- First Aid & other basic medical assistance.
- One retiring room with adequate facilities.

- Generator sets. /Emergency light /Candles etc.
- Telephone, Fax, Satellite phones, telephonic linkage with Army, Para-military like ITBP, CRPF etc.
- P.C. in order with Printer & Modem.
- Thermometer, Fire extinguisher, White Hard board & soft board.

NORMAL TIME ACTIVITY

- Organizing IEC activity through walling, Poster, street plays, village task force/ Volunteers training.
- Emphasizing on insurance coverage of livestock / crops/industry/ works shop etc.
- Creating awareness among general public during normal time to insure human life.
- Strengthening of weak and vulnerable points in river/canal embankments'.
- Updating of Disaster Management Plan on the basis of past experience
- Inventory of resources to be updated
- Advance preparatory/mock drills through, Civil Defence Volunteers/Institutions/NGOs on management of Disaster
- Ensure proper functioning of electronic communication systems available
- Arranging meeting of Departments/Police/Army/Para military/NGOs with specific assignment of responsibility in particular sector
- Updating District Disaster Management Plan with the help of NDMA/SDMA.
- Updating of Telephone numbers.
- Collection of list eminent agencies for their involvement at the time of Disaster.
- Updating of Maps displayed in DCR with up-to date information
- Review of advance preparation undertaken at field level.

WARNING ON OCCURRENCE OF DISASTER

- Functioning of District Emergency operation Center [DEOC] & other Sub-Divisional / Circle / Line Department Control Rooms
- Dissemination of Warning/Information.

- Meeting with officials at DEOC in each 12 hours interval to take stock of the situation. *If possible* and apprising State Authorities, SDMA,NDMA etc.
- Alerting (Dist. Admn/ Line Dept. / other Heads of Dept.) to remain in readiness to gear up into action immediately after abetment of crises.
- Immediate freezing of reasonable POL stock with different Petrol Pumps.
- Rescue operation/ Evacuation by teams (already identified) providing infrastructural facility and movement to Rescue shelters.
- Monitoring Disaster Management by ensuring a line of Control through Police &

  Paramilitary forces, Civil Defence, Fire services, Civilians, PSUS, NGOs and Essential Service Departments by Deputy Commissioner.
- Daily stock of the situation by Deputy Commissioner and Addl. Deputy Commissioner
- Administration of Relief.
- Preparation of Daily Situation Report.

CHAPTER VI

ADMINISTRATIVE PREPAREDNESS FOR DIFFERENT HAZARDS.

6.1. EARLY WARNING DISSEMINATION

RESPONSIBILITY

- All District level Officers;
- All ADCs.
- All COs.
- Leading NGOs.

PREPAREDNESS

 Setting up control room and manning of Control Room round the clock.

 Arrangement of vehicle and sound system for information dissemination.

 NGO coordination and assignment of duty.

 Proper record keeping and transmission of information to all the levels.

 Ensure functioning of warning system & communication systems.

Evacuation, Search and Rescue.

RESPONSIBILITY

- Superintendent of Police
- Military & Paramilitary Forces, Tawang
- NCC/NSS officer
- All HoDs
- Concern Administrative Circle officer
- NGOs.

PREPAREDNESS

 To warn people about the impending danger & to leave for safer places.

 Development of Police/Fire Brigade for search and rescue

 Co-ordination with the NCC/NSS/Civil Defense/ etc. for rescue operation.

 Ensure availability of the rescue materials.

 Prepare inventory of shelter places and map indicating the shelter centers.

 Provide & arrange Rescue kit at risk areas

MEDICAL AID

RESPONSIBILITY

- DMO
- DVO
- PHCs
- CHCs
- ICDS
- NGOs

PREPAREDNESS

 Stock pilling of Life saving drugs/ORS packets/Halogen tablets.

 Treatment of the injured persons and Transmission of reports to the injured to hospitals / health centers.

 Awareness messages 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.

 Dis-infection 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.

 Arrangement of fodder/medicines for the animals.

SHALTER MANAGEMENT

RESPONSIBILITY

- ADCs
- All work departments.
- District transport officer (EAC,MV)
- BDOs
- COs
- District Police
- Paramilitary Forces.

PREPAREDNESS

 Identification of Shelter/Temporary shelter in high elevated places and arrangement of tents etc.

 Arrangement of Food/Drinking water/Medicine in the shelter places.

 Person's allocation for each shelter.

 Arrangement of transportation.

 Arrangement for safe shelter for animals.

 Providing the lighting facilities for shelter places

 Deployment of Police Personal

 Temporary supply of safe drinking water.

HEALTH AND SANITATION RESPONSE STRUCTURE.

RESPONSIBILITY

- DMO
- DVO
- EE PHED
- CDPO
- MILITARY & PARAMILITARY FORCES.

PREPAREDNESS

- List of the Medical staff members with contact address/telephone number.
- Stock position of medicines at District/Subdivision/ PHC/CHC/AWC.
- Plan and indent position of stock.
- Trained voluntary staffs/task forces/Anganwadi workers on use and providing min.Health services to the community.
- Arrangement of Mobile Health unit for inaccessible pockets/Health awareness campaign.
- Stock position for medicine for animals.
- Ensuring supply safe drinking water arrangement for supply of safe drinking water.

_ Disinfectant for purification of water.

INFRASTRUCTURE RESTORATION.

RESPONSIBILITY:

- Sub – divisional administrative officers
- Circle administrative officers
- All line departments.
- All BDOs.
- DDMO

PREPAREDNESS:

- 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 local relief week.

 Begin clearing road, assemble causal 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.

CHAPTER VII

MANAGEMENT OF LIVESTOCK

Disaster Management (Emergency Management) is the managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disaster. Disaster Management doesn't avoid or eliminate the threats.

The officers and officials of the Veterinary department are constituted as the District Level Team and further constituted as Sub- Committee in three sub Divisions namely, Tawang, Jang and Lumla . The Sub- committees are headed by the Veterinary Doctors. The Assistant veterinarians and stockman who are posted in different centre to execute the field activities. The report of each observation is sent on monthly basis as MPR to the District Level Team headed by The District AH& veterinary Officer.

FORMATION OF INCIDENT RESPONSE TEAM (IRP)

District Level

1. Dr. Tsering Drema, I/c DVO, Senior veterinary Officer, Tawang.
2. Dr. Thupten Tashi ,Senior veterinary Officer, Jang.
3. Dr.Sang Khandu, veterinary Officer, Lemberdung.
4. Sri Nima Sangey, A /V Tawang.
5. Sri Thutan Dawa, S/M Lemberdung .
6. Sri Dorjee Gombu , A/V Zemithang.
7. Sri KP , Yadav Assistant Veterinary , Tawang.

SUB- COMMITTEE, TAWANG

1. Dr. Tsering Drema , Senior veterinary Officer, Tawan.

2. Sri K.P Yadav , Assistant veterinary Tawang.
3. Sri Pradeep Kalita, Stockman ,Tawang
4. Sri Sang Dorjee, Stockman, Surbi
5. Sri D.K Baishya, Stockman, Lemberdung.

SUB- COMMITTEE, JANG.

1. Dr. Thupten Tashi ,Senior veterinary Officer, Jang.
2. Sri Phurpa Gombu, A/V, Jang.
3. Sri Kesang Nima S/M khet .
4. Sri Dawa Tsering, AV, Mukto.
5. Sri Passang Gombu , Stockman, Rho- Jangda.
6. Sri Thinley Gombu, Stockman, Thingbu.
7. Sri U.G Khom , A/V, Lhou.

SUB- COMMITTEE, LUMLA.

1. Dr.Sang Khandu, veterinary Officer, Lemberdung
2. Sri Dorjee Gombu , Assistant veterinary Zemithang.
3. Sri D k Thongon S/M Dudungkhar .
4. Sri Rinchin Phuntso, Stockman, Bongleng

CONTACT DETAILS.

1. DVO Office :- 9402643231
2. VO Office Jang :- 9402651937
3. VO Office Lumla :- 9436023906

OCCURANCE AND NATURE OF DISASTER.

Disaster occurs normally in two different seasons, during rainy season i.e. from july to October and during winter season from November to February.

The Domestic animals particularly Yak and its allied species like DZO/ DZOMU / Gyatsamin and Sheeps are in normal transit in two different seasons.

Summer Camp- Here the animals are kept from July to October. The altitude ranges from 10, 000 to 14, 000 ft.

Winter camp- Here the animals are kept for five months i.e, from November to the last part of March. The altitude ranges from 6000 to 8000 ft.

RECENT OBSERVATIONS.

Many animals are reported to have killed by heavy rainfall accompanied by hail stones due to poor grazing hut and poor fodder in the ridges and grazing land during summer camp and due to heavy snowfall during winter camp. During extreme winter the animals hardly find any fodder on ground and have to depend totally on food procured by the herdsmen which is very difficult.

The other disasters like, Earthquake, Cloud burst accompanied by landslides and shifting of lake may also be seen. However pre information can avoid damages and losses through proper coordination with other agencies.

The Steps of Disaster Management are:

1. **Prevention.**

   The team constituted in District level and Sub- Committee may visit the grazing huts and inform the herdsmen about the coming disaster. The information is given to minimize the loss during the disaster. The huts/ sheds are properly covered and the animals are not allowed to move around. The animals are kept at one place properly under observation.

