



DISTRICT DISASTER MANAGEMENT PLAN

OF

DISTRICT LAHAUL AND SPITI, HIMACHAL PRADESH

PREPARED BY: -

**DISTRICT DISASTER MANAGEMENT AUTHORITY
(DDMA) LAHAUL AND SPITI**

UNDER

**{The Government of India-UNDP Disaster Risk
Reduction (DRR) Programme (2009-12)}**

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Abbreviations:

ARMVs	–	Accident Relief Medical Vans
BIS	–	Bureau of Indian Standards
CBOs	–	Community Based Organisations
CBRN	–	Chemical, Biological, Radiological and Nuclear
CSR	–	Corporate Social Responsibility
CRF	–	Calamity Relief Fund
CWC	-	Central Water Commission
DDMA	–	District Disaster Management Authority
DCMC	-	District Crisis Management Committee
DM	–	Disaster Management
DMC	-	Disaster Management Cell
EOC	-	Emergency Operation Centre
GIS	–	Geographic Information System
GSI	-	Geological Survey of India
Gov	–	Government of India
GPS	–	Global Positioning System
HPC	–	High Powered Committee
HIPA	-	Himachal Institute of Public Administration
IAY	–	Indira Awas Yojana
IAG	-	Inter Agency Coordination
ICIMOD	-	International Centre for Integrated Mountain Development
IRS	–	Incident Response System
ICT	–	Information and Communication Technology
IDRN	–	India Disaster Resource Network
IDKN	–	India Disaster Knowledge Network
IMD	-	Indian Meteorology Department
ITK	–	Indigenous Technical Knowledge
MFA	-	Medical First Aid
MHA	–	Ministry of Home Affairs
NCCF	–	National Calamity Contingency Fund
NDEM	–	National Database for Emergency Management

NDMA	–	National Disaster Management Authority
NDMF	–	National Disaster Mitigation Fun
NDRF	–	National Disaster Response Force
NEC	–	National Executive Committee
NGOs	–	Non-Governmental Organisations
NIDM	–	National Institute of Disaster Management
NSDI	–	National Spatial Data Infrastructure
NYKS	–	Nehru Yuva Kendra Sangathan
PPP	–	Public-Private Partnership
PRIs	–	Panchayati Raj Institutions
QRT	–	Quick Response Teams
RH	-	Reproductive Health
SAARC	–	South Asian Association for Regional Cooperation
SAR	-	Search and Rescue
SASE	-	Snow and Avalanche Study Establishment
SCMC	-	State Crisis Management Committee
SDMA	–	State Disaster Management Authority
SDRF	–	State Disaster Response Force
SEC	–	State Executive Committee
SOPs	–	Standard Operating Procedures
UN	–	United Nations
L0 Disaster	–	Disaster which can be managed at the District Level
L1 Disaster	–	Disaster which can be managed at the State Level
L2 Disaster	–	Disaster which is beyond the coping capacity of state and intervention of National Govt. is required.

Responsible Officer– Chief Secretary at the State level and Deputy Commissioner at the District Level (As per the IRS Guidelines of NDMA)

Objectives of District Disaster Management Plan (DDMP)

Vagaries of nature can cause disaster of such magnitude and such intensity that it becomes impossible to respond unless there is preparedness to cope with the effect in the pre- as well as post-disaster period. Preparedness is the best response to such situation in order to mitigate the effects and to reduce losses in terms of life and property. With increasing anthropogenic pressures, natural disaster have become all the more unpredictable and the fury unleashed by natural forces on human kind all the more ferocious causing far greater loss of life and property. While there is no doubt that human kind has now got to make amends by restoring ecological balance, it is also true that human kind has got to be prepared for the worst. Increased population densities, environmental degradation, and global warming adding to poverty make the impacts of natural hazards worse.

In the International decade for natural Disaster Reduction a world Conference on natural Disaster Reduction was organized in 1994 under the aegis of the united Nation in partnership with non-governmental organization (NGOs), the scientific community, business, industry and media to deliberate on reduction of human suffering due to natural disasters. It was concluded that disaster prevention, mitigation, preparedness and relief along with environmental protection and sustainable development are closely interrelated and hence nation should incorporate them in their development plans.

Paradigm Shift in Disaster Management

On 23rd December, 2005, the Government of India took a defining step by enacting the Disaster Management Act, 2005, which envisaged creation of the National Disaster Management Authority (NDMA) headed by the Prime Minister, State Disaster Management Authorities (SDMA) headed by the Chief Ministers, and District Disaster Management Authorities (DDMA) headed by the District Magistrates or Deputy Commissioners as the case may be, to spearhead and adopt a holistic and integrated approach to disaster management (DM). There will be a paradigm shift, from the erstwhile relief-centric response to a proactive prevention, mitigation and preparedness-driven approach for conserving development gains and to minimize loss of life, livelihood and property.

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Section 2 (e) of the Act defines disaster management as follows:

According to "Section 2(e) "disaster management" means a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for-

- (i) prevention of danger or threat of any disaster;
- (ii) mitigation or reduction of risk of any disaster or its severity or consequences;
- (iii) capacity-building;
- (iv) preparedness to deal with any disaster;
- (v) prompt response to any threatening disaster situation or disaster;
- (vi) assessing the severity or magnitude of effects of any disaster;
- (vii) evacuation, rescue and relief;
- (viii) rehabilitation and reconstruction;"

The definition encompasses the cycle of disaster management, which has the elements of pre-disaster phase such as prevention, mitigation, preparedness and capacity building. The SDMA and DDMA in the State were created on 1.6.2007 and these authorities would bring out a qualitative change in dealing with disaster in the State.

Objectives of the DDMP:

The main objective of the District Disaster Management Plan (DDMP) is to prevent loss of life and property through preparedness, prevention, mitigation and quick and coordinated response. The Disaster Management Plan provides for uniformity in approach and perception of the various issues at hand thus avoiding undue complications. The plan at the same time provides for the coordination mechanisms for different agencies right from the field level to the District Head Quarter and beyond. Thus, it ensures efficiency in terms of response and optimal utilization of resources. Moreover it keeps the administration in a state of readiness to face any eventuality.

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The DDMP is an attempt at preparing a multi-disaster action plan essentially concentrating on institutional setup and provides for hazard specific roles and responsibilities of primary and secondary agencies. It identifies the operational structure and the coordination mechanisms, the roles and responsibilities of various agencies along with the standards of service expected from them, the information and monitoring tools and modes of communication, and the monitoring and evaluation components.

Disaster risk reduction should be part of every-day decision making. This framework assists in the efforts of administration and communities to become more resilient to, and cope better with the hazards that threaten their development gains. The DDMP recognizes a close link between development and disasters and comes out with practical ways as how disaster risk reduction (DRR) issues can be integrated into development planning, policies and programmes.

Chapter –I

District Lahaul & Spiti – an Introduction

Lahaul & Spiti is a big district having international boundary with Tibet. It attained the status of a district in the year 1960. Till then it was merely a Tehsil of Kullu Sub-division. The valleys, Mountains, glaciers, rivers, forests, pastures, Gompas (monasteries) and ancient buildings of the former ruling dynasty are the principal objects of study.



Fig 1. Lahaul & Spiti

The rugged awe-inspiring snow clad mountains are standing invitation to the hikers, mountaineers and adventurers. The entire district is full of natural scenery exorting the tourists and visitors to explore and imbibe its hidden grandeur. The customs, myths, beliefs and conventions of the simple unsophisticated people are the unique features of this border highland. Every village or a hamlet has a prayer flag fluttering over the Buddhist monastery. These shrines are the centers of the cultural life of the people that have influenced their religious beliefs for centuries and round which their social life revolves.

Origin of the Name of the District

Lahaul & Spiti, which now form, a district of Himachal Pradesh, bordering Tibet, were at one time separate Himalayan waziries or cantons of the Kullu sub-divisions, and Kullu itself formed a part of Kangra District of Punjab. As is clear from the name 'Lahaul & Spiti', the District comprises two different mountains tracts, one known as Lahaul and the other as Spiti. Hence the name of the District came into being with the formation of these two parts into a revenue District. The names, Lahaul & Spiti, have different origins. Hiuen Tsiang stated Lahaul to be 1800 or 1900 li (575 or 610 Km) distant by road from the middle of Kiu-lu-to (Kullu). It is a gross overestimate as the first village in Lahaul is only about 70 kms from Sultanpur. Despite this error, whatever its source may be, Lahaul is clearly the country referred to here. But the Tibetan Li-yul has also been identified by Rock hill with Khotan. If this is correct Hiuen Tsiang's placing Lo-u-lo at 1800 or 1900 li north of Kullu might be intelligible though an under-estimate. Probably Hiuen Tsiang confused the two countries

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as Li-yul (Khotan) and Lo-u-lo (Lahaul) in his estimate of distances, admittedly derived from hearsay. In ancient Buddhist scriptures, 'Padma thangyang' and 'Mam-kambum' there is mention of a country named Khasa or Hasha to the south of Ladakh and Zangskar. It is possible also that 'Garzha' may be corruption of Khasa or Hasha. Between the 6th century B.C. and the 5th century A.D., the Saka and Khasa tribes, after having been driven out from Central Asia by the Huns, crossed over into India. many of these settled down in the valleys of Mid-Himalayas between Garhwal and Ladakh. This is borne out by the numerous remains of their graves found in these valleys. There is a nullah near Keylong known as Shaks, which seems to have taken its name after the Saka tribe settled in the Bhaga valley.

The History of the District as an Administrative Unit

The two units of the district i.e. Lahaul & Spiti, have separate historical backgrounds. In the distant past Lahaul had been changing hands between the rulers of Ladakh and Kullu. In the second half of the seventeenth century with the disintegration of Ladakh kingdom, Lahaul passed into the hands of the Kullu chief. In 1840, Maharaja Ranjit Singh took over Lahaul along with Kullu and ruled over it till 1846 when the area came under the sway of the British. From 1846 to 1940, Lahaul formed part of the Kullu sub-division of Kangra district and was administered through the local Jagirdars/Thakurs. One of the Thakurs was designated as **Wizier** of Lahaul & was invested with judicial and executive powers. Another Thakur was given the powers of a Revenue Officer. These functionaries exercised traditional as well as other power conferred by the Government. The Assistant Commissioner Kullu used to visit the area once a year for a month or so. In the late thirties the unprecedented prosperity of the people through growing **kuth** and their consequent awakening created a formidable challenge to the power and influence of the **Wizier** of Lahaul, which gradually started declining. The inadequacy was soon noticed by the Government which considered the extension of the regular system of administration. Accordingly in 1941, a separate Sub-Tehsil comprising Lahaul & Spiti was formed and a Naib-Tehsildar was posted at Keylong thereby divesting the Thakurs of their powers. The system remained in vogue till June, 1960 when Lahaul & Spiti district came into being. Simultaneously, Lahaul was constituted into a separate Tehsil, and, later on it was formed into a Sub-Division.

The East India Company took over the possession of the Spiti portion in the year 1846 after the cessation of cis-Satluj States as a result of the Anglo-Sikh War. Before that it formed a part of Ladakh, a subsidiary of Jammu & Kashmir. Because of its remoteness and poverty of natural resources, the British following the example of the Ladakhi rulers, did not introduce any substantial changes in the administrative set up of the territory. The Nono of Kyuling was recognized as the hereditary Wizier of Spiti (re-affirmed by the Spiti Frontier Regulations of 1883) and was supposed to represent the British India Government. He collected the land revenue for the Government, his judicial jurisdiction included trial of all criminal cases, except cases of murder; and he performed all functions and enjoyed all necessary powers for the fulfillment of his tasks and duties, as laid down in the regulations of 1883. In 1941, Spiti, with Lahaul, was constituted into a separate Sub-Tehsil of Kullu Sub-Division which had its headquarters at Keylong. Later on, after the formation of Lahaul & Spiti into a district, in 1960, Spiti was formed into a Sub-Division with its headquarter at Kaza.

Administrative Set Up:-

SINGLE LINE ADMINISTRATION

The chief administrative authority within the District vests in the Deputy Commissioner, who more due to single line administration is not only District Magistrate and Collector but for all intents and purposes, is also the head of all the District level offices. In addition to the usual and traditional role as Deputy Commissioner he has multifarious duties. As Deputy Commissioner, he is the executive head of the District looking after development, Panchayats, local bodies and civil administration. As District Magistrate, he is responsible for the maintenance of law and order and is the head of Police and prosecuting agency in the District. As Collector he is at the apex of the revenue administration and is responsible for the collection of land-revenue and all dues recoverable as arrears of land-revenue. He is also revenue-applause authority. He ensures the successful execution of plan-schemes and co-ordinates the functions of all development departments and in fact due to the peculiar circumstances and situation of the area his functions are largely those of a Development Officer. In order to avoid procedural delays and in the interest of early disposal of work, he has been given special and enhanced powers. He has been declared Head of Department for all offices functioning in the district

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The concentration of powers in the Deputy Commissioner is primarily to ensure the speedy disposal of work and execution of development schemes. These arrangements have worked very well. The people, who were hitherto unused to the immediate presence of a high powered executive and were, therefore initially apprehensive, that the induction of such an elaborate administrative machinery might mean a certain curtailment of their idyllic freedom, are now convinced that from small *waziris* to a sub-tehsil and then to a ful-fledged District, the change has been all along for the better.

The Deputy Commissioner in the District is assisted by the usual compliment of ministerial and executive staff. Three Sub-Divisional Officers (Civil) each posted at Keylong, Udaipur and Kaza are invested with powers of Sub-Divisional Magistrate and Collector. The two Tehsildars posted in Keylong Tehsil & Kaza Tehsil have the powers of the Executive Magistrate and Assistant Collectors 1st grade. It has also one Sub Tehsil namely Udaipur.