2. **Mitigation**

   Seeing the disaster in that particular area the animals are moved to nearest safe place. The movement is done in the new area which is very close to the veterinary facility.

3. **Preparedness.**

   A District Level Team headed by District AH & Vety. Officer and sub-Committee headed by veterinary officer and Veterinary officials are formed to take stock of the situation.

   A grazing field is selected that is under close observation of the department. Enough medicine is procured well in advance and kept to meet the first aid treatment.

   FIRST AID KITs

   1. Tr.lodine / Potash
   2. Ointments
   3. Gauges(cotton& Bandage)
   4. Tonics (Minerals Mixture & Vitamins)
   5. Long acting Antibiotics.

4. **Response**

The team also collects Medicines on priority basis. The trained officials are put to work in such situation. The officials keep in touch with the other agencies as well. The village level participation is also sought during such disaster depending on the nature of disaster.

5. **Recovery and Rehabilitation.**

The Sub- Committee rehabilitates all the animals to the nearest safe place that is scrutinized by the veterinary officials and is closely looked in supervision for 24x7. The animals are given medicine on priority basis.

The Vaccination is necessary after the recovery of the health of animal.

CHAPTER VIII

4.1. INFORMATION, EDUCATION & COMMUNICATION (IEC)

4.1.1. DISSEMINATION OF OTHER IEC MATERIAL.

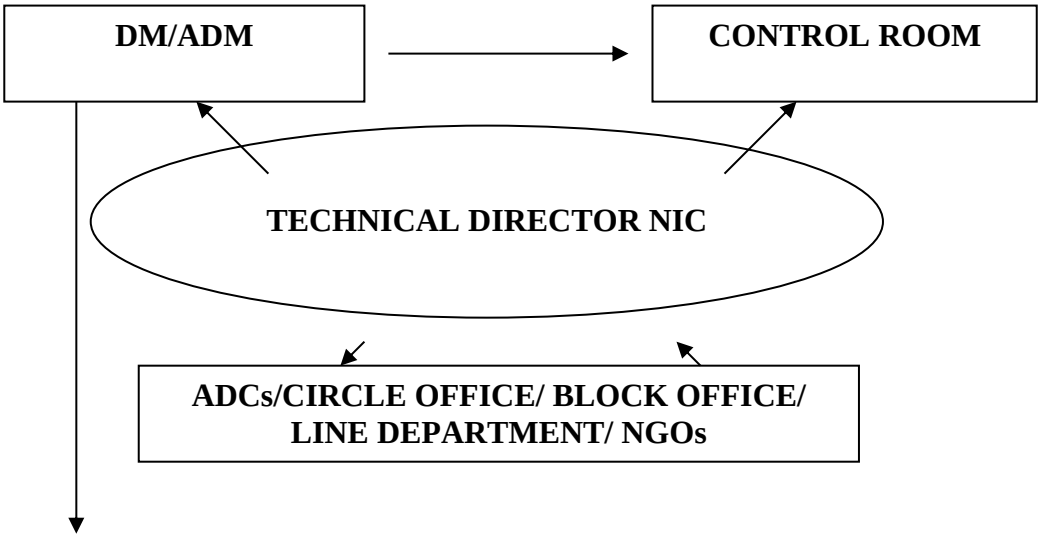
MODE	**AGENCY RESPONSIBLE**
Wall Painting, street play, Village task force/Volunteers training	DC/ADC/COs/ DDMO/SDMOs/FO & NGOs
Media & Press releases	DIPRO
Poster, Cartoons, Chart, Photograph and Flock songs,	NGOs, School Children

4.1.2. TRAINING & DRILLS

MODE	AGENCY RESPONSIBLE
Training Programme for Rescue, Relief	Supdt. of Police /OC, Fire Station, NGOs
Training for Common People on Health Care Sanitation , & First Aid	DMO

4.1.3. COMMUNICATION AND MEDIA

In Disaster preparedness Media plays a capable role in building a communication network both horizontally and vertically. It stands in interaction with different sections of society, actors of relief administration, NGO etc and feeds the right information at right time to the all people.



MEDIA/ AIR/ DOORDARSHAN

The means of communication are quite limited in the district with the main medium of communication through the All India Radio and Mobile (GSM and WLL) network. Thus maximum awareness / information dissemination in the district is done

through these mains. The District Administration Offlate has also developed the district website into an information portal and has opened a Facebook page with the District Administration is able to reach additional population in the district, especially the youth. Overtime, it will be an endeavor of the district administration to maximize the usage of the digital medium information dissemination and awareness to maximize the channels of communication with the public.

Chapter IX

INDIAN METROLOGICAL DEPARTMENT

Indian Meteorological Department was established in the year 1875 with its headquarters at Culcutta. The headquarter was shifted to Shimla in 1905, to Pune in 1928 and then to Delhi in 1944.

Satellite based Data Communication in IMD

Satellite based data collection/ distribution systems are integrated in the Meteorological Tele-communication Network as an essential element at the global, regional and national level. Medium and High speed links connecting RTH New Delhi with Meteorological Tele-communication Centers at the major international airports in India are operating via satellite.

A network of 26 V-SATs have been installed at selected Seismological Observatories, Cyclone Detection Radar stations, Cyclone Warning Centres and Meteorological Centers for reception of observational data utilizing communication transponder of INSAT.

- Digital Meteorological Data Dissemination (DMDD), the processed INSAT cloud imageries, GTS Data and analyzed weather charts are transmitted through INSAT-3C using S-band digital broadcast of the satellite every half hour. At present

there are 37 DMDD ground receiving stations in India (IMD) and one each in Maldives, Nepal and Sri Lanka.

- A receive only Satellite data Dissemination System (SADIS) is in operation at New Delhi to receive aeronautical meteorological information from International Civil Aviation Organization (ICAO), centres which are routed to four International Airport of India to meet aviation operational requirements and also information is exchanged over GTS.

Major activities

1. Provide current weather and forecast/ meteorological information for optimum operation of weather sensitive activities like agriculture, irrigation, shipping aviation, off-shore oil exploration etc.
2. Warn against severe weather phenomena which affect life and property.
3. Archive meteorological information for use in various activities.
4. Detect and locate earthquakes and evaluate seismicity in different parts of country for development projects.

Functions and Responsibilities of the National Meteorological Telecommunication Centre, New Delhi

The following are the functions and responsibilities of NMTC New Delhi:-

1. Collect the bulletins from their associated NMCs viz; Colombo, Dhaka, Karachi, Kathmandu, Male, and Yangoon and transmit them in the appropriate form on the Main Telecommunication Network, directly.

2. Transmit on the Main Telecommunication Net-work directly as internationally agreed and in the appropriate form, the processed meteorological information produced by the RSMC, New Delhi.
3. Relaying selectively on the circuits of the Main Telecommunication Network, as agreed, the bulletins which it receives from these circuits and/or from RTHs not situated on the Main Telecommunication Network.
4. Ensure the selective distribution of bulletins to the associated NMCs and to the RTHs not situated on the Main Telecommunication Net-work which it serves;
5. Before relaying message issued from its zones of responsibility (as an RTH located on the MTN) on the GTS, checking the parts related to the telecommunication of the message in order to maintain standard telecommunication procedures;
6. Establish data dissemination systems (terrestrial and/or via satellite) as required in accordance with regional plans;
7. Carry out the monitoring of the operation of the GTS of the WWW;
8. Maintain the Catalogue of Meteorological Bulletins as regards to bulletins issued from the zone for which it is responsible i.e. Bangladesh, Bhutan, India, which it is responsible i.e. Bangladesh, Bhutan, India, Maldives, Mayanmar, Nepal, Pakistan and Sri Lanka, for the collection, exchange and distribution of data, and also including data from the Antarctica, as appropriate.
9. Collect observational data from its own territory and other members according to bilateral agreements, as well as observational data from aircraft and ships received by centers located within the area of responsibility.
10. Compile such data into bulletins and transmitting them on the GTS, in compliance with standard telecommunications procedures.
11. Receive and distribute in accordance with bilateral agreements, observational data and processed meteorological information, to meet the requirements of the Members concerned.

12. Collection of aircraft weather reports received from the collecting centers designated in the ICAO Regional Air, Navigation Plans.
13. Exchange and distribution of output products of WMCs and RSMCs as well as World Area Forecast Centres (WAFCs) and Regional Area Forecast Centre (RAFCs), as required.
14. Satellite broadcast of meteorological information

Website of IMD

Website of IMD is operational since 1st June, 2000. It contains static & dynamically updated information on all India Weather and forecasts, special monsoon report, local weather forecasts for 200 cities, satellite cloud pictures (updated every hour), animated satellite cloud pictures, GFS, WRF etc. generated products and prognostic charts, special weather warnings, tropical cyclone information and warnings, daily, weekly and monthly rainfall distribution maps, earthquake reports, etc.. This also contains a lot of static information including temperature and rainfall normal over the country and a brief overview of the activities and services rendered by India Meteorological Department.

This site can be accessed round the clock with the URL: http://www.imd.gov.in The Regional Meteorological Centers have also their own websites.

The department has also launched a new user-friendly website for the public with URL http://www.indiaweather.gov.in

India meteorological Department developed its own intranet website at http://metnet.imd.gov.in exclusively for the use of IMD staffs. All

employees can access this site using their ID. This is a very useful site for all employees of IMD as Government of India Circulars/orders are available at one place along with personal details.

Seismological activities

1. **Earthquake monitoring**

India Meteorological Department (IMD) is the nodal agency of Government of India responsible for monitoring seismic activity in and around the country. IMD has rendered more than a century of seismological service to the nation with the first seismological observatory of the country having been set up by the department at Kolkata in 1898. The operational task of the department is to quickly estimate the earthquake source parameters immediately on occurrence of an earthquake and disseminate the information to all the user agencies including the concerned State and Central Government agencies responsible for carrying out relief and rehabilitation measures. The information relating to under-sea earthquakes capable of generating tsunamis on the Indian coastal regions is also disseminated to all concerned user agencies including the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad for issue of tsunami related messages and warnings. The earthquake information is transmitted to various user agencies including public information channels, press, media etc. using different modes of communication, such as SMS, fax, email and also posted on IMD's Website (www.imd.gov.in).

2. **National Seismological Network (NSN)**

India Meteorological Department is maintaining a country wide National Seismological Network (NSN), consisting of a total of 82 seismological stations, spread over the entire length and breadth of the country. This includes: a) 16-station V-SAT based digital seismic telemetry system around National Capital Territory (NCT) of Delhi, b) 20- station VSAT based real time seismic monitoring network in North East region of the country and (c) 17-station Real Time Seismic Monitoring Network (RTSMN) to monitor and report large magnitude under-sea earthquakes capable of generating tsunamis on the Indian coastal regions. The remaining stations are of standalone/ analog type. A Control Room is in operation, on a 24X7 basis, at IMD Headquarters (Seismology) in New Delhi, with state-of-the art facilities for data

collection, processing and dissemination of information to the concerned user agencies

3. Real time seismic monitoring for early warning of tsunamis

In the aftermath of the Great Sumatra earthquake of 26th December, 2004, Ministry of Earth Sciences has set up an Indian Tsunami Early Warning Center at the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad. The Center is mandated to provide advance warnings on Tsunamis likely to affect the coastal areas of the country. As part of this, a 17-station Real Time Seismic Monitoring Network (RTSMN) has been set up by India Meteorological Department. The network is capable of monitoring and reporting, in least possible time, the occurrence of earthquakes capable of generating Tsunamis likely to affect the Indian coastal regions. The data from the 17 Broadband seismic field stations is transmitted simultaneously in real time through V-SAT communication facilities to the Central Receiving Stations (CRSs) located at IMD, New Delhi and INCOIS, Hyderabad for processing and interpretation. The CRSs are equipped with state-of-art computing hardware, communication, data processing, visualization and dissemination facilities. For providing better azimuthal coverage towards detecting earthquakes of tsunami-genic potential, the RTSMN system has been configured to include about 100 global stations of IRIS (a consortium of Incorporated Research Institutions in Seismology), whose data is available freely through internet. The earthquake information is disseminated through various communication channels to all the concerned user agencies in a fully automated mode. Based on the earthquake information provided by the RTSMN and other ocean related observations / analysis, INCOIS evaluates the tsunamigenic potential of the undersea earthquakes and issues necessary warnings / alerts, as per the situation.

4. National Seismological Data Base Centre (NSDC)

The available seismological data from all the network stations including those operated by other agencies is compiled, processed, analyzed and archived systematically at the National Seismological Database Centre (NSDC) on a regular basis. Monthly National Seismological Bulletins containing the phase data and the processed information on source parameters of all earthquakes located by the seismological network of IMD are prepared regularly. India, represented by IMD, is

a permanent Member of the International Seismological Centre (ISC), UK. Seismological Bulletins of IMD are shared regularly with International Seismological Centre (ISC), UK for incorporation in the ISC's Monthly Seismological Bulletins, which contain information on earthquakes occurring all across the globe. As part of systematic archival of historical analog charts, state-of-the-art facilities have also been established for raster scanning and vector digitization of seismic analog charts. These facilities have enabled raster scanning of a lakh old analog charts and vector digitization of significant earthquake waveforms. Seismology Division supplies earthquake data and seismicity reports of specific regions to various user agencies such as, insurance companies, industrial units, power houses, river valley projects etc. on payment basis. Seismological data and earthquake related information is also supplied to agencies dealing with relief and rehabilitation measures, earthquake disaster mitigation and management related matters, seismic zoning, etc. Earthquake data is shared with various scientific, academic and R&D institutions for research purposes. Towards early warning of tsunamis, real-time continuous seismic waveform data of three IMD stations, viz., Portblair, Minicoy and Shillong, is shared with global community, through IRIS (Incorporated Research Institutions of Seismology), Washington D.C., USA.

5. Training & Human Resource Development in Seismology

Seismology Division organizes training courses/ awareness programs in Seismology and allied subjects at various levels to station operators and scientists of departmental and various non-departmental agencies. Officers of Seismology Division also deliver lectures on various Seismology related topics, on request, for the benefit of various state / central government organizations dealing with earthquake related matters. Familiarization training on various operational activities related to earthquake monitoring is also imparted to trainees from various organizations including those deputed by WMO.

6. Seismic Zoning of India

Bureau of Indian Standards [IS-1893 – part – 1: 2002], based on various scientific inputs from a number of agencies including earthquake data supplied by IMD, has grouped the country into four seismic zones viz., Zone-II, -III, -IV and -V. Of these, zone V is rated as the most seismically prone region, while zone II is the

least. The Modified Mercalli (MM) intensity, which measures the impact of the earthquakes on the surface of the earth, broadly associated with various zones, is as follows:

Seismic Zone	Intensity on MMI scale	% of total area<b< td=""></b<>
II (Low intensity zone)	VI (or less)	43%
III (Moderate intensity zone)	VII	27%
IV (Severe intensity zone)	VIII	18%
V (Very severe intensity zone)	IX (and above)	12%

7. Research and Development

Seismology Division is actively involved in Research and Development related activities in the field of Seismology and allied subjects. The upgraded seismological network has generated very useful and unique digital broadband and strong motion data sets for several significant earthquakes including the recent great Sumatra earthquake of 26th December, 2004, Pakistan earthquake of 8th October 2005 and Sikkim Earthquake of 18th September, 2011. Analyses of these data sets have greatly helped in improving our understanding about the earthquake processes in the inter- and intra-plate seismic regimes and the crust and upper mantle structure of the Peninsular shield region. Bilateral collaboration in various fields of Seismology has also been established with Mexico and Russia, where necessary.

8. Seismic Hazard and Seismic Microzonation

Seismic hazard assessment and seismic microzonation studies have emerged as major tools towards our efforts for preparedness and mitigation of losses due to earthquakes. ‘Seismic microzonation’ is a process of classifying a region into zones of relatively similar exposure to various earthquake-related effects and has emerged as a major tool towards providing user-friendly, GIS-based and site-specific hazard and risk related information products to enable appropriate planning of pre- and post-disaster management strategies. The Earthquake Risk Evaluation Centre (EREC) set up in IMD has the mandate to generate and disseminate user-friendly GIS-based and site-specific hazard and risk - related information products to enable appropriate planning of pre- and postdisaster management strategies. The Centre has completed microzonation of Delhi region on 1:50,000 scale and played a key role in various studies relating to the seismic microzonation of other cities, such as, Jabalpur and

Guwahati. EREC is currently engaged in refining the seismic microzonation of NCT, Delhi on 1:10,000 scale.

CHAPTER X

EMERGENCY PLAN FOR CIVIL HALIPAD URGYAN SANGPO TAWANG

EMERGENCY PERSONNEL NAMES AND PHONE NUMBERS

DESIGNATED RESPONSIBLE OFFICIAL at Urgyan Sangpo Helipad, Changprong, Tawang, as Emergency Co-coordinator (designation): Aviation Officer
Name: TENZIN LHENDUP Phone No. **224560 /8974604668**
EMERGENCY COORDINATOR:
Name: TENZIN LHENDUP
Phone No: **224560/ 8974604668**

EVACUATION ROUTES

- Evacuation route maps have been posted in each work area. The following information is marked on evacuation maps:

1. Emergency Exits
2. Primary and Secondary evacuation routes
3. Location of fire extinguishers
4. Fire alarm pull stations location
5. Assembly points

- Site Personnel should know at least two evacuation routes.

EMERGENCY PHONE NUMBERS

FIRE & EMERGENCY: 8258872382 (SFO)

SERVICE STATION, TAWANG: PHONE NO. **224101**

PARAMEDICS (TAWANG CIVIL HOSPITAL): PHONE NO. **224432**

AMBULANCE : PHONE NO. **224432**

POLICE STATION : PHONE NO. **224435**

DEPUTY COMMISSIONER, TAWANG PHONE NO. **222221/ 9436051027**

SUPDT. OF POLICE, TAWANG: PHONE NO. **222231/9436051026**

ARMY BRIGADE, TAWANG: PHONE NO. **223452/A.Q 224453**

ARMY ATC, TAWANG: PHONE NO. **222338**/ARMY EXCHANGE

SECURITY BRANCH : PHONE NO. **222235** (PS TAWANG)

HELICOPTER OPERATION IN-CHARGE: PHONE NO.

9436071209/9402221775

UTILITY COMPANY EMERGENCY CONTACTS

ELECTRIC: Power House, Department of Power, Govt. of Arunachal Pradesh, Tawang

Division, Tawang.