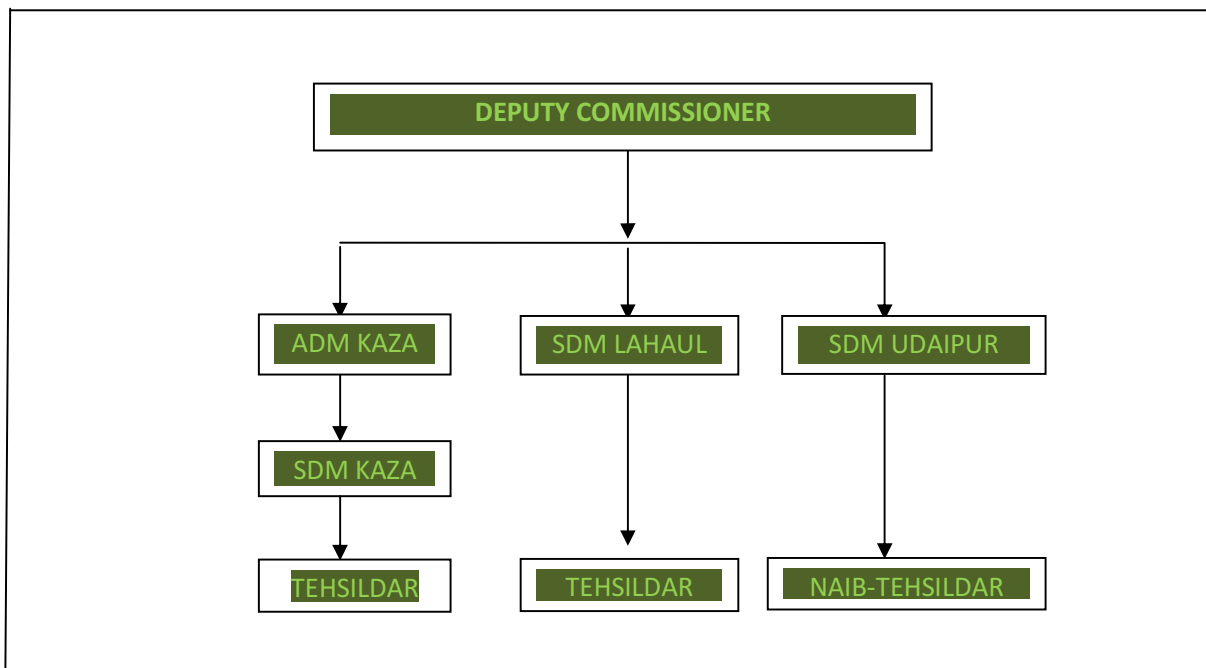


Fig 2. Administrative Setup in Lahaul & Spiti District.



Fig 3. D.C. Office Lahaul & Spiti (at Keylong).

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Fig 4. Map of Lahaul & Spiti District.

Statistical Profile of District Lahaul and Spiti:

Population As per 2011 Census	
Male	16,455
Female	15,073
Rural	31,528
Urban	NIL
Sex Ratio	916 (No. of females per 1000 males)
0-6 population	Total = 2994: Male – 1487; Female – 1507
Density of Population	2 per sq. km.

Climate												
Temperature	[With respect to Keylong for the year 2011]											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min (in deg cent)	-16.9	-17.4	-8.7	-1.3	4.8	4.0	9.8	4.6	5.7	-0.5	-1.7	-7.5
Max (in deg cent)	3.2	9.2	13.3	17.4	26.3	30.5	30.0	28.4	24.4	18.9	15.5	13.5

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Total Rainfall(in mm)	0.00	0.00	0.00	0.00	13.05 mm	29.00 mm	3.4 mm	140.00 mm	26.00 mm	5.00 mm	0.00	0.00
Total Snowfall (in cms)	60.00 cm	113.0 cm	34.00 cm	156.0 cm	0.00	4.00 cm	0.00	13.00 cm	0.00	0.00	0.00	2.00 cm

Literacy Rate of Rural Population- As Per 2011 Census	
Total	77.34
Male Literacy	86.97%
Female Literacy	66.50%

Geographical Area (In Hectares) (Source: District Statistical Office, Lahaul and Spiti)	
Total Area	9,11,195
Forest Land	1,37,376
Cultivated Land	3398
Non-Cultivable	7,70,421
Altitude	Between 4480 m to 6400 m above sea level.
Longitude	Between 76° 46' 29° and 78°41' 34" East Longitude
Latitude	Between 31° 44' 57" and 32° 59'57" North Latitude
Major Rivers	Chandra Bhaga and spiti river.

Distances	
Nearest Railway Station	Jogindernagar - 282 Kms
Nearest Airport	Bhuntar - 166 Kms

Administrative Setup	
No. of Sub Divisions	3 – Lahaul, Spiti, Udaipur
No. of Tehsils	2 – Lahaul and Spiti.
Sub Tehsil	1 – Udaipur.
Development Blocks	3 – Lahaul , Spiti and Sub Block Udaipur.
Panchayats	41
Villages (2001)	521

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Education (2010-11)	
Primary Schools	204 No. (367 teachers and 1800 students)
Middle Schools	36 No. (144 teachers and 1000 students)
High/Sr. Sec. Schools	35 No. (431 teachers and 900 students)
Colleges	1-Govt. College Kukumseri
Others	ITI Kaza and Udaipur, DIET Tandi.

Animal Husbandry (2010-11 Statistical Profile of Lahaul and Spiti)	
Hospitals	14
Dispensaries	43
AI Centres	40
Dispensary (MMAPDY)	1
Sheep & Wool Ext. Centre	1
Other Veterinary Facilities Mobile Unit	1

Cattle Population	As per 18 th all India livestock census
Cattle	15484
Equines	3324
Sheep	36820
Goats	8730
Yak	28
Poultry	2927
Others	442

Health Facilities (2010-11) (Source: District Statistical Office, Lahaul and Spiti)	
Regional Hospitals	1(Keylong)
Community Health Centres	3 (Udaipur, Shansha and Kaza.)
Primary Health Centres	16 (Sissu,Gondhla, Gemur, Tholong, Jahalman, Thiro, Tingret, Darcha, Phura, Tindi,Hinsa, Tabo, Sagnam, Losar, Hansa, Kibber)
Sub-Centres	36
Civil Dispensaries	5
Ayurvedic Hospitals	1(Keylong)
Ayurvedic Health Centres	21

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Homeopathy	Nil
Bed Capacity	Allopathic– 126; Ayurvedic–10.

Industrial Units	
Large Enterprises	NIL
Micro/Small Enterprises	328
Investment	215.71 Lakhs
Employment	640 (Numbers)
Type of Enterprises	<p>Major: Handlooms and Handicrafts (These are household activities. Shawls, Pattis, Carpets are woven on Handlooms and Wooden/Metal Craft depicting various features of Tibetan Art is prevalent in district Lahaul and Spiti)</p> <p>Minor: Fabrications (Steel and Wooden Furniture, Food Processing, Auto Repair, Oil Extraction Units, Wool Carding etc.)</p>
Handloom Units	224

General			
Number of Post Offices	Head Post Office	1-Keylong.	
	Sub Post Offices	7-Kaza, Tabo, Losar, Udaipur, Gondhla, Jahalman and Ruding.	
	Branch Post Offices	38	
Nationalized Bank Branches	Punjab National Bank	Keylong	
	UCO Bank	Jahalman	
	State Bank of India	Keylong, Kaza, Hansa, Tabo, Gondhla, Gemur, Udaipur.	
	State bank of Patiala	Keylong	
Name of the Lead Bank	State Bank of India		
Cooperative Bank Branches	Keylong, Udaipur, Shansha, Sissu, Kaza.		
Petrol Pumps	Tandi and Kaza.		
Major Crops	Kharif	Cereals	Maize,
		Pulses	Rajmash,
		Others	Kathu, Kuth, Hops, Manu.
	Rabi	Cereals	Wheat, Barley
Vegetables	Tomato, Cabbage, Cauliflower, Peas, Reddish, Turnip, Potatoes.		
Horticulture	Apples, Walnuts, Pears, Cherry fruit.		
Electrified Villages	100%		

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Flaura and Fauna	Entire portions of Lahaul and Spiti are situated high in the Himalaya, where vegetation is sparse and consists primarily of hardy grasses. Alpine species such as juniper, blue pine, hippphal, willows, popular, spurs, pyres, supp can be found at elevations between 11500 to 16000 feet. At lower altitudes, temperate-climate trees are found, including Chil, Kail, Devdar, birch, apple, and walnut. Yaks and Churu, Cows are reared by local farmers in whole of this district. Scattered populations of the Himalayan brown bear, lbex, snow leopard, himalyan fox, musk dear, snow wolf may also be found.
Roads	Total Length = 1218 KMS

Development Indices (2001 Census)	
Poverty	1% of the total population
District Domestic Product	Rs. 44,742 lakh
Per Capita Income	53,253
Human Development Indices	0.590 (1997) No. 1 in the State.

Chapter - 2

Hazard Profile & Risk Analysis of Lahaul and Spiti District

Lahaul and Spiti is situated in Trans Himalayan zone of Himalayas and is a mountainous district having high mountain ranges considered to be a sedimentary wedge between colliding plate margins enclosing deep narrow valleys/gorges of River Chandra Baga and Spiti and its numerous tributaries.

The district has unique climatic conditions. Winters are severe with heavy snowfall causing Glaciers and Avalanches. Summers are mild with rainy season in most of the Lahaul and Udaipur Sub-Divisions of the district. Spiti Sub-Division of this district forms part of 'Indian Cold Desert' and receives scanty rainfall as it falls in rain-shadow zone of Himalayas.

The unique Geo Climatic conditions of the District makes it vulnerable to various kinds of natural hazards/disasters which have been compounded by increasing human interventions with the nature. There is need to identify and delineate the Hazard Risk zones of the District (areas vulnerable to various hazards) which will provide the necessary information to work on micro-level and to map the active and dormant processes of the hazards.

The disasters, which generally occur in this district and its various areas prone/vulnerable to various kinds of disasters, are as under:

Hazard Type	Name of Sub-Division & Hazard Vulnerability		
	Lahaul	Udaipur	Spiti
Earthquakes	High	High	Moderate
Floods	High	High	High
Landslides	High	High	High
Forest Fires	Low	High	Low
Domestic Fires	Moderate	Moderate	Moderate
Road Accidents	Moderate	Moderate	Moderate
Avalanches	High	High	Low
Cloud Bursts	High	High	Moderate
Drought	Moderate	High	Moderate

Fires are quite frequent during the summers due to usage of inflammable material for house construction and wood for fuel. Due to the dryness and absence of moisture forests easily catch fire too. Floods are common during the rains. Cloud bursts are short and devastating while

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heavy continuous rains flood low lying habitations and saturate the strata leading to land slide and subsidence. Flooded natural drainage channels cause heavy erosion. During the dry season drought situations arise. Due to the mountainous terrain natural sources dry up as groundwater level falls. District Lahaul and Spiti located on the folds of the Himalayas lies in the earthquake Zone IV and is highly prone to earthquakes.

Risk Analysis of Lahaul and Spiti District

I. Earthquakes

District Lahaul and Spiti lies in western part of young folded mountains of Himalayas which is still instable. The district fall in seismic zone 4 and 5 High damage risk zone (MSK VIII) and very High damage risk zone (MSK IX or more) respectively. From the analysis of the map below it is clear that the whole area of this district is prone to earthquakes. As per the recorded history of earthquakes this district has been hit many times by earthquakes having magnitude of more than 4.0 and above.



Figure 5: Concentration of Historical earthquakes in HP

Physical Vulnerability

As per the housing statistics contained in the table 1 below, 76.7% of the building stock of the district falls in Category A which is highly susceptible to earthquake damage. A lot of wood is used in the house construction in the district hence the houses are also vulnerable to fire hazard resulting due to earthquake shaking. Steep slopes in the district would result into landslides and block the arteries of the district resulting in delay in emergency response.

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Table 1: Distribution of House by Predominant Materials of Roof and Wall and Level of Damage Risk												
Table No :HP 12			State: HIMACHAL PRADESH				District: Lahaul & Spiti					
Wall/Roof		Census Houses		Level of Risk under								
		No. of Houses	%	EQ Zone				Wind Velocity m/s				Flood Prone Area in %
				V	IV	III	II	55&50	47	44&39	33	
				Area in %				Area in %				
					100						100	
WALL												
A1-Mud Unburnt Brick Wall	Rural	4905	28.48									
	Urban											
	Total	4905	28.48		H						M	
A2- Stone Wall	Rural	11364	66.98									
	Urban											
	Total	11364	66.48		H						L	
Total-Category-A		16269	94.46									
B-Burnt Bricks Wall	Rural	184	1.06									
	Urban											
	Total	184	1.06		M						L	
Total-Category-B		184	1.06									
C1-Concrete Wall	Rural	115	0.66									
	Urban											
	Total	115	0.66		L						VL	
C2-Wood Wall	Rural	26	0.15									
	Urban											
	Total	26	0.15		L						M	
Total-Category-C		141	0.81									
X-Other Material	Rural	628	3.64									
	Urban											
	Total	628	3.64		VL						M	
Total-Category-X		628	3.64									
TOTAL BUILDINGS		17222										
ROOF												
R1-Light Weight Sloping Roof	Rural	15327	88.99									
	Urban											
	Total	15327	88.99		M						H	
R2-Heavy Weight Sloping Roof	Rural	24	0.13									
	Urban											
	Total	24	0.13		M						L	
R3-Flat Roof	Rural	1871	10.86									
	Urban											
	Total	1871	10.86		<i>Damage Risk as per that for the wall supporting it</i>							
TOTAL BUILDINGS		17,222										

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Probable Maximum Precipitation at a station of the district in 24 hrs is 720mm	
<p>Housing Category : Wall Types</p> <p>Category-A : Buildings in field-stone, rural structures, unburnt brick houses,clay houses.</p> <p>Category-B : Ordinary brick building: buildings of the large block &prefabricated type, half-timbered structures,building in natural hewn stone.</p> <p>Category-C : Reinforced building well built wooden structures.</p> <p>Category-X : Other materials not covered in A,B,C. These are generally light.</p> <p>Notes: 1. Flood prone area failure that protected area which may have more severe damage under failure of protection works. In some other areas the local damage, may be secure under heavy rains and chocked drainage.</p> <p>2. Damage Risk for wall types is indicated assuming heavy flat roof in categories A, B and C (Reinforced Concrete) buildings. 3. Source of Housing Data: Census of Housing, GOI,2001</p>	<p>Housing Category : Roof Type</p> <p>Category-R1- Light Weight (Grass, Thatch,Bamboo,Wood,Mud,Plastic,Polythene,GI Metal,Absbestos Sheets,Other Material)</p> <p>Category-R2-Heavy Weight(Tiles,Slate)</p> <p>Category-R3-Flat Roof (Brick,Stone,Concrete)</p> <p>EQ Zone V: Very High Damage Risk Zone[MSK>IX] EQ Zone IV : High Damage Risk Zone[MSK VIII] EQ Zone III : Moderate Damage Risk Zone[MSK<VII] EQ Zone II : Low Damage Risk Zone [MSK<VI] Level of Risk : VH=Very High ; H=High; M=Moderate; L=Low; VL=Very Low</p>

(Source: BMTPC Vulnerability Atlas of India 2006)

According to Roger and Bilham (Figure 5) due to the accumulation of stress along the India and Eurasian Plate over the years there is strong possibility of major earthquake in this region of the Himalayas.