Contact Person: AE (E) 9436272621

Contact No. : 222249

WATER: Department of Public Health Engineering & Water Supply, Government of Arunachal Pradesh, Tawang Division, Tawang.

Contact Person: DOGE KAMDUK/ ANIL KUMAR KM, JE

Contact No. : 9436837606/ 9402430668

TELEPHONE COMPANY: Sub –Divisional Officer (Telephone)
Bharat Nigam Limited, Tawang.

Contact Person: 222300 (SDO) (T) Tawang.

Contact No. : 222298 (Telephone Exchange)

EMERGENCY REPORTING AND EVACUATION PROCEDURES

Types of emergencies to be reported by site personnel are:

- MEDICAL
- FIRE

- SEVERE WEATHER AND NATURAL DISASTERS
- BOMB THREAT
- CHEMICAL SPILL
- TERRORIST ATTACK/ HOSTAGE TAKING
- CRASH LANDING

MEDICAL EMERGENCY

- Call Medical Emergency phone number :

  Paramedic (Tawang Civil Hospital) Contact No. 224432

  Ambulance Contact No . 224432

  Fire Department Contact No. 224101 /8258872382

- Provide the following information:

  a. Nature of medical emergency.
  b. Location of the emergency (address, building, room number etc.)
  c. Name & designation of the person calling for medical emergency aid and the phone number from which calling.

- Do not move victim unless absolutely necessary.
- Call the following personnel trained in CPR and First Aid to provide the required assistance prior to arrival of the professional medical help:

  Name: TAGE LAMPUNG (STO) Phone 224104

Name: KESANG (HA) Phone 224432

- If personnel trained in First Aid are not available, as a minimum, attempt to provide the following assistance :

  1. Stop the bleeding with firm pressure on the wounds (note: avoid contact with blood or other bodily fluids).
  2. Clear the air passages using the Heimlich maneuver in case of Chocking.

- In case of rendering assistance to personnel exposed to hazardous materials, consult the Materials Safety Data Sheet (MSDS) and wear the appropriate personal protective equipment. Attempt first aid ONLY if trained qualified.

FIRE EMERGENCY

When fire is discovered:

- Activate the nearest fire alarm (if available)

- Notify the Fire & Emergency Station Tawang by calling on Phone No: 224101.

- If the fire alarm is not available, notify the site personnel about the fire emergency by the following means :

  Voice Communication
  Radio
  Phone Paging

Fight the fire only if:

- The Fire & Emergency Service has not been notified.
- The fire is small and is not spreading to other areas.

- Escaping the area is possible by backing up to the nearest exit.

Upon being notified about the fire emergency, occupants must:

- Leave the building using the designed escape routes.
- Assemble in the designated area at in the courtyard of Jamyang Choekorling Gonpa.
- Remain outside until the competent authority (Designated Official or designee) announces that it is safe to re-enter.

Designated Official, Emergency Coordinator or Supervisors must:

- Disconnect utilities and equipment unless doing so jeopardizes his/ her safety.
- Coordinate an orderly evacuation of personnel.
- Perform an accurate head count of personnel reported to the designated area.
- Determine a rescue method to locate missing personnel.

SEVERE WEATHER AND NATURAL DISASTERS

1. **Tornado:**

- When a warning is issued by sirens or other means, seek inside shelter in the interior room of the lounge, away from doors and windows.
- Stay away from outside walls and windows.
- Use arms to protect head and neck.
- Remain sheltered until the tornado threat is announced to be over.

2. **Earthquake:**

- Stay calm and await instructions from the emergency coordinator or designated Official.
- Keep away from overhead fixture, windows, filling cabinets and electrical power

- Evacuate as instructed by the emergency Coordinator and/or the Designated Official.

3. **Flood:**

If indoors:

- Be ready to evacuate as directed by the emergency coordinator and / or Designated Officials.
- Follow the recommended Primary or Secondary Evacuation Routes.

If Outdoors:

- Climb to high ground and stay there.
- Avoid walking or driving through flood water.
- If car stalls, abandon if immediately and climb to a higher ground.

4. **Blizzard:**

If indoors:

- Stay calm and await instruction from Emergency Coordinator or Designated Officials
- Stay indoors.
- If there is no heat:
  - Close off unneeded rooms or areas.
  - Stuff towels or rags in cracks under doors.
  - Cover windows at night.
- Eat and drink. Food provides the body with energy and heat. Fluids prevent dehydration.
- Wear layers of loose –fitting, light weight, warm clothing, if available.

If outdoors:

- Find a dry shelter. Cover all exposed parts of the body.
- If shelter is not available:
  - Prepare a lean to, wind break, or snow cave for protection from wind.
  - Build a fire for heat and to attract attention. Place rock around the fire to absorb and reflect heat.
  - Do not eat snow. It will lower your body temperature. Melt it first.

If stranded in a car or truck:

- Stay in the vehicle.
- Run the motor about ten minutes each hour. Open the window a little for fresh air to avoid monoxide poisoning. Make sure the exhaust pipe is not blocked.
- Make yourself visible to rescuers,
  - Turn on the dome light at night when running the engine.
  - Tie a colored cloth to your antenna or door.
  - Raised the hood after the snow stops falling.
- Exercise to keep blood circulating and to keep warm.

5. CHEMICAL SPILL

At Tawang Helipad thee only chemical used is ATF (Aviation Turbine Fuel) Jet A1 which is used as helicopter fuel by helicopter operator.

When a chemical Spill has occurred;

- Immediately notify the Designated Official and Emergency Coordinator.

- Contain the spills with sock pad.

- Secure the area and alert other site personnel

- Do not attempt to clean the spill unless trained to do so.

- Attend to injured personnel and call the medical emergency number, if required.

- Call the Fire Department to perform if a large chemical spill occurs.

- Evacuate building as necessary.

6. TERRORIST ATTACK / HOSTAGE TAKING

When Helipad in Operation:

In the event of terrorist attack or hostage taking at the helipad when helipad is in operation, the same shall be immediately informed to the Tawang Police Station Telephone No. 222235, Deputy Commissioner, Tawang Telephone No. 222221 and Supdt. Of Police, Tawang Telephone No. 222231 for sending anti-terrorist squad and also to the Army Brigade Tawang in Telephone No. 223452 for back-up force and take the following actions till anti-terrorist squad / back up security force arrive to contain the situation:

- Following details of attackers shall be intimated to the Police Station / Deputy Commissioner / Supdt. Of Police / Army Brigade.
  - Number of attackers.
  - Details of hostage if taken.
  - Type of weapons they are carrying.
  - Type of attacks and target of attacks they are resorting to.

- All entry / exit paths shall be closed and secured by Security team of helipad duty.

- Staffs & passengers and aircrew personnel not at reach of the attackers shall be evacuated through safe evacuation routes if possible or shall be sheltered in available safe rooms in the terminal building.
- Security personnel team on helipad duty shall take action to resist the attackers from causing any damage to the aircraft and other infrastructures till back-up force / anti-terrorist squad arrive and take command.

When Helipad is not in Operation:

In the event of terrorist attack or hostage taking at the helipad when helipad is in operation, the same shall be immediately informed to the Tawang Police Station Telephone No. 222235, Deputy Commissioner, Tawang Telephone No. 222221 and Supdt. Of Police, Tawang Telephone No. 222231 for sending anti-terrorist squad and also to the Army Brigade Tawang in Telephone No. 223452 for back-up force and take the following actions till anti-terrorist squad / back up security force arrive to contain the situation:

- Staffs not at reach of the attackers shall be evacuated through safe evacuation routes if possible or shall be sheltered in available safe rooms in the terminal building.
- Following details of attackers shall be intimated to the Police Station.
- Number of attackers.
- Details of hostage if taken.
- Type of weapons they are carrying.
- Type of attacks and target of attacks they are resorting

7. CRASH LANDING

In the event of Crash Landing of helicopter at the helipad due to technical or other reason:-

If crash landing leads to injury, fatal accidents, fire accidents.

- The operational in-charge shall immediately notify to the Emergency coordinator and Designated Official and also inform immediately to the Fire &

Emergency Service Station, Tawang Phone No. 224101, Paramedics / Tawang Civil Hospital Telephone No. 224432, Tawang Police Station Telephone No. 222235, Deputy Commissioner, Tawang Telephone No. 222221 and Supdt. Of Police Tawang Telphone No. 222231 for sending more fire and rescue personnel, more fire tender and medical aids as per situation and also to the Army Brigade Tawang in telephone No. 223453 for their help in fire-rescue and medical aid task as the situation warrants. Extent of damage / affect of crash landing shall be intimated in brief so that proper back-up fire-rescue & medical aid can be sent according to the need.

- Coordinate an orderly evacuation of personnel from lounge if aircraft hit the terminal building or other infrastructure.

- The helipad Operational staffs shall join the Standby Fire & Emergency Rescue Team to extinguish the fire and rescue the affected people and to evacuate them with the Standby Medical Van to the hospital as per need.

- If causes loss of human life, an FIR shall be logged by the Operational in-charge in Tawang Police Station.

- Details of the incident shall be communicated to the Head of the Department same day by quickest means.

TRAINING

The following personnel have been trained to ensure a safe and orderly emergency evacuation of other employees or passengers in the event of emergency situations.

Name	Tile	Responsibility	Contact No.
Tenzin Lhendup	AO	Emergency co-ordinates	8974604668
Tommar Ete	SFO	Emergency evacuation	8258872382

Techi Galoo	SFO	Fire fighting	8131882915
S.D Mishra	LFM	First Aid	9774634182
Tsering Dorjee	OC/PS/TWG	Crowd control and traffic	9402065155
Tsangpa Tashi	DDMO	Back-up and Support	8256971149/9402276014

DETAILS OF DATA TO BE MAINTAINED AT DISTRICT LEVEL & PERIODICITY OF UPDATES:

SCHEDULE FOR UPDATING THE DISTRICT DATABASE:

District Database	**Schedule Time**
Updating Rainfall Database	Fortnightly / Monthly
Updating important Telephone Nos.	Annually
Updating Shelter Database	Annually
Updating Weak & Vulnerable Points Database	Annually
Updating Agriculture Database	Annually
Relief Material Storage Points	½ Yearly
Relief Material Stock Position	½ Yearly
List of Rescue Equipments	Annually
List of Block / G.PS / Villages / Population	Annually
Animal Population	Annually
Health/ Police/ Educational Institutions	Annually
Vehicles List	Annually

CHECK LIST FOR DC, SP, ADC,DMO, CO, BDO

FOR TAWANG DISTRICT.

PRE DISASTER PHASE

- Mapping of the Hazard Prone area.
- Training of community volunteers.
- Trained volunteers can take leadership.

- Take care of health problems.
- Identification of local resources.
- Storage facilities.
- First Aid & Camp management.
- IEC Programmes on Health, Hygiene and sanitation.
- Medical Camps.
- Monitoring and Surveillance.
- Communication and transportation.

POST –DISASTER PHASE

- Rehabilitation.
- Protection Health measures.
- Monitoring and surveillance.

OFFICIAL --- Deputy Commissioner cum Chairperson, Disaster Management Committee

FUNCTION	ACTIVITY	INVOLVEMENT OF OTHER PERSONNEL/ MANPOWER & REQUIREMENT	TIME FRAME & REMARKS
PREPAREDNESS BEFORE CALAMITY SEASON	1. Take stock of the calamity situation in the district over the next one-year through District level Natural calamity meeting and through other agencies. 2. Categorizing Hazard zones and strategy meeting to combat. 3. Prepare a notebook for recording of all Do's and Don'ts in types of natural calamity.	1. All District level officials. 2. All ADCs. 3. All COs. 4.COs/NGOs 5.ADC/CO/ DDMO/SDMO 6.DDMO/	During normal period

	4. Ensure IEC through Emergency section/ COs/NGO's /Street plays/Workshops/Wall paintings. 5. Take stock of the DCR and make it functional as per SOP (SOP) to be prepared earlier). 6. Activating DCR & Deputing senior officers from time to time to review the receipt of information and dissemination. 7. NGO's co-ordination meeting be done. Capacity assessment of different NGO's be recorded in meeting to help in calamity like situation, if happens-risk area of operation be demarcated clearly so that list overlapping may take place. 8. A checklist be prepared in the meeting and handed over to them pretty earlier. 9. Ensuring least communications system to the inaccessible villages. 10. Check stock of the Public distribution system and arrangement of the temporary go downs. 11. Take stock of Resource/ Resource personnel of other department viz. Police, Fire, Civil Defence and of NSS/NCC/NYKS. 12. Take stock of road cleaning equipment and vehicles for relief operation. 13. Assignments of specific duties to officers/ Sr. Officers at Headquarters. 14. Linkage with other line departments. 15. Ensure functioning of warming systems & communications systems.	SDMO 7. Leading NGOs 8. Police/Fire/Civil Defence. 9. COs, 10.DF&CSO 11. Line Depts., Police, Civil Defence etc. 12. PWD, RWD, BRTF 13. ADC HQ 14. DDMO 15.DDMO, OC WT, DIPRO 16. DDMO, Fire Service	

	16. Ensure Mock drill.		
WARNING & DISSEMINATION PHASE	1. Dissemination of warning to District level officials / Disaster field functionaries/ PRIs & Coordination with the Disaster. 2. Setting up control room and manning of control Room round the clock. 3. Assignment of duties to the District level officials and ADCs/ COs/ BDOs. 4. Arrangements of vehicle and sound system for information dissemination. 5. NGO coordination and assignment of duty. 6. Proper record keeping and transmission of information to all the levels. 7. To warn people about the impending danger & to leave for safer places through AIR/DOORDHARSAN/BDOs/ Cos	1. All District Officials 2. All ADCs/ COs/DDMO/SDMOs 3. DC/ADC 4. EAC(MV)/ IPR 5. Leading NGOs. 6. DEOC	First Information Report (FIR) will be communicates to all the Disaster field functionaries / Dist level officers orally on receipt information followed by the written within first two hours.
SEARCH, RESCUE & EVACUATION PHASE	1. To co-ordinate with Civil defence-NGOs/ARMY//Police/PARA MILITARY for support. 2. Arrangement / Deployment of vehicles etc. for evacuation. 3. Evacuate people of marooned areas and administer emergent relief. 4. Organize trained task force members and deputing to maroon & Cut-off areas for evacuation. 5. Deploy police for maintaining law & order & peace keeping during evacuation. 6. Mobilize people to take shelter in the identified / safer shelters.	1. Police 2. Army 3. ITBP 4. SSB 6. Fire Service 7. Concern Circle level Administrative Officers. 8. NCC/NSS 9. NGOs.	Immediately after occurrence of the calamity.

	7. Deploy Police / Fire Brigade/ARMY/Para-Military for search and rescue. 8. Co-ordination with the NCC/NSS/Civil Defense/ Army, Para-military etc. for rescue operation 9. Ensuring proper utilization of the rescue materials. 10. Prepare inventory of shelter places and map indicating the shelter centers. 11. Provide & arrange Rescue kit at risk areas.		
RELIEF DISTRIBUTION PHASE	1. Procurement and transportation of Relief materials to affected pockets/areas. 2. Deployment of vehicle. 3. Arrangements of free kitchen in the shelter camps & affected areas. 4. Coordinating with the NGOs / Other voluntary organization & PSUs/UNICEF/ UNDP/ REDCROSS other For continuing Relief Operation. 5. Ensuring Health care activities by the DMO in the shelter camps & through mobile Units/ Temporary Health camps in the affected areas and regular check up of Health. 6. Ensuring Animal health activities by the DVO through Mobile units/ Temporary Health camps in the affected areas. 7. Ensuring safe drinking water through Mobile van/water pouch in the shelter camps / effected	ADCs DMO, COs BDOs Medical Officers Paramilitary Forces Police PHE/ Transport Leading NGO	Whenever required

	areas - PHE 8. Monitoring		
Coordination with line departments and Civil Society Organization	1. Meeting with district level officials / Officials at Head quarter and chalk out emergency plan with vulnerable areas and resource list. 2. Co-ordination meeting of NGOs & Assignment of duties. 3. Pre-positioning of staff in the likely cut off areas. 4. Arrange food and other basic requirement for emergency response. 5. Collect information from different areas and to act accordingly. 6. Co-ordination meeting with officials at Headquarters by 12 hours intervals and 24 hours intervals with the field officials. 7. Regular collection of situation report of the risk and vulnerable areas from the officers assign for the purpose. 8. Provision for administering emergent relief and the other basic needs. 9. Contact with SDMA/NDMA for supply of Temporary shelter materials. 10. Keep informing DFCSO for supply of food articles/ procurement from FCI/ Whole sellers. 11. Deputation of Volunteers to different probable affected areas. Helping the evacuees for returning to their houses. 12.Immediate arrangement of free kitchen in the cut-off and inaccessible areas	SDMA/ All ADCs/ COs/ All District level Officials/ NGOs	At the time of requirements on war footing.

	13. Relief distribution. 14. Monitoring of Relief distribution. 15. Provision of drinking water. 16. Provision of Medical facilities. 17. Repair/Restoration of Roads. 18. Transportation of Relief and		

OFFICIAL--- ADDL. DEPUTY COMMISSIONER

FUNCTION		ACTIVITY	INVOLVEMENT OFOTHER PERSONNEL/ MANPOWER & REQUIREMENT	TIME FRAME & REMARKS
PRE DISASTER PHASE	Warning Dissemination Phase	1. Ensuring proper dissemination of warning both downward and upward level improper interval of timing. 2. Ensuring proper functioning of Control room. 3. Deployment of Office in charges of collectorate in control room round the clock basis.	Police, BDOs, COs, Telecommunication, Other Officials of the dist office.	FIR
ON/DURING DISASTER PHASE	Rescue & Evacuation Phase	1. Requisition of Vehicle. 2. Requisition of Police/Fire personnel. 3. Requisition of staff from other sections of collectrate.	DTO (transport), Police, Cos, Other officials of dist office.	Soon after receipt of the information

	Relief Distribution Phase	Diversion of Relief materials to different affected areas.	Transport Officer, COs,DDMO, Paramilitary Forces, NGOs.	As per requirement of the situation
POST DISASTER PHASE	Restoration Phase	□ Keeping liaison with all line departments. □ Collection of progress report on restoration & transmission to Govt./SDMA/NDMA	Line departments	Till completion of restoration works
	Coordination with line departments and civil society organizations	Supervision of restoration activities under taken by different voluntary agencies.	Line departments, NGOs	