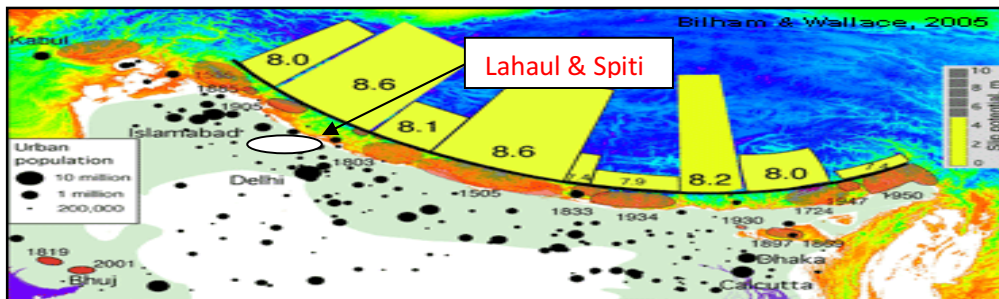


Figure 6: Probable built-up stress and likely magnitude of earthquakes in different regions of the Himalayas.

Social Vulnerability

The community of area is oblivious of the great threat of earthquake in the regions. The community is neither prepared nor aware. There is hardly any community awareness and preparedness planning to deal with various hazards. Lahaul and Spiti has 360 number of people with various disabilities as per the detail given below. Their disability would be a serious impediment for their safety during disasters which can further be exacerbated by the terrain of the district.

Table: 2: Detail of Disabled person in District Lahaul and Spiti (2001 Census)

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Type of disability	Total disabled	Rural	Urban	Rural		
				Gents	Ladies	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Blind/ Low vision	94	94	-	60	34	94
Dump/deaf	32	32	-	21	11	32
Handi-capped	207	207	-	136	71	207
Mentally	27	27	-	10	17	27
Total	360	360	-	227	133	360

II. Floods:

II.A). Flash Floods

Accelerated runoff dam failure, break up of ice jam and Glacial Lake Outburst.



Figure 7: Critical Infrastructure along the River Course

II.B). River Floods

Slow build up, usually seasonal in river systems.

II.C). Coastal Floods

Associated with tropical cyclones, Tsunami waves, Strong surges.

III. Landslides

Lahaul and Spiti is a mountainous district having rugged topography and deep and narrow valleys and steep slopes which makes it very prone to different types of slope failure namely Landsliding, Slumping/Creeping, Rock fall, Shooting Stones, etc. This problem has been compounded by the increasing anthropogenic activities. The main cause of slope failure/landslide etc. is steep and fragile slopes, loose soil, fissured/fractured rock strata, some tectonic activity, toe erosion by running water and human intervention with the natural settings like various unplanned construction activity, deforestation, faulty land use planning, use of

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explosives in construction, practicing unscientific mining, quarrying, tunneling methods,



Fig.8 landslide at Spiti Region.

unscientific dumping on the valleys etc. The shooting stone, which is very common in many parts of District Lahaul and Spiti is caused, among others, by the animal movements and winds. The landslides have caused loss of life and infrastructure in the past. The slope failure is seen in one or other form in all the parts of the district in deep interiors, in the villages and on high mountain ranges/slopes. But, its disastrous effect is observed mainly near the villages and along National Highway-21 Manali-Leh and Manali Killar and other link roads connecting the villages of the district. The important landslides of the district are Pagal Nallahm, Mooling Bridge, *Salsal Dhang*, *Beeling Nallah*, *Commander Nallah*, *Khruti*, *Daldal*, *Khabla* etc. The main road leading to Lahaul and Spiti has many flashpoints which if triggered by natural events block the connectivity to the district during summer season. Such susceptibility is very for other internal roads of the districts. The landslides would cut of connectivity to all the valleys and villages and people would be left to fend for themselves.

III. Snow Avalanches

Snow avalanches almost 65% of Lahaul and Spiti District is prone to avalanche and is one and only the most feared natural disaster noticed till today. May be it is the earthquake that may be probe to be the most disastrous natural disaster in the times to come. But the avalanche have been experienced as most dangerous and disastrous in this district till today. Especially in winter as most part of this district remains cut off due to heavy snow fall from the rest of the country. Snow cover on a slope tends to slide on the slope because of gravity conditions affecting stability include the gravitational force component of the snow and resisting forces such as the fractional resistance of the slope or the anchoring effect of shrubs.



Fig. 9 Avlanche in Triloknath(District Lahaul & Spiti).

In general avalanches are caused when this balance is lost and when the forces exceed the resistance. Avalanches are rarely observed closely since they normally occur during a short time period of one or two minutes. Major causes of avalanches can be classified into fixed (prime factors) and variable factors (existing factors), such as weather conditions and the weight of the snow cover. Avalanches occur when these factors are combined. The types and scale of avalanches can differ depending on the combination of these various factors and their scale. Avalanches, river like flow of snow or ice descending from mountain tops are common in the high ranges of Himalayas. They are common in elevations of more than 3500 mtrs, on slopes of 30-45* convex slopes covered with grass are more prone to avalanches. Avalanches also cause great damage to life and property. The villages, roads and passengers travelling on foot and in vehicles as well as High altitude and army and para military camps are frequently hit by this form of natural calamity.

IV. a). Forest Fires

Forests have a high degree of susceptibility to forest-fires and these fires have already destroyed precious forest wealth and caused incalculable harm to the flora and fauna of the entire affected regions of the district. The damage from fire is much more pronounced in mountains region as the difficult hilly topography is invariably a hindrance. It has there been observed in the past, once started the fire assume mammoth proportions causing extensive damage to the biological wealth. Due to heavy local dependence upon the forests, the socio-economic effects of fires are also substantial for the communities residing in and around these forest areas. Major forest-fires are occurring in the hills because of the accumulation of the leaf and litter in the forests. District Lahaul and Spiti is spread over an area of 13,833 sq. Kms. out of which, approximately 1,37,376 hectare land is covered by forest and rest of the area is particularly above the Tree-Line remains covered by snow/ under cultivation or built up area of villages/human habitations. The Lahaul especially Udaipur Sub-division of the district are relatively thickly forested and the Spiti Sub-division of the district is sparsely covered by the vegetation and forms part of the '*Cold Desert*'. There is one wild-life sanctuaries in the district namely Pin valley.

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The incident of forest-fire is not observed very commonly and frequently in the district. It is very less observed in the Sub-division Spiti and Lahaul and is observed in Udaipur Sub-division. The forest-fire in these areas is generally caused by traditional practice of burning the old vegetation/grasses and fallen pine leaves, and woods for proper regeneration of vegetation. Smoking in forests, camp-fires by tourists, picnickers, and local people. It is observed that fire cases are noticed mainly due to short circuiting/ sparking of electrical transmissions lines crossing over the forests and lightening or thundering.

V. b). Domestic Fires

District Lahaul and Spiti comprises of 41 panchayats having 287 habited villages and 234 un-habited villages. Most of the inhabited villages are compact and nucleated in structure and the slopy built up area comprise houses constructed very close to each other. The house of Spiti and Lahaul sub divisions are made up mainly of stone, mud/clay, thatch and thin woods due to scarcity of trees in the area.



Fig. 10 Keylong Village in District Lahaul & Spiti

The clustered houses that too over a sloppy land in the villages of Udaipur Sub Division are made of with the large scale use of timber in the houses. Due to heavy stock of dried fuel-woods for domestic use and dry stock of fodder for animals for winter season make the houses very prone to fire in all the 3 Sub-divisions. The fire-incidences in villages is also caused by use of Mashaal/candles, Matchsticks, short-circuit, sparking, LPG leakage, sparks from traditional chimneys and use and stocking of highly inflammable and combustibile materials like Paints, Kerosene, Petrol, Diesel etc.

VI. Cloudbursts

Cloudburst is a devastating weather phenomenon representing highly concentrated rainfall over a small area lasting a short term. In meteorological terms, the rain from a cloud burst has a fall rate equal to or greater than 100 MM (4.94 inches) per hour and usually last for over an hour. Though the exact mechanism is not yet perfectly understood, research

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suggests that they are a manifestation of intense vortices on a small scale. These vortices generate strong convective currents which lift the moisture laden air rapidly to form cumulonimbus clouds, which shed the water loads with ferocity. In other words, a cloudburst is a freak phenomenon caused by an up rush of air currents holding up a large amount of weather, rising as a plume of air slightly warmer than its surroundings. The sudden cooling and consequent cessation of currents, causing the entire mass of water descend on a small area with catastrophic force due to rapid condensation of clouds. These mostly occur in mountainous regions particularly in interior regions. The north westward moving monsoon systems (low pressure area/cyclonic circulations) after re-carving over Rajasthan, North-West Madhya Pradesh and passing over Himachal Pradesh, are found to cause these cloudbursts. It leads to flashfloods, landslides, uprooting of trees, house collapse, dislocation of traffic & bridges, and human casualties on large scale over the area. The topography of the district enhances the devastation caused by cloudbursts, as the water flowing down the steep slopes brings debris, boulders and uprooted trees with great velocity damaging any structure which comes in the way leading to a significant loss of life, property and natural habitat. Their interaction with eastward moving troughs in upper air westerly, which sometimes penetrate the Indian latitudes during the south-west monsoon seasons are found to greatly enhance the occurrences of cloudbursts over H.P. A study conducted by Indian Meteorological Department has revealed that a total of 36 cloudbursts took place in Himachal from 1990-2001- About 3 per year with a maximum of seven in year 2000 and none in year 1996. Out of the 36 cloudbursts, 15 were reported in Kullu, 6 in Shimla, 4 in Kinnaur, 3 in Mandi, 2 each in Kangra and Chamba and 1 each in Solan, Sirmour, Lahaul & Spiti and Hamirpur districts. This indicates that Kullu, Shimla, Kinnaur and Mandi districts are more prone to cloudbursts than any other area. However Udaipur Sub-division of Lahaul and Spiti district is very vulnerable to weather extremes. There are no satisfactory techniques for anticipating the occurrence of a cloudburst because of their small scale.

VII. Wind Storms

Wind Storm can be defined as 'A storm with high winds or violent gusts but little or no rain'. The District Lahaul and Spiti is vulnerable to cyclonic wind storms particularly during the winters. The winds touch the maximum speed of 40 Knots with average speed being 24 Knots causing wide spread damage to life and property, houses, blows of roofs, power-transmission lines, communication lines, uprooting trees and poles. Gondhla belt of Sub-Division Lahaul is highly prone to this Hazard in District Lahaul and Spiti.

VIII. Road Accidents

District Lahaul and Spiti has good network of roads which include part of NH-21 from Rohtang Pass to Sarchu, Tandi to Karu Nallah, Gramphu to Sumdo and other link roads connecting the various villages of the district. The roads in the district both metalled and

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unmetalled. The National Highway-21 meanders along the Chandra and Bhaga river towards Keylong-Leh across very rugged and steep terrains.



Fig. 11 Road Entering to Nengahar Valley in Lahaul

At some places i.e. Kuth Vihari and Salsal Dhang in Lahaul Sub Division, Kurcher and near Ruali in Udaipur Sub Divisions, the road has been constructed by cutting the hard rocks not too long ago, a section of the National Highway-21 was featured in the History Channel's *Deadliest Roads* series for its hazardous driving conditions. Similarly, the link road to the various villages again equally dangerous. The roads are zigzag with blind curves, devoid of proper parapets at most of its length, unmetalled with pot-holes which makes the movement of traffic very hazardous. If any vehicle meets with an accident, it falls down into the Chandra/bhaga river or deep gorge straight with no chance of survival.



Fig12 Road to Rohtang Pass

The poor road conditions and increasing number of vehicles in the district and negligent, untrained and rash driving has led to increasing number of road accidents in the District Lahaul and Spiti.

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Overall Vulnerability of the District

On the basis of above analysis the overall vulnerability of the district is high. The figure below which the HP State Council for Environment, Science and Technology has compiled for the State shows Lahaul and Spiti to be high vulnerable district for hazard susceptibility.

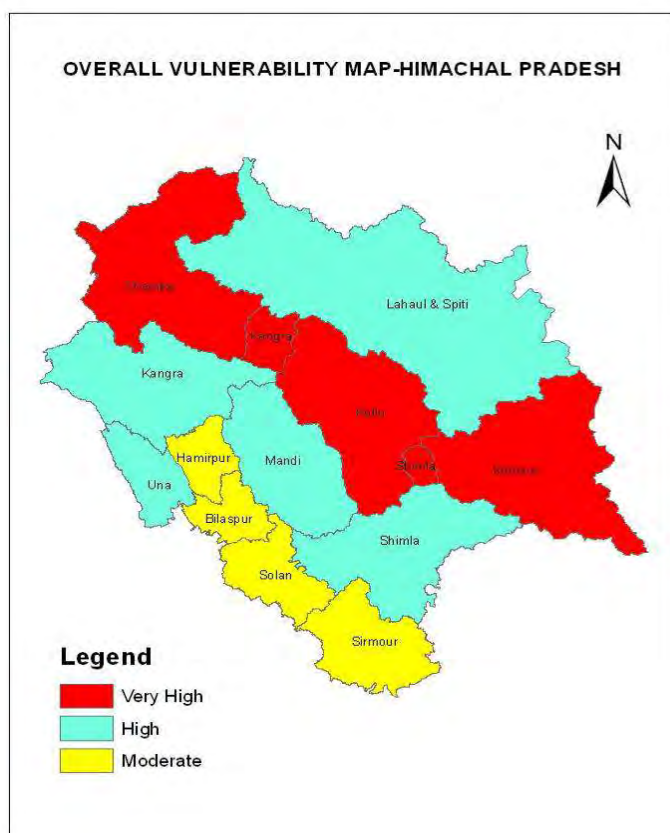


Fig.13 Overall Vulnerability of Himachal Pradesh (Source H.P. State Council for Sci. Tech & Env.)

Table 3: Showing overall Vulnerability of District Lahaul and Spiti to various Hazards

Elements at Risk	Degree of Vulnerability to Various Hazard								
	Earthquake	Landslide	Flash Floods/ GLOF	Snow Avalanche	Drought	Forest Fires	Domestic Fires	Dam Failure	Road Accidents
Community	High	High	High	High	Moderate	High	Moderate	Nil	High
Infrastructure	High	High	High	High	Moderate	Moderate	Moderate	Nil	Low
Houses	High	High	High	Moderate	Nil	Low	Moderate	Nil	Nil
Social Sector	High	High	Moderate	Low	Moderate	Low	Low	Nil	High
Livelihood Sector	High	High	Moderate	Low	Moderate	High	Low	Nil	High

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Environment	High	High	High	High	High	Very High	High	Nil	Low
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History of Disasters & Hazard Profile of District Lahaul and Spiti

I. Seismic Hazard Profile of Lahaul and Spiti

The table below describes the likely seismic intensity that can be experienced by each district of the State and Lahaul and Spiti can experience intensity in the MSK Scale up to VIII. Lahaul and Spiti has history of earthquakes and the major earthquake, which shook the district and caused damage, is 1975 earthquake.

Parameters of 1975 Lahaul & Spiti earthquake.

Date : 11 Dec. 1975

Magnitude : 5.1 Richter scale

Location : Near Sumdo, Lahaul & Spiti 32°50'N 76°58'E

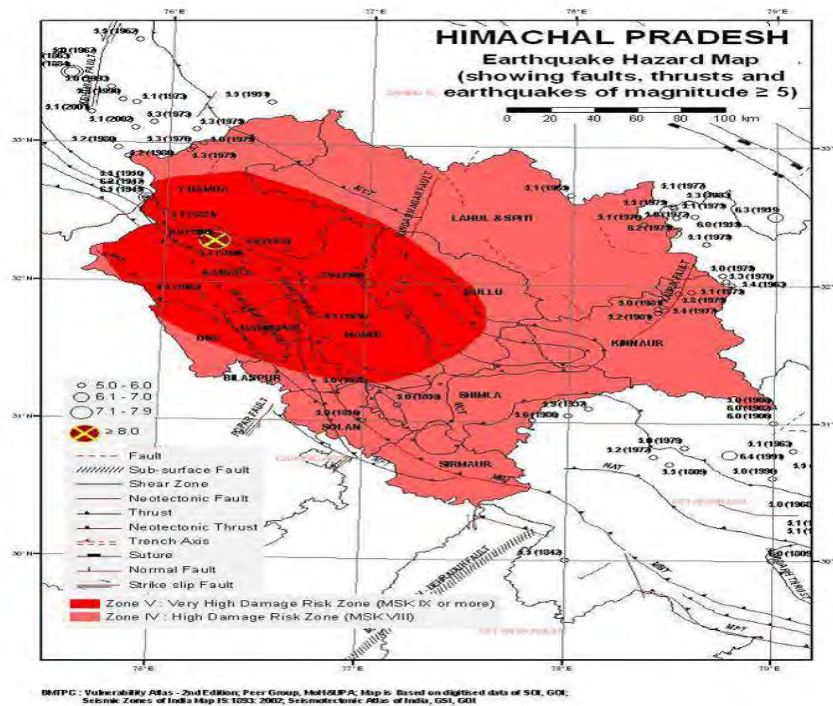


Fig.14 Earthquake Hazard Map of Himachal Pradesh.

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Table: 4 Districts of Himachal Pradesh with Seismic Intensities

Sr. No.	Name of District	Seismic Zones	Intensity MSK IX or more % Area	MSK VIII % area
1	Kangra	V/IV	98.6	1.4
2	Mandi	V/IV	97.4	2.6
3	Hamirpur	V/IV	90.9	9.1
4	Chamba	V/IV	63.2	36.8
5	Kullu	V/IV	53.1	46.9
6	Una	V/IV	37.0	63.0
7	Bilaspur	V/IV	25.3	74.7
8	Solan	V/IV	2.4	97.6
9	Lahaul & Spiti	V/IV	1.1	98.9
10	Kinnaur	V/IV	---	100
11	Shimla	V/IV	---	100
12	Sirmour	V/IV	----	100

From the above facts it is clear that Lahaul and spiti experiences earthquakes at regular intervals and is highly likely to be hit by earthquake.

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II. Landslide Hazard of the District

The geographical nature of Lahaul & Spiti is very steep. The slopes are unstable. Table 6 below gives description of important landslides in the State whereas no landslide of Lahaul & Spiti has been shown in the said table. As per the table 7 below 127 square kilometres area of this district is severely prone to landslides. And 11627 square kilometres area is prone to highly prone to landslides.

Table: 5 The important landslides in Himachal Pradesh

Sr. No.	Landslide Area	History of Damage
1	Maling (1968).	This slide damaged 1 Km NH-22 and is still active.
2	Kinnaur (Dec.1982)	This occurred at Sholding nala collapsing 3 bridges and 1.5 of road was vanished.
3	Jhakri (March 1989)	At Nathpa about 500 m of road was damaged due to this slide and is still active
4	Luggarbhati on 12 Sept.1995	65 (39 as per official record) were buried alive during the slide
5	Prominent slides in Beas valley are at Marhi, Bhang, Chhyal, and Mandu in upper catchment of the Beas river	

District	Sever to very High	High	Moderate to Low	Unlikely	Total Area
Bilaspur	216	842	83	1	1142
Chamba	2120	2824	351	70	6370
Hamirpur	0	851	204	45	1100
Kangra	123	3698	1233	557	5611
Kinnaur	568	4956	498	0	6322
Kullu	1820	3512	65	3	5401
Lahaul & Spiti	127	11637	1823	2	13591
Mandi	968	1978	826	98	3870
Shimla	593	1115	767	14	5019
Sirmaur	95	1805	614	228	2742
Solan	356	1118	157	79	1910
Una	2	678	517	311	1508
Total	7788	38249	7140	1408	54386
State	14077	70177	13018	1531	109803

Table: 6 Landslide Hazard Profile of Himachal Pradesh

III. Avalanche Hazard of the District

Table 7: Districts wise Breakup of the Avalanche Accidents in Himachal Pradesh

Sr. No.	District	No. of Accidents	Persons involved	Persons killed	Persons injured
1	Chamba	12	59	53	0
2	Kinnaur	32	144	129	9
3	Kullu	6	13	9	4
4	Lahaul and Spiti	21	397	298	53
5	Shimla	2	6	1	5

(Source: SASE, DRDO, Chandigarh)

Cursory look at table above will show that the district is highly prone to avalanche accidents. As per the recorded history 21 incidents of avalanche hazard have taken place in which 298 persons were killed and 53 injured. With the climate change and weather variability such incidents may increase in the district.

IV. Flash Floods, Cloudburst and GLOFs

Some of the important floods in the District: -

- i) Flash flood in Spiti river due to breach in the Parechu lake in Tibetan catchment on 26th June 2005 and 10 Km stretch of NH-22 between Wangtoo and Samdo was washed away.
- ii) Flash flood in tributary of Bhaga river on 25-7-2006 at Darcha in which 67-03-00 bighats land washed away and loss assessed was 6,72,630/-.
- iii) Flash flood in Chhatru Nallah on dated 12-8-2007 in which one person died and two were injured.

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- iv) Cloud burst occurred in the year 2008 in Tholang in which crops in 23-07-00 bighas, 300 willow trees alongwith 8 labour's tents had been damaged. Loss assessed is about 5,25,300/-.
- v) Cloud burst in the year 2010 in Giu and Titpa village of Pin valley in which 3 houses, 15 hectare land has been washed away and loss assessed is about Rs.40,43,011/-.
- vi) On 5th June, 2012 in Pin Valley of Spiti Division at Kit Nallah one bridge and 3Kms. Road, 3 Kms. Transmission lines has been washed away. The total estimated loss was to the tune of Rs. 3.00 Crore.

Table 8: Yearly Rain Fall in District Lahaul and Spiti (Statistical Book 2010-11)

Year	Lahaul Sub Division	Udaipur Sub Division	Spiti Sub Division
2000	32 mm	150.7 mm	334.2 mm
2001	85 mm	390 mm	40 mm
2002	196 mm	167.6 mm	54 mm
2003	114 mm	463.3 mm	20 mm
2004	135 mm	404.6 mm	Nil
2005	269 mm	190.4 mm	45 mm
2006	155 mm	201.5 mm	225 mm
2007	121 mm	143.5 mm	170 mm
2008	112 mm	313.6 mm	45.5 mm
2009	314 mm	413 mm	96 mm
2010	517.1	585.6 mm	358.5 mm
2011	216.45 mm	77.0 mm	440.37 mm

Retreat of Glaciers in the Himalayas and threat of GLOFs

There are 3,300 glaciers in the Nepalese Himalayas and 2,300 of them contain glacial lakes. These lakes are quietly growing because of rising temperatures, but a sufficiently close eye is not being kept on them, campaigners say. Nobody knows how many are close to bursting, and no steps have been taken to establish early warning systems for the villages downstream. A burst lake would cause flash floods which could sweep away people, houses, roads and bridges in Nepal, Bhutan, Bangladesh and India. Such disasters have already happened more than a dozen times around Nepal in the last 70 years. A glacial lake burst in Khumbu, Nepal, in 1985, killing at least 20 people. It also washed away a hydropower station, a trekking trail and numerous bridges. Despite the real threat, no systematic on-the-ground research has taken place since the mid-1990s. Between 1970 and 1989, Japanese researchers discovered most of the glaciers in the Khumbu region had retreated 30-60m. In Nepal's Dhaulagiri region, field studies until 1994 showed the same trend. And Nepal's most studied glacier in Tsorong Himal

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underwent a 10m retreat between 1978 and 1989. For now, there is reliance on satellite data. This even shows some glaciers are stable or advancing, particularly in the west and north.

We urgently need to update our glaciological data otherwise we won't have any warning when disaster strikes. The data on glacial retreat on the Himalayas has been compiled by the DRDO which is reproduced as under:-

The retreating glaciers would also disturb the water cycle of the Himalayas and cause major ecological disaster besides causing major water scarcity in the entire region. More over, the melting glaciers are giving rise to formation of lake which can burst causing large scale damage. The inventory of potentially dangerous lakes has been prepared by the ICIMODE as per the details given in table below :-

Table 09: Summary of Glaciers, Glacial Lakes and lakes identified as potentially dangerous in Himachal Pradesh

River Basin	Glaciers			Glacier Lakes		
	Number	Area (Sq. Km)	Ice Reserves (cu. Km)	Number	Area (Sq. km)	Potentially dangerous
Beas	358	758	76.40	59	236.20	5
Ravi	198	235	16.88	17	9.6	1
Chenab	681	1705	187.66	33	3.22	5
Sutlej	945	1218	94.45	40	136.46	3
Sub-basins	372	245	11.96	7	0.18	2
Total	2554	4161	387.35	156	385.22	16

(Source: Ives, JD; Shrestha, RB; Mool, PK (2010) Formation of Glacial lakes in the H-K-H and GLOF Risk Assessment, ICIMOD.)

A large number of glacial lakes have been mapped in the Chandra Bhaga basin which cut across the entire district. Out of these three lakes have been identified as potentially dangerous. All have witnessed the fury and devastation caused by burst on Porechoo lake in the year 2005.

V. Wind Storm Hazard

As per the above map Lahaul and Spiti district falls under high damage risk zone for wind hazard and can experience wind speed upto 47 m/s.