OFFICIAL: SUPERINTENDENT OF POLICE

FUNCTION	ACTIVITY	INVOLVEMENT OF OTHER PERSONNEL/ MANPOWER & REQUIREMENT	TIME FRAME & REMARKS

PRE DISASTER PHASE	Warning and Dissemination phase	1. Communication establishment with District, Sub-Divisional and Circle Control rooms and departmental offices within the diversion. 2. Alerting the Addl. Police Reserve force for deployment at the time of calamity. 3. To issue directive to police field functionaries to co-operate with Disaster Personnel in management of Relief operation.	Wireless telegraph/ Civil Defence	FIR & Pass it immediately to all the Concerned officials.
ON/ DURING DISASTER PHASE	Rescue & Evacuation phase.	1. Overall traffic management and patrolling of all highways and other access roads to disaster sites. 2. Identification of antisocial elements. 3. Assistance to district authorities for taking necessary action against hoarders, black marketers and those found manipulating relief material. 4. Co-ordination with fire personnel. 5. Provision of security in transit camps/ feeding centers/ relief camps/ cattle camps/ cooperative food stores and distribution centers. 6. Safe guarding of belongings of evacuees.	Civil Defence/ Paramilitary force / Addl. Police Reserve forces/ Other skilled persons related to rescue & evacuation./ fire personnel.	Till completion of the process

	Relief Distribution Phase	1. Coordination with military service personnel in the area being carried out. 2. Officers made available to inquire into and record of deaths. 3. Assisting the community in organizing emergency transport or injured. 4. Assisting the Disaster Official in administering emergent relief. 5. Providing escorts in transit of relief materials to the relief camps/ affected areas.	Civil Defence/ Paramilitary force / Addl. Police Reserve forces/ Other skilled persons related to rescue & evacuation./ fire personnel.	Up to continuance of the relief operation.
POST DISASTER PHASE	Restoration Phase	1. All staff informed about the disasters, likely damages & effects. 2. Assisting in collection of damage statistics of private properties and distribution of assistance 3. Maintaining law and order.	All Departments	UP to continuance of the relief operation
	Coordination with line departments and Civil society organizations	1. Close Coordination with district administration & other philanthropic institutions. 2. Co-ordination with fire personnel during.	District Administration, Fire Officers	Till normal situation regains

OFFICIAL: ADC (SUB-DIV)/ OUT POST ADMINISTRATIVE CIRCLE OFFICERS / BDOS.

FUNCTION		ACTIVITY	INVOLVEMENT OF OTHER PERSONNEL/ MANPOWER & REQUIREMENT	TIME FRAME & REMARKS
PRE DISASTER PHASE	PREPAREDNESS	1. Vulnerability map of the Sub-division/ Block./ Circle & Causes. 2. List of cut off areas with alternate route map. 3. List of storage Points & facilities available, dealers of food stuffs. 4. Control room setup/ assignment of control room duty. 5. Pre-positioning of staff for site operation centers. 6. Arrangements of alternative communication / generator sets etc. 7. Assigning different responsibilities to All field officer/ officials. 8. Formation of village level disaster committee. 9. Formation of village level task forces. 10. Identification of shelter places with map. 11. Contacting with Police/ Fire Personnel.	1. All the Subdivision/ Block and Circle functionaries. 2. Police/ Fire Personnel/ Transports/ Village Level Task Force/ Trained Volunteers	FIR

	WARNING DISSEMINATION PHASE	Arrangement or Requisition of Light Vehicle to disseminate received warning information to the Population of Vulnerable/Weak Places. Dissemination of Warning/ Coordination with District Control Room. To warn the people of Probable Affected Areas to Leave for identified safer areas with their domestic animals and personal Belongings.	Transport Officer/ Private Parties for Vehicle to the probable affected areas.	As And When Required
ON/DURING DISASTER PHASE	Rescue & Evacuation Phase	Deployment of Police/Fire Brigade for search and rescue. Co-ordination with civil defence/NCC/NSS/Army, Para-military for rescue operation. Ensure availability of rescue materials. To put up the evacuees in the identified shelter places and arrange all common needs for them. Provide and arrange rescue kit. Clearance of road blockage for restoring Communication to affected Village.	All the Block & Circle functionaries. Police/Fire personnel/Transport officer/ Village level task force/trained Volunteers.	As and when required

POST DISASTER PHASE	RESTORATION PHASE	Collection of damage statistics From all authorities. Supervision of Relief operation and Restoration work In the Affected area. Keeping liaison with District Administration /DMO/Police etc.	All The Block & Circle Functionaries. Police/DMO/Fire Personnel/Transport/ Village Level Task Force/Trained Volunteers/.	Till completion of restoration works
	Coordination with line departments and civil society organization	Ensuring coordination with the Village committee. Co-ordination with district administration & with other line departments. Co-ordination with NGOs/Civil society organization etc.	All departments,	

OFFICIAL: DISTRICT MEDICAL OFFICER

FUNCTION		ACTIVITY	INVOLVEMENT OF OTHER PERSONNEL/ MANPOWER & REQUIREMENT	TIME FRAME & REMARKS
PRE DISASTER PHASE	Warning Dissemination Phase	1. Stock piling of Life saving drugs/ORS packets/ Halogen tablets. 2. Awareness message to stop the outbreak of epidemics. 3. Disease surveillance and transmission of reports to the higher authorities on daily basis. 4. Vaccination. 5. To obtain /transmit information on natural calamities of District Control Room. 6. Advance inoculation programme in the flood/ Cyclone prone areas. 7. Ensuring distribution of area of operation among the mobile team.	DVO, VOs, MOs, ICDS, Leading NGOs	FIR

ON/DURING DISASTER PHASE	Rescue & Evacuation Phase	1. Deployment of Medical staff. 2. Treatment of the injured persons and Transportation of the injured to hospitals.	Medical Staff, Vehicle	Soon after evacuation
	Relief Distribution Phase	1. Constitute mobile teams and visit the worst affected areas. 2. Dis -infection of Drinking water sources. 3. Opening of site operation camps. 4. Regular Health Check up at Shelter camp & affected areas. 5. Assigning responsibilities of the MOs for close monitoring of Health camps.	Mobile Vans, Tents.	Till abatement of calamity
POST DISASTER PHASE	Restoration Phase	1. Close monitoring of Health camps. 2. Ensuring adequate quanta ties of medicine/ disinfectants. 3. Ensuring surveillance of outbreak of water borne diseases/ Malnutrition.	Medical staff, ICDS, Village Committee, NGOs, Ambulance	Till normalization of situation
	Coordination with line departments and civil society organizations	1. Co-ordination with NGOs/ ICDS projects, village committee. 3. PHE	PHED, ICDS, Village Committee, NGOs	

Dissemination of DDMP

In order to the DDMP to be effective it must be disseminated at two levels

- To the district authorities, government departments, NGOs and other agencies and institutions within the district
- To general public

Effective dissemination of plan requires a well designed and focused training. Training activities are carried out under the guidance and direction of the Deputy Commissioner and the Department of Disaster Management, Arunachal Pradesh.

HELIPADS IN TAWANG DISTRICT

SL. NO	Location	Altitude 22above mean sea level)in Mtr.	Available Infrastructure
1.	Changproung Tawang	2590.8M	Approach Road, VIP Lounge, Passenger waiting terminal building
2	Lumla	691.94M	Approach Road, Compound fence and waiting building
3	Mago	3680M	No
4	Thingbu	3659M	No
5	Mukto	2591M	No
6	Gyamdong	2561M	No
7	Bongleng	1750M	No
8	Luguthang	3963M	No
9	Khet	2560M	No
10	Jangda	2870M	No
11	Bomja	1648M	No

DETAILS REGARDING HGBs/ GBs UNDER TAWANG SUB- DIVISION

SL. NO	NAME OF GBs	NAME OF VILLAGE (RECOGNIZED)	CONTACT NUMBERS
1	Shri Sang Tashi	Paikhar/ Yubu/	9436067594

		Dharmkhang	
2	Shri Lham Goley Kee	Gyangkhar/ Khartooth	
3	Shri Pem Wangdi	Teli	
4	Shri Dorjee Tsering	Bomba	9402615087
5	Shri Tsering Norbu	Tsaikhar	
6	Shri Phuntso Tsering	Lebrang	03794222475
7	Shri Thutan Tsowang	Khinmey	
8	Shri Genden Tsering	Kudung	03794202536
9	Shri Sonam Tsering	Shyo Meith	9436051357
10	Shri Tashi Batu	Shyo Toth	
11	Shri Lama Tashi	Surbi	
12	Shri Nawang Thinley	Gormang	
13	Shri Lama Ngui	Changproung	
14	Shri Khomtu	Seru	94360855584
15	Smti Lham Drema	Changbu	9402990600
16	Shri Dorjee Thinley	Sakpret	
17	Shri Nawang Tenzin	Pamaghar	
18	Shri Lungtan	Yusum	9436635977
19	Shri Sangey	Khirmu Meith	9402762451
20	Shri Pema Wangdi	Khirmu Toth	9402267738
21	Shri Passang	Shernup	
22	Shri Chobu	Tengdin / Grengkhar/ Lhargang	9402202935
23	Shri Nawang Tsetan Shri Dorjee Tsering	Audung -do-	9436441945
24	Shri Genden Dorjee	Kitpi	
25	Shri Tashi Wangchu	Boksar	
26	Shri Wangdi Tsering	Khardung	
27	Shri leki Wangchu	Soma/ Chaksam	9402602610
28	Shri Tsering	BOmdir/ Woikhar/ Langpu	9436679226
29	Shri Lobsang Dorjee	Namet / Amta / Tarmeng	9402219721

DETAIL REGARDING HGBs/ GBs UNDER JANG SUB- DIVISION.