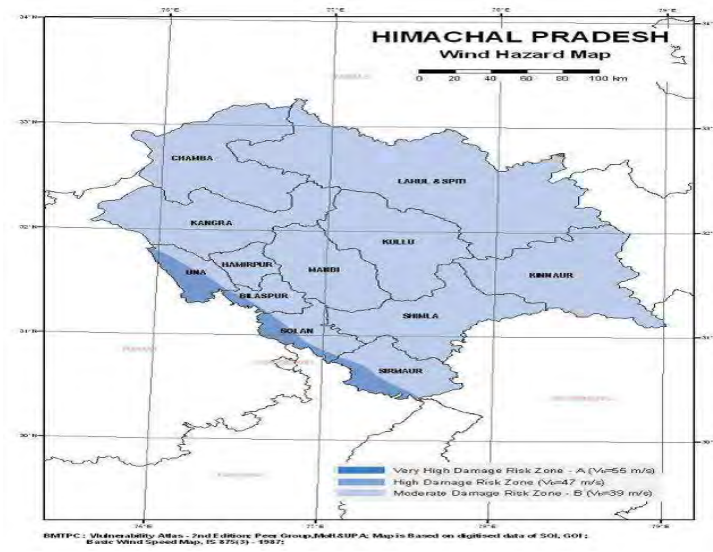


Figure 15: Wind hazard Map of Himachal Pradesh

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VI Fire Accidents

In Udaipur Sub Division of this district, most of the houses in the villages have been constructed by using a lot of wood. Moreover, the houses are constructed closely to each other. These houses are very prone to fires. The inaccessibility of the villages to fires services make the villages a perfect case of domestic fire disasters. Some such cases have happened in the past in the district and only a partial area of Lahaul Sub Division and mostly area of Udaipur Sub Division is covered under forest land. The terrains of the district make it difficult to deal with forest fires. The details of fire tragedies which have struck the district is given in the table below.

Table 10: - Incidents related to Fire Disaster in Lahaul and Spiti (Distt. Stat Book 2010-11)

Year	No. of incidents	Details of Human Lives		Details of Cattle		Loss of property
		Lives saved	Lives lost	Lives lost	Lives lost	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2008	7	-	-	-	-	9,17,000
2009	3	-	-	-	-	3,61,900
2010	8	-	-	-	-	6,98,350
2011	5	-	-	-	-	6,31,000

VII Road Accidents

The high mountainous terrain of district also results in many road accidents. With the increasing number of vehicles the cases of road accidents are also increasing. The history of road accidents is given in the following table:-

Table 11: Road Accidents in District Lahaul and Spiti (Stat. Handbook 2010-11)

Year	Number of Accidents	No. of Deaths	No. of Injured persons	No. of Accidental Vehicle
(1)	(2)	(3)	(4)	(5)
2006-07	1	1	2	1
2007-08	9	12	3	9
2008-09	3	3	-	3
2009-10	4	7	2	4
2010-11	11	11	3	11
2011-12	3	2	17	3

Chapter-3

SUB-DIVISION WISE HAZARD PROFILE & EVALUATION

The Lahaul and Spiti district is divided into 3 sub-divisions namely Lahaul, Kaza and Udaipur. As elaborated in the earlier chapter, the Lahaul and Spiti district is vulnerable to the hazards mainly like Avalanches, Floods, Landslides, Drought, Earthquake, Drought and Cloud Burst.

However, the degree of vulnerability for a specific sub-division varies accordingly. The villages near the river basins are highly prone to the flash floods; however, entire district is highly prone to the earthquake causing severe damage to the community and geography. A brief hazard evaluation along with history of disasters in the sub-divisions is as the following:

A. Sub-Division Lahaul

HAZARD PROFILE & EVALUATION:

The entire regions of Lahaul sub-division lie near the Chandra and Bhaga river respectively, which make these regions highly prone to the floods and landslides mainly in the months of July and August. The Lahaul sub-division is prone to following hazards especially:

- **Avalanches**
- **Flood /land slides**
- **Drought**
- **Cloud burst**
- **Earthquake**
- **Road Accident**

History of Disasters

- In the Year 1979 (March) an avalanche has been noticed at Guskiar, Yurnath, Bha Garang, Ley Garang, Baring and yangla in which about more than one hundred persons have lost their lives and a large number of houses have been reported washed away or damaged.
- In the year 1996 in the month of March an avalanche hit at Yallah Piyaso village near Chheling village in which 6 persons lost their lives.
- Flash flood in tributary of Bhaga river in 25-7-2006 at Darcha in which 67-03-00 bighas land washed away and loss assted 6,72,630/- remaining portion also developed cracks.
- Flash flood in Chhatru Nallah on dated 12-8-2007 one person died and two inured.

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- Drought occurs due to scarcity of rainfall/ snowfall and is of a creeping nature. Lack of water irrigation purpose leads to a fall in the output of agricultural /horticultural crops leading to a fall in the income level of the people and causing misery to them .One such condition occurred in the district in year 2002.
- Cloud burst occurred in Tholang in the year 2008 in which crops in 23-07-00 bighas, 300 willow trees alongwith 8 labour tents has been damaged /washed away, Loss assessed is about 5,25,300/-.

Physio-geographic Data

- Area Rock and Sandy
 - Soil Black and Sandy
 - Drainage pattern By Kuhal
 - Rainfall
 - Snow fall
 - Topographical feature: The area consisting high peaks sandy rocky.
 - Economy Horticulture, Agriculture are the main and people are very obedient, wise and hard worker.
- features,

Transportation Network:

- By Road - Bus and other goods carrier
- Helipad/Emergency landing fields

Panchayat	Village	Landmark
Koksar	Dimphuk	Temple and Monastery
Sissu	Shashin	Temple of Raja Ghepan
-do-	Labrang	Monastery
Gondhla	Gondhla	Monastery, Gondhla fort.
Tandi	Topchiling	Monastery and temple of Guru Ghantal
Kardang	Kardang	Monastery
Kardang	Gwazang	--do--
Gumrang	Keylong	Shashur Monastery
-do-	Beeling	Yorzong monastery
Yurnath	Tayul	Tayul Monastery
-do-	Boker	Boker monastery
Kolong	Gemur	Gemur Monastery
Jispa	Jispa	Temple/Monastery
Goushal	Goushal	Temple

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Demographic Features:

Human Population	Male	Female	S C	ST
Lahaul Tehsil 13104	7455	5649	1345	8410

Animal Population	Cattle	Goat	Sheep	Yak	Equines	others
Lahaul Tehsil 23732	4594	772	17239	8	510	609

Land Utilization:

Property	Agri.	Non-Agri	Forest	Houses
Lahaul Tehsil 3472	1368	2104	-	-

Helipad /Emergency landing fields

Panchayat	Village	Latitude	Longitude	Landmark
Sissu	Sissu	32°28' N	077°07' E	
Gondhla	Gondhla			
Tandi	Tandi	32°33' N	076°59' E	
Ranika	Rawa	32°36' N	076°56' E	
Yurnath	Stingri	32°33' N	077°04' E	
Darcha	Jispa			

B. Sub-Division Kaza

Kaza sub-division starts entering the boundary of Kinnaur district. This sub-division has 13 gram panchayats. The sub-division at lower areas near Spiti and Pin river are highly susceptible to the flash floods and landslides. Also, the panchayats at higher altitudes are prone to drought due to minimum rainfall and unavailability of efficient sources for irrigation. This sub-division is susceptible to the hazards especially:

Hazard Evaluation:

- Food/land slides
- Drought
- Cloud burst
- Earthquake
- Road Accident

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History of Disasters

- Flash flood in Spiti in Pin river near Kit Nallah on dated 5th June, 2012 one bridge, 3 Kms. Span of road and 3 kms. Transmission line washed away and loss asessed is about Rs.3 Crore.
- Drought occurs due to scarcity of rainfall/snowfall and is of a creeping nature, Lack of water for irrigation purpose leads to a fall in the output of agricultural /Horticultural crops leading to a fall in the income level of the people and causing misery to them. One such condition occurred in the district in year 2002.
- Flash Flood in Parchu/Spiti river in 26 June 2005, in which road was heavily blocked between Samdu to Wangtu.
- Cloud burst in Giu and Titpa village of Pin valley in the year 2010 in which 3 houses, 15 Hectares land has been washed away and loss assessed is about Rs.40,43,011/-.

Physio-geographic Data

Area : 7, 10,111 Hect.
Soil : Sandy

Helipad /Emergency landing fields

Panchayat	Village	Latitude	Longitude	Landmark
Losar	Losar	32°24' N	077°38' E	
Kaza	Kaza	32°13' N	78°04.5' E	
Sagnam	Sagnam	32°02' N	78°03'E	
Tabo	Tabo	32°05.5' N	078°23'E	

Demographic features

Human Population	Male	Female	S C	S T	Landless Labourers	Vulnerable	Density
10675	3853	4822	600	8310	-	-	-

Animal Population	Cattle	Goat	Sheep	Yak	Equines	Others	
19613	6883	5080	5066	-	2349	235	

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Land utilization:

Property	Agri.	Horti.	Non-Agri.	Forest	Houses	Industries	Public Utilities
	1236	-	7,08,393	482			

C. Sub-Division Udaipur

Sub-Division Udaipur is spread along the Manali Killar road. This sub-division comprises of 10 scattered panchayats. Entire area is highly prone to the seismic activity as we look into the hazard profile of this sub-division. Hence needs attention. The sub-division is highly prone to the floods/landslides etc. This sub-division is prone to the hazard especially:

Hazard Evaluation:

Udaipur sub-division

- Avalanches
- Flood/land slides
- Drought
- Cloud burst
- Earthquake
- Road Accident

History of Disasters

- An avalanches occurred in Udaipur Sub Division in the year 1979 in various villages of Junda, Galing, Triloknath, and Hinsu, in which more than hundred of persons have lost their lives.
- Flash flood in Madgran Nallah in the year 1995, in which Gharats, bridge etc. has been washed away.
- Drought occurs due to scarcity of rainfall/ snowfall and is of a creeping nature. Lack of water irrigation purpose leads to a fall in the output of agricultural /horticultural crops leading to a fall in the income level of the people and causing misery to them. One such condition occurred in the district in year 2002.
- Landslide in Maling Naala (1968) damaging NH-22 and is still active.

Physio-geographic Data

- Area : 1,97,612 Hect.
- Soil : Sandy
- Drainage Pattern : The rivulets, nallahs, springs, drain in to Chandra bhaga Basin.
- Rainfall/Snowfall : Scant rainfall, moderate to heavy snow
- Topographical features : As given the introductory profile.

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Transportation Network:

- Road
- Helipad/Emergency landing fields.

Panchayat	Village	Latitude	Longitude	Landmark
Mooring	Baring	32°38.8' N	0776°50.6' E	
Udaipur	Udaipur	32°42' N	076°40' E	
Mooring	Chokhang			
Tingret	Tingret	32°51' N	076°47' E	
Tindi	Tindi	32°46' N	076°28' E	

Demographic features:

Human Population	Male	Female	SC	ST	Landless Laborers	Vulnerable	Density
9445	5105	4340	660	7458	-	All	2/sq.Km

Animal Population	Cattle	Goat	Sheep	Yak	Equines	others
24410	4007	2878	14515	20	465	2525

Land utilization:

Property	Agri.	Horti.	Non-Agri	Forest	Houses (Nos)	Industries	Public utilities (Buldg)
	792	-	59926	1,36,894			

Chapter - 4

Capacity Analysis

The vulnerability of the district to various hazards is high. In view of the hazard and vulnerability profile of the district, the capacity analysis of the district to deal with various disasters is very important.

Government Workforce

Lahaul and Spiti has 2603 regular (112 Gazetted and 2491 non-gazetted) government employees and 821 daily wages/contractual employees. These figures are as on 31.3.2011. This workforce can act as a resource for disaster management in the district. However, this resource has yet not been trained and oriented in DM and related issues. Hence their capacity to respond to disasters effectively and prepare a culture of prevention and safety would be less effective.

Fire Stations

Lahaul and Spiti has only one fire Post situated at the district HQ. The villages of Lahaul and Spiti are located at far flung area and the response capacity of the stations is reduced to few kilometres only. We need to at least have one fire post in each Sub Divisional HQs/valley of the district for better and timely response. These fire posts can be trained and equipped for multi-hazard response.

Home Guards Network

A Company of Home Guards is stationed at Lahaul and Spiti with a total strength of 92. This human resource is trained in DM. But their deployment to non-disaster duty would prohibit their utilisation for disaster related matters.

Table: 12 Police Network in Lahaul and Spiti

Sr. No.	Name of the Establishment	Total Strength	Contact No.	Wireless Network
Police Stations				
1.	Police Station Keylong		01900-222223	Yes
2.	Police Station Udaipur		01909-262253	Yes
3.	Police Station Kaza		01906-222210	Yes
Police Posts				

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4.	Police Post Koksar		01900-275023	Yes
6.	Police Post Jahalma		01900-278126	Yes
7.	Police Post Tindi		01909-254019	Yes
Police Check Posts				
12.	Police Check Post Darcha		-	Yes
13.	Police Check Post Losar		-	Yes
14.	Police Check Post Sumdo		-	Yes

As on 2012 the total strength of police force in the district was 239 and the break-up of the same is given as under:-

- i) ASI and above - 28
- ii) Head Constables - 33
- iii) Constables - 160
- iv) Cook - 4
- v) Other Ministerial staff- 14

Quick Response Teams (QRTs) formation for Disaster Management in the Lahaul & Spiti District

Quick Response Teams have been formed in the Lahaul & Spiti District by District Administration with Police Department and Himachal Home Guard respectively. These QRTs consists of 17 team members each well furnished in Disaster Management so that in case of any disaster occurrence, these teams can be deployed for prompt response and action.