SL.NO	NAME OF GBs	NAME OF VILLAGE (RECOGNIZED)
1.	Shri Rinchin Khandu	Yuithembu
2	Shri Pema Gombu	Dungse
3	Shri Sange Gombu	Karpu [RA-III]
4	Shri Sangey Nawang	Namazing
5	Shri Pema Tashi	Kharsa
6	Shri Urgen Tsering	Lhou Toth
7	Shri Tashi Khandu	Lhou
8	Smti Sangee Butt	Lhou / Chikor/

		Nangkor
9	Lama Tashi Norbu	Lhoudung/ Ringyang
10	Shri Tashi Tsering	Younda/ Paigong / Bazarline
11	Shri Sangey Wangchu	Lhou/ Tsodung/ Laiteng/Shurbu
12	Shri Phurpa Dorjee	Khamba
13	Ani Drema Tsetan	Gremeyteng Lhou
14	Shri Genden Tsering	Shyaro
15	Shri Nima Sangey	Jangda
16	Shri Tashi khandu	Rho
17	Shri Nima Norbu	Thingbu
18	Shri Tsering Chombey	Luguthang
19	Shri Pempa Tsering	Mago
20	Shri Lobsang	Tsochu
21	Shri Sonam Choikyong	Mirba
22	Shri Rinchin Khandu	Gomkelling
23	Shri Sange Norbu	Mukto
24	Shri Tashi Tsewang	Gongkhar
25	Shri Sang Tsowang	Gyamdong
26	Shri Passang Tsering	Khet Meith
27	Shri Sangey Phurpa	Khet Toth
28	Shri Tashi Norbu	Bomja
29	Shri Lham Tashi	Kharung
30	Shri Pem Thinley	Bongleng

DETAIL REGARDING HGBs/ GBs UNDER LUMLA SUB- DIVISION.

SL. NO	NAME OF GBs	Lumla Circle / Village Name
1	Shri Tsering Dondup	Lumla
2	Shri Lobsang Tsering	Hoongla
3	Shri Sonam Rinchin	Sazo
4	Shri Tashi Namgey	Kharteng
5	Shri Man Dorjee	Baghar
6	Shri Chanden Dakpa	Sherbang
7	Shri Shengchung	Gispu
8	Shri Genden	Gispu
9	Shri Man Sangey	Mangnam
10	Shri Norbu	Khuminthang
11	Shri Lobsang Lungdor	Thrillam
12	Shri Phurpa Tsering	Pharmey
13	Shri Tseten Norbu	Sakyur
14	Shri Gyepu	Phomang
15	Shri Drema Tsering	Soohung
16	Shri Tashi Dondup	Kungba
17	Shri Phurpa Tsering	Khozo
18	Shri Choikyong	Dugumba

19	Shri Lama Dorjee	Thongleng (Meith)
20	Shri Nima Sangey	Thongleng(Toith)
21	Shri Kota Lama	Moyu
22	Shri Jangchu Phuntso	Sangladung
23	Shri Dorjee Thinley	Sakpret
24	Shri Ngawang Tenzin	Phamghar
25	Shri Shengchung	Gispu
		Dudunghar Circle/ Village Name
1	Shri Lubudar	Kokhem
2	Shri Getong Dorjee	Muktur
3	Shri Kusung Dorjee	Loudung
4	Shri Rinchin Dorjee	Chellengdung
5	Shri Maling Gombu	Sanghar
6	Shri Karsang	Namtsering
7	Shri Kherekpu	Ramyang
8	Shri Gamyang Gombu	Dudughar
9	Shri Gen Tashi	Guntse
10	Shri Tashi Gombu	Yuser
11	Shri Khekyang Tsering	Marmey
12	Shri Dawa Dorjee	Dongmareng
13	Shri Tashi Dondup	Buri
14	Shri Rinchin Norbu	Bletteng
15	Shri Nima	Surbin
16	Shri Khoryong Tsering	Lumtsang
17	Shri Leki Norbu	Zemineng
18	Shri Jho Sonam	Phomghar
		Zemithang Circle / Village Name
1	Shri Sangey Tsetan	Shocktsen
2	Shri Nawang Chotta	lumpo
3	Shri Namgey	Shocktsen
4	Shri Tsering Dondup	Muchut
5	Shri DK. Shemokpa	Sirdi/ BTK
6	Shri Lama Norbu	Semrang/ L Khobleteng
7	Shri Tashi	Kraiteng/ U Khobleteng
8	Shri Wangchu	Kharman/ Keleteng
9	Shri Thapey	Shakti
10	Shri Langa Tsering	Thikshi

List of Nodal Officer for Disaster Management

Sl.No	Name	Designation	Department	Contract No.
1	Shri Lobsang Zimba	Dy, Director (Research)	Dy, Director Agri (Research)	9436051082
2	Shri Marke Karlo	DFCSO	DFCSO	9612525209
3	Dr. Avang Tamin	DVO	A.H& Vety	9862598135
4	Shri Thutan Jamba	Dy.SP (HQ)	Superintendent of police	9612541238
5	Shri Koncho Gyatso	HDO	Horticulture office	9436632974
6	Shri K.Komut	FO	Fishery Office	8794874727
7	Shri Thuptan Tsering	EO	Block Development office	7629975555
8	Shri N. Lamsang	LO	Research Office	9402266344

9	Shri Tenzin Tsering	LDC	Tourism Office	9402065215
10	Smti Diris Diengdoh	Supervisor	Child Development Project office	9436630483
11	Shri Sangey Norbu	EI	Industries Centre	9436895398/ 8414984717
12	Shri Dorjee Pema	MI	Assistant Director of Textile & Handicraft	9436051433
13	Shri Tsering Norbu	TO	Treasury office	7578941984
14	Shri Dhondup	BEO	Director of School Education office	7085327463
15	Dr. Wangdi Lama	DMO	Medical office	7085399418
16	Shri Nali Medo	JICS	Cooperative Society	940205500
17		DPO	Planning Office	9436248129
18	Smti Tsering Wangmu	Assistant Engineer	EE, PWD , Tawang	9436639104
19	Er. Doilyang Bida	EE, WRD	EE, WRD, Tawang	9436896480
20	Er. Phurpa Tsering	EE, RWD	EE, RWD, Tawang	
21	Er. Mindu Phuntyso	AE,	EE, Elect, Tawang	9436272621
22	Smti Dorjee Lhamu	AMDO	Assistance Mineral Development office	9436040899
23	Shri S. Tsering	DFO	Forest office	8729883377
24	Er. Doge Kamduk ,	AE	EE, PHED	9436837606
25	OC Tac ,55 BN	ITBP	ITPB	9485235183
26	Shri Dondup Norbu	DHPD (Lhou)	Assistant E engineer	9436008908
27	Er. Bige Sora	DHPD Tawang	Assistant Engineer	9402632595

IMPORTANT TELEPHONE NUMBERS

Control Room, NDMA New Delhi	TEL-011-26701728,FAX-011-26701729
Control Room, NDRF New Delhi	TEL-011-26107953, FAX-011-26105912 Mob-08010072169
1ST BN NDRF Guwahati Control Room	TEL-0361-2843555, FAX-0361-2840284 Mob-09435545951
STATE EMERGENCY OPERATION CENTRE (DISASTER MANAGEMENT) ITANAGAR	Mob-09436074396, 8257891310, 9615049061 WLL-0360-2006159
STATE POLICE CONTROL ROOM HQ, ITANAGAR	TEL-0360-2292317, 2212295 FAX-2214064
CHIEF MINISTER'S SECRETARIAT PPS to HCM OSD to HCM	TEL-0360-2006086, 2212341, 2212543(O) 2212439, 2212579(RES) FAX-2212579 TEL-0360-2212341, 2212543, 2244287 FAX-2212439, Mob-9436040027 TEL-0360-2006086, Mob-9402275044
CHIEF SECRETERY	TEL-0360-2212595, 2211187 FAX-2212446, 2215719, Mob-9436040073

IMPORTANT TELEPHONE NUMBERS OF TAWANG

Shri Sang Phuntsok IAS *Deputy Commissioner*	222221 (O), 222222 (R) Fax – 222259M/No.9436051027
Shri B. kamduk , APPS *SP*	2222231 (O), 222216 (R) Fax- 222231 M/No 9436051026
Shri Lobsang Tsering, ADC	222213(O) 9436051089
Shri Tsangpa Tashi,DDMO	222203(O) M /No.9402276014
Police Control Room	222278
Police Station *& Fire Service*	222235 (O & R) 224101
O.C. PS	222235 (O)
OC WT station	222278 (O) / 223090 (R)

Shri Pema Khandu, HCM 1-Mukto (ST) A/C	224777 (L/Dung) Mob.No. 9436040003
Shri Jambey Tashi, HMLA 1-Lumla (ST) A/C	264455(Lumla), Mob. No. 9436217484
Shri Tsering Tashi, HMLA 2-Tawang (ST) A/C	224551/224552(l/Dung) Mob. No. 9436220555