Table 13: QRT Police Department in Lahaul & Spiti District

S. No.	Name of Police Personnel	S. No.	Name of Police Personnel
1.	ASI Yash Pal	11.	Ct. lalit Chandel-56
2.	HC Anil Chandel No. 27	12.	Ct. Vijay Kumar-49
3.	HC Santosh Kumar-34	13.	Ct. Roop Lal-211
4.	Ct. Naresh Kumar-73	14.	Ct. Pooran Chand-123
5.	Ct. Mukesh Kumar-84	15.	Ct.Nirmal Kumar-163
6.	Ct. Ravinder Kuamr-160	16.	Ct. (DVR) Vipin Kumar No-90 with tata mini bus No HP 33B-9105
7.	Ct. Amit-173	17.	HHC Kunju Lal No-127(Wireless Operator)
8.	Ct. Sunil Dharwal-152		
9.	Ct. Sohan Singh-83		
10.	Ct. Rajesh Kumar-128		

Table 14: QRT Himachal Home Guard in Lahaul and Spiti District

S. No.	Name of Home Guard Personnel	S. No.	Name of Home Guard Personnel
1.	Mr. Hari Singh Company Admn.	16.	Mr. Sudershan

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	Officer		
2.	Mr.Prem Raj Platoon-Commandant	17.	Mr. Chhering Angrup
3.	Mr. Nawang Kunkhen	18.	Mr. Prem Jeet
4.	Mr. Rakesh Kumar	19.	Mr. Ashok Kumar
5.	Mr. Chhering Paljor	20.	Mr. Ravinder
6.	Mr. Mohan Lal	21.	Mr. Vinod
7.	Mr. Rajeev kumar	22.	Mr. Ajay kumar
8.	Mr. Mohan Lal	23.	Mr. Vijesh
9.	Mr. Nirmal singh	24.	Mr. Sanju
10.	Mr. Amar Singh	25.	Mr. Rajender Kumar
11.	Mr. Bittu	26.	Mr.Ajeet
12.	Mr. Jawahar Lal	27.	Mr. Dharam Chand
13.	Mr.Sanjeev	28.	Mr. Susheel
14.	Mr.Vinod Kumar	29.	Mr.Tenzin Kalzang
15.	Mr.Subhash Bodh		

Medical Facilities and Manpower

The status of medical institutions, workforce is given in the following table.

Table 15: Health Infrastructure in Lahaul & Spiti District

Year	Medical officer		Nurses/Female health Worker		Mid wife		CHC/PHC's		
	Allopathic	Ayv. & Homeo	Allopathic	Ayurvedic	Allopathic	Ayurvedic	Allopathic	Ayurvedic	Homoeopathic
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2011	33	15	51	-	8	9	18	21	1
Development Block wise : 2011									
Lahaul	16	9	27	-	2	2	6	7	1
Udaipur	6	3	11	-	1	1	7	6	-
Spiti	11	3	13	-	5	6	5	8	-

Army Network and Central Paramilitary Forces

The district has good presence of army, GREF and ITBP in the district. The ITBP located at Sarahan, district Shimla has been designated as a regional response centre for disaster response. The presence of the forces in the district can come as handy for disaster response.

Power Projects

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The district has also some presence of the power projects spread out in all the main river and in the basins of tributaries. There are more than two dozen power projects in the state. The project management has trained manpower and have machinery and equipment too to deal with emergencies. These resources can be requisitioned by the district administration during emergencies.

EWS Network

The CWC has monitoring network for the Chandra Bhaga river basin having 1 Gauge site on located at Tandi and Udaipur along with 1 Telemetry Based AWL for monitoring of Parechu reservoir located in sumdo.

Community Feeling

Majority of the population of the district is tribal. There is a strong community feeling amongst the local population. Strong community feeling increase resilience of the community to responds better to disasters.

CBOs and NGOs

There are not many NGOs working in the district. However many community based organisations are in existence. Their training and orientation has not been done. However, their networking and orientation in DM is under way. The list of NGOs/CBOs working in the district is as below:

Sr. No.	Name of NGO	Members	Trained-S&R and First Aid	Contact No.
1.	Layul Mountneering and ski Club Keylong	Sh Norbu Pawnsipa (President)	-do-	94189-53738
		Sh. Gialchhen Thakur(Secy.)	-do-	94180-63672
2.	Tinan adventure & Sports Club Gondhla	Sh. Prem Singh (President)	-do-	94180-6505
		Sh. Roshan Lal(Secy.)	-do-	-
3.	Tod Valley Youth association Kawaring.	Sh Tanzin (President)	-No-	-
4.	Lahaul Kala Sangam Jahalma	Sh. Prem Lal Thakur (President)	No	89882-34416

Table: 16 List of NGOs in Lahaul and Spiti District

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Landing Sites

The list of landing sites which can be of immense help in disaster is given below. However, non-availability of re-fuelling facility in the area may hinder the smooth operations of air relief operations.

Sr. No.	Name of Sub-Division	Name of Helipad/Station	Latitude	Longitude	REF
1	Kaza	Lossar	32°24' N	077°38' E	
2	Kaza	Kaza	32°13' N	78°04.5' E	
3	Kaza	Sagname	32°02' N	78°03'E	
4	Kaza	Tabo	32°05.5' N	078°23'E	
5	Lahaul	Sisu	32°28' N	077°07' E	
6	Lahaul	Gondhla			
7	Lahaul	Tandi	32°33" N	076°59' E	
8	Lahaul	Rawa	32°36' N	076°56' E	
9	Lahaul	Stingri	32°33' N	077°04' E	
10	Lahaul	Jispa			
11	Udaipur	Baring	32°38.8' N	077°50.6' E	
12	Udaipur	Udaipur	32°42' N	076°40' E	
13	Udaipur	Chokhang			
14	Udaipur	Tingret	32°51' N	076°47' E	
15	Udaipur	Tindi	32°46' N	076°28' E	

Table: 17List of Existing and Possible Landing sites in Lahaul & Spiti District from Bhuntar

Equipment and Machinery – Resource Inventory

The list of equipment, machinery and manpower available in the district at **Annexure –G**

Important Gaps in Existing Capacity to deal with Disasters

- a) Connectivity and terrain of the district.
- b) Lack of specialized SAR equipment and capabilities with the state authorities.
- c) Communication – land and mobile based communication only.
- d) Lack of trained workforce.
- e) Lack of awareness at all levels – government functionaries, elected representatives and the general public.
- f) Lack of clarity of roles of various departments and stakeholders.
- g) DRR not integrated into development planning and programmes.
- h) Hospital and schools not prepared to deal with disasters.
- i) Only fire Post for the entire district.

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- j) The existing construction of the district is not hazard resistant.
 - k) Huge infrastructure has come along the major river courses of the district making them vulnerable to flash floods.
 - l) No efforts have been taken to transfer the risk by way of insurance etc.
 - m) The EWS in the district is not adequate and there is hardly any mechanism to communicate the EW to the vulnerable community.
 - n) The district control room is not equipped and no trained manpower to handle it.
- The institutional set-up – SAR, MFA, etc. to deal with disasters is not adequate.

Chapter – 5

Mitigation Strategy for the District

The adverse effects of disasters can be minimized if mitigation policies, plans, and projects are undertaken. Keeping in view the hazard and vulnerability profile of the district the following mitigation actions would be taken to mitigate the impacts of various hazards.

I. Action Plan for Earthquake Mitigation

- i. Revision and adoption of model building bye-laws for construction both in urban and rural area.
- ii. Wide dissemination of earthquake-resistant building codes, the National Building Code 2005, and other safety codes.
- iii. Training of trainers in professional and technical institutions.
- iv. Training professionals like engineers, architects, and masons in earthquake resistant construction.
- v. Launching demonstration projects to disseminate earthquake-resistant techniques.
- vi. Launching public awareness campaigns on seismic safety and risk reduction and sensitising all stakeholders to earthquake mitigation.
- vii. Establishing appropriate mechanisms for compliance review of all construction designs submitted to ULBs.
- viii. Undertaking mandatory technical audits of structural designs of major projects by the respective competent authorities.
- ix. Developing an inventory of the existing built environment.
- x. Assessing the seismic risk and vulnerability of the existing built environment by carrying out structural safety audits of all critical lifeline structures.
- xi. Developing seismic strengthening and retrofitting standards and guidelines for existing critical lifeline structures.
- xii. Undertaking seismic strengthening and retrofitting of critical lifeline structures, initially as pilot projects and then extending the exercise to the other structures (as detailed in a phased manner).
- xiii. Preparation of DM plans by schools, hospitals, main buildings visited by large number of public etc., and carrying out mock drills for enhancing preparedness.
- xiv. Strengthening the EOC network and flow of information.
- xv. Streamlining the mobilisation of communities, civil society partners, the corporate sector and other stakeholders.
- xvi. Preparing community and village level DM plans, with specific reference to management of earthquakes.
- xvii. Carrying out the vulnerability assessment of earthquake-prone areas and creating an inventory of resources for effective response.
- xviii. Introducing earthquake safety education in schools, colleges and universities and conducting mock drills in these institutions.
- xix. Strengthening earthquake safety research and development in professional technical institutions.

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- xx. Preparing documentation on lessons from previous earthquakes and their wide dissemination.
- xxi. Developing an appropriate mechanism for licensing and certification of professionals in earthquake-resistant construction techniques by collaborating with professional bodies.
- xxii. Preparing an action plan for the up gradation of the capabilities of the IMD and BIS with clear roadmaps and milestones.
- xxiii. Developing appropriate risk transfer instruments by collaborating with insurance companies and financial institutions.
- xxiv. Operationalizing the local companies of Home Guards and IRBs/Police for disaster response.
- xxv. Strengthening the medical preparedness for effective earthquake response, etc.
- xxvi. Enforcement and monitoring of compliance of earthquake-resistant building codes, town planning bye-laws and other safety regulations.

II. Land Slide Mitigation

The main features to be included in the plan are:

- i) Revision of town planning bye-laws and adoption of model land use bye-laws in hilly areas.
- ii) Wide dissemination of model land use practices in hilly areas.
- iii) Training of trainers in professional and technical institutions.
- iv) Training of professionals like engineers and geologists for landslide mapping, investigation techniques, analysis, and observational practices.
- v) Launching public awareness campaigns on landslide hazard and risk reduction, and sensitising all stakeholders on landslide hazard mitigation.
- vi) Establishing appropriate mechanisms for compliance reviews of all land use bye-laws in hilly areas.
- vii) Preparing an inventory of existing landslides, active or inactive, in the area.
- viii) Developing an inventory of the existing built environment in areas around existing landslides and in high hazard zones as per the LHZ maps.
- ix) Assessing the status of risk and vulnerability of the existing built environment.
- x) Preparation of DM plans by educational and health institutes/organisations, government offices, etc., and carrying out mock drills for enhancing preparedness in vulnerable areas.
- xi) Strengthening the EOC and communication network.
- xii) Streamlining the mobilisation of communities, government agencies, the corporate sector, and other stakeholders.
- xiii) Preparing community and village level DM plans, with specific reference to the management of landslides.

III. Management of Drought

The salient features of mitigation plan will be:

- i) A Drought Management Cell (DMC) will be established in the Local Agriculture Department.
- ii) Drought management plans for the entire season will be prepared by the Agriculture Department well in advance in the month of May, based on the long season forecast issued by IMD in April and also the previous season's rain fall.
- iii) Drought management plans will be prepared block wise.
- iv) As the season progresses from June onwards, the DMC will review the plans prepared earlier at the onset of the monsoon and revise the strategy if required.
- v) Weekly monitoring of the season and crop condition from June onwards till the end of the season and make necessary midseason corrections as and when required.
- vi) The DMC will make use of the frontier techniques like remote sensing and GIS while providing the inputs to the DDMA.
- vii) A sound database will be created and updated regularly on weather, crop conditions, input supply, credit, insurance and market information, fodder supply etc. in order to assist the DDMA for Drought declaration and Management.
- viii) Awareness will be brought among the farmers on drought regulations and enforcement.

IV. Managing Chemical, Biological, Radiological and Nuclear Emergencies – Contamination of Water Supply.

To manage an incident of CBRN contamination of water supply, a modal SOP as given under may be referred to:

Incident Reporting

Any breach of security or suspected event of accidental or intentional contamination should be communicated to the officer in charge of the water facility through quickest possible means. Subsequently, he will inform the same to local police, law enforcement and intelligence agencies, and request for physical quarantine of the contamination site. The incident should also be reported to all pre-identified nodal agencies with request to remain at stand by.

Site Characterization

Water facility in charge along with law enforcement agencies would visit the site and make on site inspection for identification of physical evidences to confirm the incident. Police & Law enforcement agencies would collect and preserve physical evidences for further investigation and necessary action. Water facility in charge will also make an initial hazard assessment based on available evidences for determining potential need for specialized men, material, techniques or equipment. Based on the findings of initial site evaluation, both to and fro water supply should be stopped immediately.

Preliminary Screening

Trained personnel would be deployed for sample collection and spot testing as described in this document. Sample should be collected from the nearest point. Sample collected should be divided into two, one for spot testing and another for laboratory testing. First set should be subjected to spot testing by prescribed methods. Once the incident and nature of contamination is established the same should be communicated to district administration in precise and clear language for activating their crisis management plan. Following positive screening, second half of the sample should be immediately sent to pre identified reference laboratories.

Risk Communication

District administration in association with disaster management authority will make public pronouncement of contamination event in clear and precise language along with requisite precautions to be taken. All care to be taken to avoid undue panic situation.

Alternate Supply

The Water facility manager in association with district administration would make alternate supply arrangements. In absence of alternate supply, water should be decontaminated through the technique of reverse osmosis. The mobile water purification van developed by DRDO could be utilized for same.

Decontamination

Supply lines and storage facilities should be decontaminated using appropriate and available technology. Do not try to decontaminate water that has been exposed to chemical agents by using chemicals; rather it should be purified through the systems based on Reverse Osmosis and Carbon Columns. Such a system has been developed by Defence Laboratory, Jodhpur and is named as Water Purification System (WPS) and it is suitable for purification of water including that contaminated by CBRN agents.

Restoration of supply

Following repair and decontamination of facility, a fresh water sample should be retested and certified for public consumption.

V. Psycho-Social Care and Mental Health Support (PSSMHS)

- i) Strengthening of District Counseling Centres under the Department of Social Welfare & Child Development.
- ii) Integrating with DM mental health plans and Health/Hospital DM Plans.

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- iii) Integrating with all training in the area of Psychology, Social Work, Mental Health, Emergency Medical Response, Hospital Administration, Nursing and Paramedics.
- iv) Inclusion in the CBDM Plan and training of PRI team members.
- v) Developing awareness material for the community.
- vi) Evolve a mechanism for community outreach education programmes on PSSMHS.
- vii) Creation of a core group of master trainers at district level.

VI. Early Warning System for Flash Floods/GLOFs

Forecasting and early warning helps in mitigating the effects of disasters. The loss of life and property can be considerably reduced with accurate and timely warning. Climate-meteorological disaster such as flash floods, GLOF, avalanches etc. be predicted with certain degree of accuracy.

- i) A network of rain/snow gauges would be strengthened in the district.
- ii) Tie-up with IMD, CWC would be strengthened so that EWS can be effectively communicated to the vulnerable community.
- iii) Community networking would be done to communicate the EWS to the vulnerable sections.
- iv) Modern media would be utilized to communicate the EWS.
- v) Tie-up for sharing of information would be done with the power projects.
- vi) For GLOF related events arrangement would be made with the Chinese authorities through Government of India for timely sharing of information.
- vii) ICT tools need to be used for data receptions, forecasting and timely dissemination.

VII Mitigation Strategy for Fires

- i) Vulnerable habitations would be identified and mitigation actions would be taken to avoid/reduce incidents of domestic fires.
- ii) Community education would be initiated to reduce and mitigate fire incidents.
- iii) Fire and emergency services would be strengthened in the district.
- iv) Fire insurance would be promoted to transfer the risk.
- v) Community would be involved in tackling forest fires and their participation would be ensured.

VIII. Training and Capacity Building

- a) Training and orientation of Government official would be carried out immediately and in a time frame for the same would be prepared.
- b) Training would be carried out as per the training needs assessment of various departments.
- c) Regular refresher courses would be organized at regular intervals.

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- d) The training would be practical in nature and would focus on skill up-gradation.
- e) The capacity of the departmental training institutes would be upgraded so that they can take up training on DM.
- f) The community, CBOs, NGOs would be targeted for training and capacity building.
- g) A Cadre of local volunteers would be created who would be trained in various aspects of DM such as SAR, MFA etc.
- h) The list of trained officials would be maintained and uploaded in the DDMA website and regularly updated.
- i) New entrants to the Government services would be trained and oriented to DM at the entry level training.
- j) Safe construction practices needs to be promoted and for this local masons, bar benders, carpenters, construction supervisors, contractors would be specifically trained and targeted.

IX Public Awareness

- a) Focused and targeted public awareness programmes would be launched on various aspects of DM.
- b) Hazard specific do's and don'ts would be communicated to the local population in the simplest language.
- c) Traditional modes of promoting knowledge and awareness would be adopted such as use of folk songs, *nukad nataks*, etc.
- d) Community would be targeted through local fairs and festivals.
- e) Documentaries in local language would be screened through local cable networks etc. and mass media would be roped to promote education and awareness.

X Institutional Strengthening

Disasters can be effectively handled and their adverse effects minimized only when the institutional strengthening is done. The departments which have role in emergencies such as fire, police, home guards, health, PWD, I & P, revenue etc. would be strengthened and equipped so that their capacity to deal with disasters is increased. Specific actions would include:

- a) The DDMA would be made functional and active.
- b) DEOC would be set-up
- c) Network of fire services would be increased and they would be equipped to deal with other emergencies too.
- d) Home Guards companies would be equipped to deal with and respond to emergencies.
- e) SAR equipment would also be given to police and fire stations.
- f) Local units of police force would be trained in specialized SAR operations.

XI. Climate Change Adaptation

There are evidences to indicate that Himalayas are warming at a higher rate than the global average rate. It is a matter of great concern as the region has more snow and ice than any other region in the world outside the Polar caps, Himalayas are the maker of climate of much of the South Asia, and the Himalayas glaciers are receding faster than glaciers of the other parts of world. Alpine ecosystems are particularly vulnerable to warming. It may also affect recreational tourism like skiing. Many important forest species are likely to fail to regenerate if the synchrony between their seed ripening and commencement of monsoon rains is broken due to the climate change. Therefore, climate change is likely to impact our glacial reserves, water balance, agriculture, forestry, bio-diversity and human and animal health. There are definite indications that climate change would increase the frequency and intensity of natural disasters like cyclones, floods, cloudbursts, flash floods and droughts in the coming years. In order to meet these challenges in a sustained and effective manner, synergies in our approach and strategies for climate change adaptation and disaster risk reduction shall be encouraged and promoted.

XII. Medical Preparedness and Mass Casualty Management

Medical preparedness is a crucial component of any DM Plan. DM plans for all the hospitals to handle mass casualty and incorporating training and capacity building of medical teams, paramedics in trauma and psycho-social care, mass causality management and triage would be prepared and integrated with DDMP. The NDMA has formulated policy guidelines to enhance capacity in emergency medical response and mass casualty management and the department will use these guidelines for medical preparedness. The plans should inter-alia include safety of structural and non-structural elements in hospital, evacuation plan, provision of alternative hospital and identification of open spaces which could be used as open hospitals to handle the rush of disaster victims. The medical authorities will be encouraged to formulate appropriate procedures for treatment of casualties by private hospitals during disasters. The hospital DMPs will also address post-disaster disease surveillance systems, networking with hospitals, referral institutions and accessing services and facilities such as availability of ambulances and blood banks. The medical DMP will also have provision for mobile surgical teams, mobile hospitals and heli-ambulances for evacuation of patients There is a need to focus on creating adequate mortuary facilities. Proper and speedy disposal of dead bodies and animal carcasses deserves due weightage. Web-enabled database of blood donors will be prepared to facilitate arrangement of blood supply chains during emergencies. For this purpose networking with Red Cross and NGOs would be worked out.

XIII. Communications and Information Technology (IT) Tools for DM

Use of modern communication and information technology tools is crucial for effective and efficient disaster management. The communication and IT tools would be utilised for compiling of information, dissemination, and for spread of forecasting and early warnings. The digital

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mapping of resources would be done and the same would be hosted in web-based portals for easy access and retrieval. These tools can be used in the following areas:

- a) Creating decision support system for the policy makers, disaster managers and responsible officers at all levels;
- b) Real time dissemination of early warning to the all the stakeholders –authorities, DMTs, QRTs, threatened community etc.;
- c) Information and broadcasting mediums such as television, radios, FM stations etc. can be used keeping in view their geographical reach and availability;
- d) Emergency communication system during disasters; and
- e) Collecting and collating information on damage and needs assessment.

XIV. Setting up and strengthening of the Emergency Operations Centres

In line with the national emergency communication plan and national disaster management information and communication system, emergency operation centres (EOCs) would be set-up at the district level. Provision of mobile emergency operation vehicles may be made. EOCs at main locations can also be considered. The EOCs would have fail-safe communication network with multiple levels of built-in redundancy having communication to ensure voice, data and video transfer. Development of Ham Radios network in the district would be encouraged so that it can be utilised during emergency. For last mile connectivity and control of the operations at the disaster hit areas, availability of portable platforms will be catered for. Use of community radios, FM Channels, bulk SMS system and voice messaging system would be made for the last mile connectivity.

XV. Training, Simulation and Mock Drills

Efficacy of DMPs are tested and refined through training, seminars and mock drills. The DDMA and Local Authorities in association with the SDMA and NDMA will also conduct mock drills in different parts of the district to test the efficacy of the plans so prepared. District authorities will be encouraged to generate a culture of preparedness and quick response. Involvement of all the stakeholders and community at large numbers may be ensured to make the mock exercises as a means of awareness generation and community preparation. The inputs and lessons learnt during the mock exercises will be utilized to upgrade and improve the DMPs.

Partnerships for Mitigation and Preparedness

XVI. Community Based Disaster Preparedness

Communities are not only the first to be affected in disasters but also the first responders. Community participation ensures local ownership, addresses local needs, and promotes volunteerism and mutual help to prevent and minimize damage. The community participation for DM would be promoted on the moto of “self-help”, “help thy neighbour” and “help thy community”. The needs of the elderly, women, children and differently able persons require special attention. Women and youth will be encouraged to participate in decision

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making committees and action groups for management of disasters. Networking of youth and women based organisation would be done and they will be trained in the various aspects of response such as first aid, search and rescue, management of community shelters, psycho-social counselling, distribution of relief and accessing support from government/agencies etc. Community plans will be dovetailed into the Panchayat, Block and District plans.

XVII. Mobilising Stakeholders' Participation

The DDMA will coordinate with Home Guards, NCC, NYKS, NSS, sports and youth clubs, women based organisations, and faith based organisations and local Non-Governmental Organisations (NGOs), CSOs etc. for DM. They will be trained in various aspects of DM more particularly in SAR and MFA. They will also be encouraged to empower the community and generate awareness through their respective institutional mechanisms. Efforts to promote voluntary involvement will be actively encouraged.

XVIII. Corporate Social Responsibility (CSR) and Public-Private Partnership (PPP)

Historically, the corporate sector has been supporting disaster relief and rehabilitation activities. However, the involvement of corporate entities in disaster risk reduction activities is not significant. PPP between the Government and private sector would also be encouraged to leverage the strengths of the latter in disaster management. The DDMA would need to network with the corporate entities to strengthen and formalise their role in the DM process for ensuring safety of the communities. The corporate sector also needs to be roped up for on-site and off-site emergency plans for hydro-power projects. The role of corporate sector for awareness generation and local capacity building is also important and efforts would be made to involve corporate sector in this effort.

XIX. Media Partnership

The media plays a critical role in information and knowledge dissemination in all phases of DM. The versatile potential of both electronic and print media needs to be fully utilised. Effective partnership with the media will be worked out in the field of community awareness, early warning and dissemination, and education regarding various disasters. The use of vernacular media would be harnessed for community education, awareness and preparedness at the local level. The DPRO in consultation with the DDMA would take appropriate steps in this direction.

Chapter – 6

Response Plan

There is need of a response structure to activate the Disaster Management Plan (DDMP) once a disaster strikes. In Lahaul and Spiti District the Deputy Commissioner shall be the focal point acting as a Responsible Officer for directing, supervision, and monitoring the DDMP. The Deputy Commissioner shall function with the assistance of the District Emergency Operation Centre (DEOC) to be activated to its full capacity at time of disaster and shall be the nodal center for disaster management. All information regarding disaster situations shall at once be communicated to the District Emergency Operation Centre (DEOC). The DEOC would work as per the EOC manual.

Role of Emergency Operation Centre (EOC) on occurrence of disaster

The EOC will function to its fullest capacity on the occurrence of disaster. The district EOC will be fully activated during Level 0 and Level 1 disasters. The activation would come into effect either on occurrence of disaster or on receipt of warning. On the receipt of warning or alert from any such agency which is competent to issue such a warning, or on the basis of reports from SDO (Civil) or any other agencies on the occurrence of a disaster, all community preparedness measures including counter-disaster measures will be put into operation. The Deputy Commissioner will assume the role of the Chief of Operations for Disaster Management.

The occurrence of Level 1 and Level 2 disaster will be communicated to the following by means of telephone and subsequently fax:-

- i) Governor;
- ii) Chief Minister;
- iii) Revenue Minister;
- iv) MPs and MLAs from affected areas;
- v) Chief Secretary
- vi) State Disaster Management Authority
- vii) Relief Commissioner
- viii) NEOC
- ix) Joint Secretary, NDM, Ministry of Home Affairs, GOI.

The disaster/emergency would be communicated to the following DM, SP, CMO, SDM, Commandant Home Guard, Fire Officer immediately on phone. A written report about the disaster/event would be sent to the DM by the local agency/ authority where disaster took place.

The occurrence of disaster shall be immediately communicated to the members of District Disaster Management Authority at district and sub-division level and other stakeholders such as NGOs, trained SAR volunteers through SMS gateway for which specific provision of group mobile directory would be made. The directory would be grouped according to the

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disaster specific response groups. All the messages received in and sent out of the EOC will be entered into the message register.

The occurrence of disaster would essentially mean the following activities have to be undertaken:

- a) Expand the Emergency Operations Centre to include Branch arrangements with responsibilities for specific tasks depending on the nature of disaster and extent of its impact.
- b) Establish an on-going VSAT, wireless communication and hotline contact with the Divisional Commissioner, and Collector/s of the affected district/s.

[The EOC in its expanded form will continue to operate as long as the need for emergency relief and operations continue and the long-terms plans for rehabilitation are finalized].

BRANCH OFFICERS/NODAL OFFICERS

Branch arrangements would be activated only on the occurrence of major disaster in and it would provide for division of tasks, information gathering and record keeping and accountability of the Branch officer to the Responsible Officer for specific functions. Each Branch should have a Branch Officer of the rank of Deputy Secretary or Joint Secretary at the State Level and Head of Office of the concerned department at the District level assigned.

- i) The Branch/Nodal Officers for Operations, Services, Logistics, Communication and Information Management, Resource Branches will be from the Revenue Deptt.
- ii) For Health Branch, the officer will be from the Public Health Deptt.
- iii) For Public works and Engineering, the officer will be from the Public Works Deptt.
- iv) For adequate water supply, the officer will be from I & PH Deptt.
- v) For Food and Supply, the officer will be from Food & Public Distribution Deptt.
- vi) For Law and Order, the officer will be from Police Deptt.

All Branch/Nodal Officers will work under the overall supervision and administrative control of the Responsible Officer. All the decisions taken in the DEOC during emergency have to be approved by the District Magistrate/ Sub Divisional Magistrate.

Besides the above the DEOC would also do the following functions:-

- a) Assimilation and dissemination of information.
- b) Liaise between Disaster site and State Head Quarter.
- c) Monitoring, coordinate and implement the DDMP.
- d) Coordinate actions and response of different departments and agencies.
- e) Coordinate relief and rehabilitations operations
- f) Hold press briefings.