TELEPHONE NUMBERS/ MOBILE NOS. & E-MAIL IDs OF HoDs OF TAWANG DISTRICT

Sl. No.	Name	Desigtn.	Phone Numbers				
			Office	Residence	Fax	Mobile	Email Ids
1	Shri Sang Phuntsok IAS	DC	222221	222222	222259	9436051027	dc-twng-arn@nic.in
2	Shri B.Kanduk , APPS	SP	222231	222216 223497	222231	9436051026	Sp.tawang-arn@nic.in
3	Shri Lobsang Tsering	ADC				9436051089 8414009484	
4	Shri Sangey Tsering	DFO	222041	222241	222041	8729883377	dfotawang@gmail.com
5	Shri Lobsang Tsetan	PD [DRDA]	222309	222027	223726	8257831319	pddrdatwg@yahoo.co.in
6	Mrs Dondup Pema	CDPO	222493	222498		9436898481	dondupp@yahoo.com
7	Dr A. Tamin	DVO	222289	222319		9862598135	
8	Shri Lobsang Zimba	DDA	222215	223612			
9	Shri MC Adak	DFDO	222505	222505		9436058236	madak.2011@gmail.com
10	Shri K Chombey	DHO	222414	222437		9402675574 8258839314	kchhombey@gmail.com
11	Shri Jime Jangmu	ARCS	222313	224789		9402878087	
12	Smti Tsering Drema	i/c DDI	222234	222326		9774996861	
13	Mrs. C Lowang	ADTH	222638			9436221957	clowang20@gmail.com
14	Shri V P Singh	DD UD	222756			9402270032	udtawang@gmail.com
15	Dr Wangdi Lama	DMO	224579	224291	222339	9436413047	dmotawang@gmail.com
16		DPO	222581	222576		9436248129	
17	Shri Choikyong Tsering	FAO	222208	224050		9485245968	
18	Shri Lobsang Choider	BDO	222269	222009		8259906710	
19	Smti Tsering Yangchin	DRO	222345	223398		9436635508	
20	Shri Sonam Tsering	I/c DACO				9402477663	
21	Shri Hrider Phuntsok	I/c DDSE	222304	222425		8256948804	
22	Shri Tsering Norbu	T O	222206			7578941984	
23	Shri Gumba Riba	DSO (Stat)	222244	222015		8413936394	
24	Shri Marke Karlo	DF&CSO	222308	222267			
25	Shri AK Atreya	CE PWD	222417	222212	222225	8730011997	tawangpwd@gmail.com
26	Shri G. Mize	EE PHED	222507	222239		9402286775	
27	Shri P Tsering	EE RWD	222277	223045		8414050123 9435591681	tseringphurpa1111@gmail.com
28	Shri D Bida	EE WRD	222982	223116		9436896480	eewrditanagar@gmail.com
29	Shri Sang Dorjee	EE Elect	222249	222582	223745	8257980340	electricaltawang@gmail.com
30	Shri Lama Tsering	EE DHPD	277789			9436055777	
31	Shri Sajish Kumar	EE E&M	272297			9774148816 9402462485	kpsajish@gmail.com

32		Principal GHSS, Tawang	222205				ghsstawang@yahoo.in
33	Dr. Yeshi Gyesen	Principal College Tawang				9436837004	
34	Shri Damge Niri	JMFC	222210	222246		9436056189	damgeniri@gmail.com
35	Shri L Chodup	PO APEDA	224087	223613		9436051265	choduplobsang@yahoo.in
36	Mrs Tsering Dekey	DTO	222567 222359			9402477544	dto.tawang@gmail.com
37	Shri B K Roy	DLIO	222486	223147		9436677253	bikashkaliroy@gmail.com
38	Shri JK Saikia	SS APSTS	222406	222496		9436041655	
38	Shri Sange Norbu	i/c DLRSO				9436639930	
39	Dr.AK Tripathi	Sr Scientist & Head KVK	224608				kvktawang123@gmail.com
40	Shri Sanjeet Kumar	DIO	222563			9959671321	
41	Shri Lham Tsering	i/c Supdt T& E				9862555720	
42	Shri Nawang Chotta	DIPRO	222316			9436051198	
43	Smti Dorjee Lhamu	AMDO				9436040899	
44	Shri Sangey Tsering	APO				9436067685	
45	Shri Tenzin Lhendup	AO				8974604668	

ADMN. OFFICERS OF TAWANG HQS

1	Shri Lobsang Tsering	ADC, Tawang	222213	222211		9436051089
2	Shri Choiki Dondup	EAC, Tawang				8415008080
3	Shri Rinchin Leta	EAC, Tawang				9436051017
4	Shri Tenzin Jambey	EAC, Tawang				8256978965
5	Dr. Mrs Dechin Droka	CO, Tawang				9436246816
6	Shri Sange Norbu	CO, Tawang				9436639930

ADMN. OFFICERS OF OUT POST

1	Shri L.W Bapu	ADC, Jang	255588	254815	254856	9402474092
2	Shri RD. Thougon	ADC, Lumla	264213	264202	264450	9436222913
3	Shri Tashi Dondup	EAC, Lumla				9402872141
4	Smti Tsering Chodon	CO , Kitpi				8256964687
5	Shri Pemtan Monpa	EAC, Thingbu				9402065159
6	Shri Dorjee Wangchu	CO, Mukto	244770			9436041815
7	Shri Thutan wangchu	CO , Lhou	277820			9436067890

8	Shri Phuntso Tashi	CO, Bongkhar				9436058181
9	Shri Tamo Dada	CO, Zemithang				9436896667
10	Shri Nawang Thutan	CO , Lumla				9436052823
11	Ms Maloti Tamin	CO, Dudungkhar				9862253462
12	Ms Hibu Dindie	CO, Zemithang				8414822555

OTHER IMPORTANT TELEPHONE NUMBERS

DySP	222930 (O) / 222533 (R) M-9485237021
CI	223253(O)/222279(R)
OC SB	222323(O) M-9436221434
PA to DC	222221 (O)/222251 (R) – M-9436630156
CA to DC	224566 (O)/222367 (R)- M-9436630142
Power House	222214
DG Set	222296
PS Tawang	222235
PS Jang	254808
PS Lumla	264201
WT Station	222278
Gas Agency	222555
Army Exchange	222338
Telephone Exchange	222344
SDO (T)	222300
Enquiry	197 / 198
Indoor Distt Hospital	224432
Power House	222214
Water Supply (Enquiry)	222363
AIR Tawang	222227
Petrol Pump	223346

Principal KV 223239 (O) / 223741 (R) – M 9436856296

Lama, Mahabodhi Centre, Teli - 9436692031

Manjushree Vidyapith 222108/9436051155

Circuit House 224580

Tourist Lodge 222359

ARMY AND PARAMILITARY, TAWANG

Commander 190 Mtn Bde 223453

38th Bn, SSB, Tawang 222290

Shri Deepak Semalti Dy Commandant ITBP 7773876588

763 BRTF TAWANG

Commander, 763 BRTF 272278 M-9456195105

EE (Civil) OC 125 RCC 224732 M- 9862998986

OC, 90 RCC 254820 M-9403983428

Bazaar Secretaries:

1. Smti Tsering Drema , Old Market 222802 (R)/9436898953
2. Smti Tsetan Doka , New Market 9402032833
3. Shri Tsangpa Tashi, Nehru Market 224468 / M 09402475782

DISASTER MANAGEMENT OFFICER AT HQ & SUB-DIVISION:

1. Shri Nima Tashi, SDMO Lumla 9402949147
2. Shri Lobsang, SDMO Jang 9402877729
3. Smti Thutan Pema, FO (DM) 9436251233

ABBREVIATIONS:

1	DC	Deputy Commissioner
2	SP	Supdt of Police
3	DFO	Divisional Forest Officer
4	ADC	Additional Deputy Commissioner
5	BDO	Block Development Officer
6	CDPO	Child Development & Protection Officer
7	CEO	Chief Executive Officer
8	DAO	District Agriculture Officer
9	DCR	District Control Room

10	DDMO	District Disaster Management Officer
11	DDMA	District Disaster Management Authority
12	DEOC	District Emergency Operation Centre
13	DF&CSO	District Food & Civil Supply Officer
14	DHO	District Horticulture Officer
15	DMO	District Medical Officer
16	DVO	District Veterinary Officer
17	EE	Executive Engineer
18	NDMA	National Disaster Management Authority
19	NDRF	National Disaster Response Force
20	SDMA	State Disaster Management Authority
21	SDMO	Sub-Divisional Disaster Management Officer

Towards a safer Tawang

DISTRICT DISASTER MANAGEMENT PLAN

TAWANG

2019-20

Contract details:

Code 03794

21. DC (o)222221,(R) 222222
M0bile 9436051027
Email ID: dc-twng-arn@nic.in

22. ADC HQ 222213, Mobile 9436051089

23. SP (O) 222231,(R) 222216 , Mobile 9436051026
Email ID:

24. DDMO, Mobile 9402276014/8256971149
Email ID: tsangta6@gmail.com

25. DEOC 222203/9436220356/8256971149

26. Police Control Room 222235

DISTRICT DISASTER MANAGEMENT PLAN TAWANG 2019-20