The DEOC would function through Emergency Support Functions (ESFs). The ESF Plan for the district has been prepared and placed at Annexure – K. The response for search and

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rescue, medical, arrangements for logistics, communication, food, water, temporary shelter etc. would be as per the ESF plan prepared for the district. The primary agency responsible for a particular ESF would act a coordinator and seek necessary assistance from the secondary agency. If the assistance of the secondary agencies involves the requisitioning from the Deputy Commissioners office, the primary agency would place a request to this effect with the DEOC.

Response Structure

The response structure would be based on Incident Response System (IRS) as per the Guidelines issued by the NDMA. The IRS system would work through various service divisions. The IRS system would contract and expand depending upon the nature and magnitude of emergency/disaster. The IRS structure would work at District, Sub-Division, Tehsil, Block level. IRS Structure for District level is given in Figure 25. Deputy Commissioner (Responsible Officer) works through Incident Commanders and Incident Response Teams.

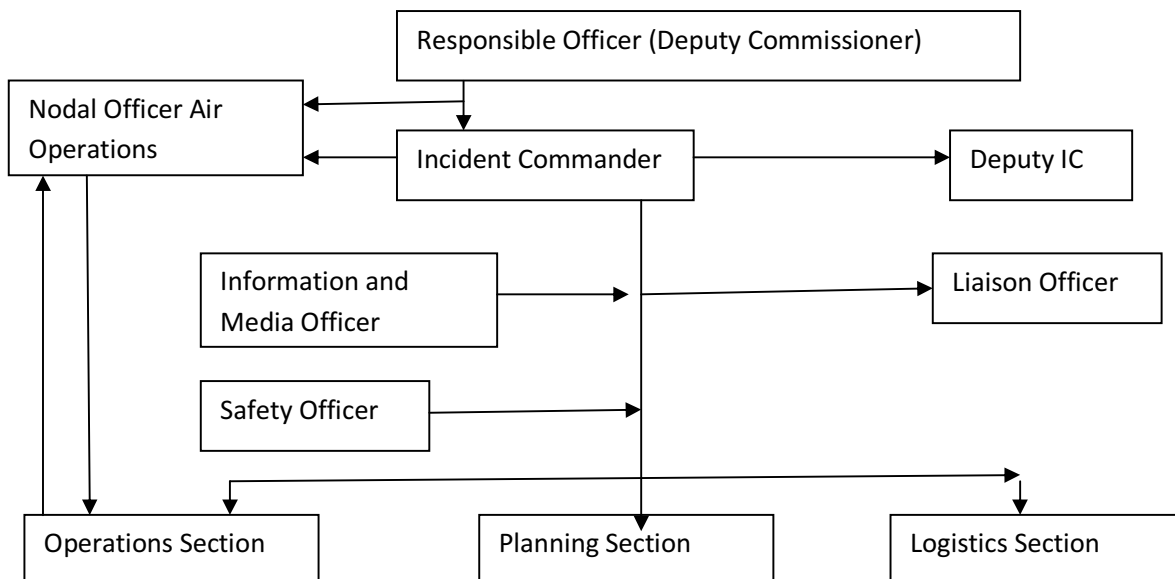


Figure 16 Structure of IRS at District Level

The Incident Commander would be assisted by various service divisions of the District Disaster Management Authority and Sub-Divisional Authorities. These sections would work to the requirement of the emergency. Incident Commander would be assisted by the Incident Response Teams (IRTs) consisting of functionaries from various department depending upon ESF Plan and roles of various departments. The DDMA would notify incharge for all positions as per the IRS system for the district, Sub-division and block level. A sample IRT framework is given in figure 26. The DDMA would also form IRTs for all divisions and notify them. All the functionaries of IRT and IRS would be trained to understand the IRS system.

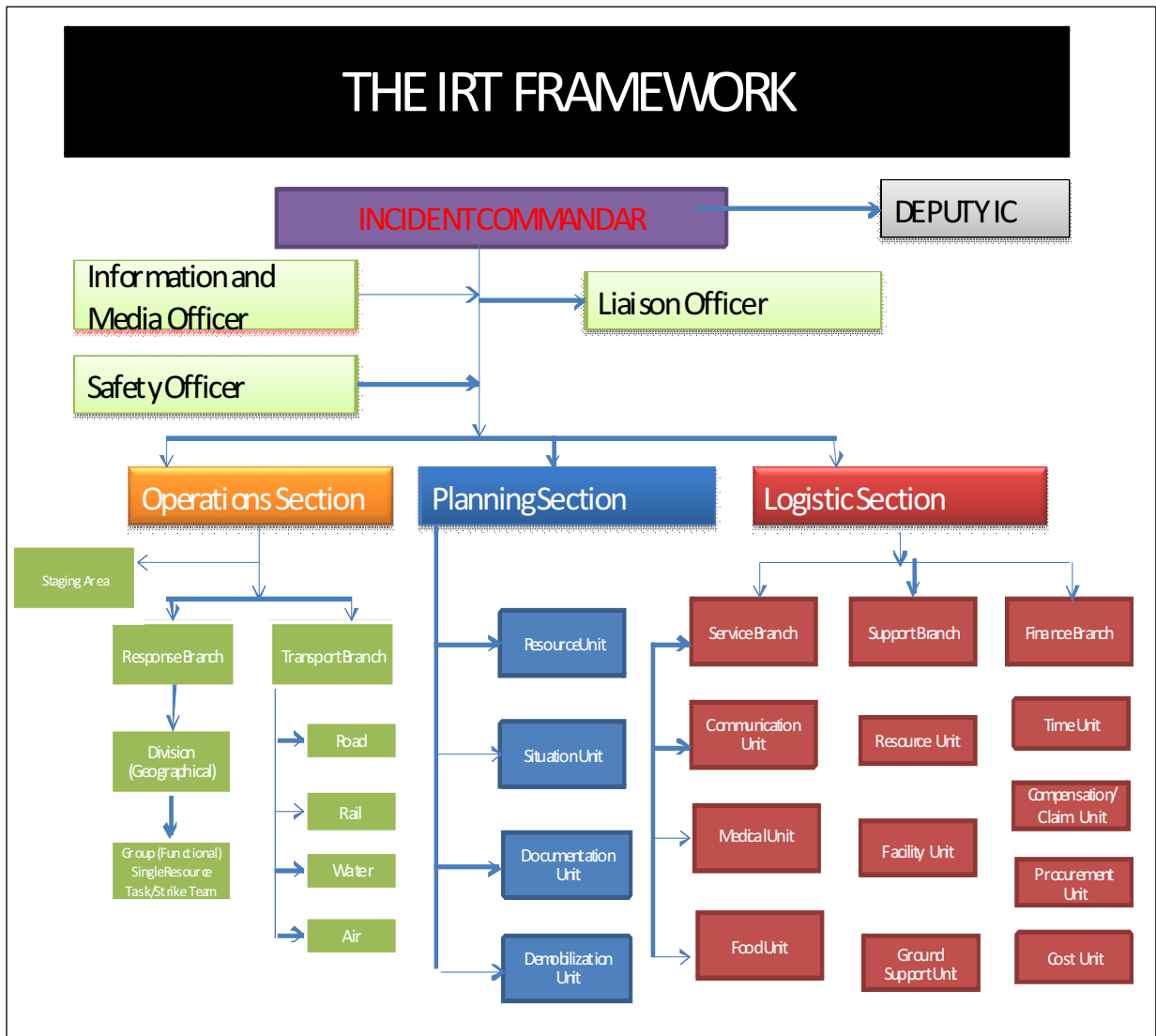


Figure: 17 IRT Framework

Incident Response Structure (IRS) Leadership

The response structure would run parallel from district to village/panchayat level on the basis of ESF plan for various departments and agencies. The IRS would be headed at the district level by the Deputy Commissioner, Sub-division level by the Sub-Divisional Officer (Civil), Tehsil (where Tehsil and Sub-Division is not co-terminus) by the Tehsildar, at the MC level by the Chairman of the ULB and at the Panchayat level by the Panchayat Pradhan. The officers/officials of various departments would be provide the ESF at the appropriate level.

Emergency Warning and Dissemination

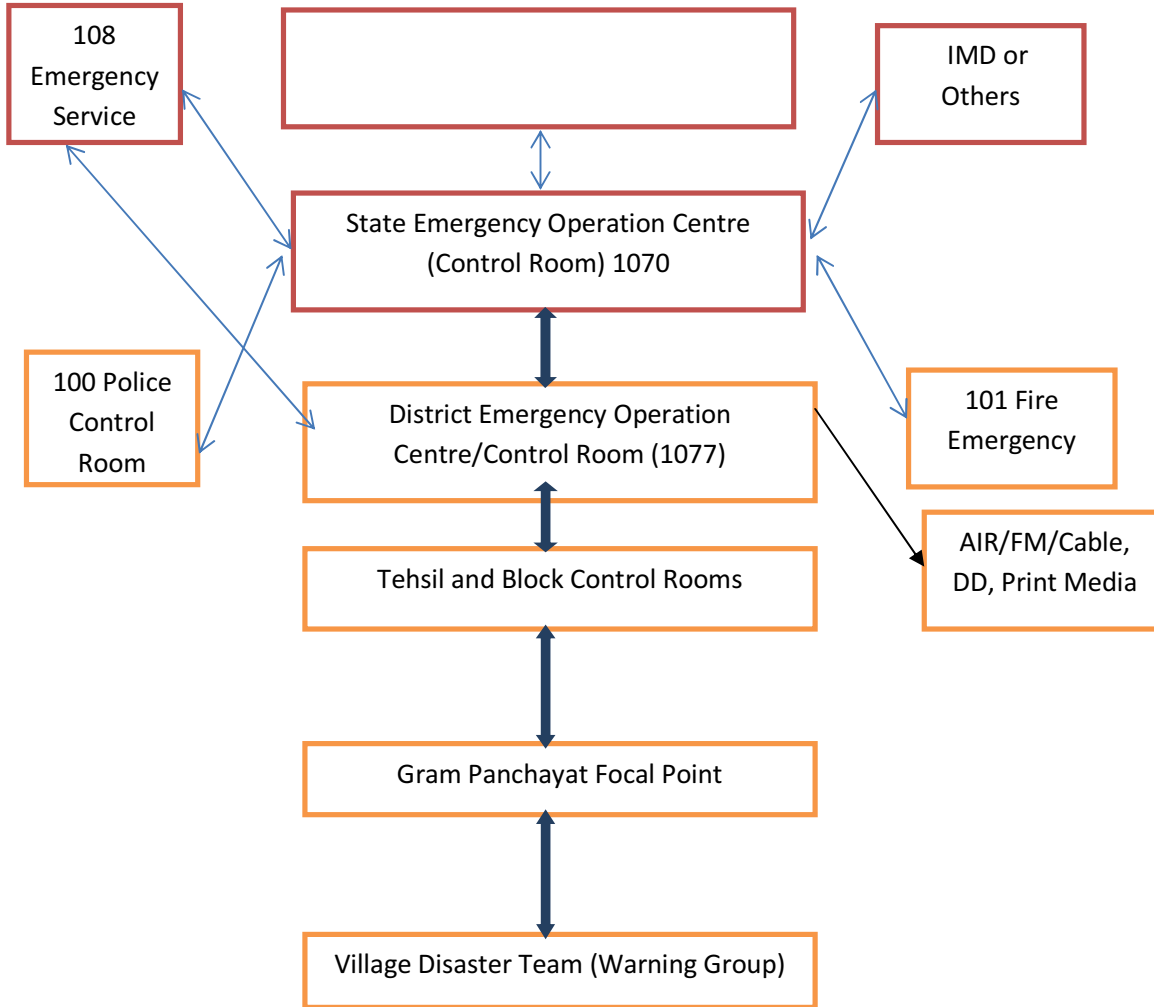


Figure 18: Flow of Early Warning System

The EOC would utilize the ICT tools and various other modes available for early transmission of early warning to the vulnerable groups and also activate the responders.

The bulk group messaging services would also be utilized to alert the vulnerable groups and activate the SAR parties and all the responders. A model of early warning dissemination is given in fig 27 above. The timely flow of early warning system from the source to the targeted stakeholder is very important. The dissemination of early warning should be institutionalized so that it reaches the stakeholders in minimum possible time by recognized means of communication.

Rapid Damage Assessment and Reporting

The response to disaster would be more effective if the damage assessment is immediate and timely. The field staff and agencies of various departments would communicate the damage/loss to the DEOC at the earliest. Initially first information report would be sent which would be followed by the detailed damage assessment reports. The formats for damage assessment are given in the annexures.

Response vis a vis Various Disasters

i) Drought

Response Action of Administration

- The DC shall ensure calling to tenders through advertisement in at least one English and one vernacular newspaper by end of April for supply of potable drinking water throughout the district in advance so that at the time of drought, the formalities be completed.
- The DC shall ensure identification of suppliers and fixation of rates for transportation of drinking water through tankers/tractors Sub-division wise by the first week of April in case of poor rainfall during the preceding winter and otherwise by end of May.
- The DC shall authorize the SDMs for issuing orders for supply of drinking water through tankers as per need.
- The DC shall identify nearest market in adjoining district/ state from where fodder (Straw) is easily available and direct SDMs to advise people to procure fodder from such place and fix the rates thereof plus freight rates to the different places.
- The DC shall submit report to the Government regarding crop loss due to drought and seek funds for utilization in employment generation.
- The DC shall submit report to Government with regard to situation of drinking water supply.
- The DC in consultation with Animal Husbandry dept. shall assess requirement of fodder on the occurrence of drought and submit report to the Government.
- The DC shall constitute joint emergency Sub-Division level and Tehsil level teams consisting of Executive Magistrate, Doctor, SDO (I&PH) for monitoring outbreak of water borne diseases.
- The DC shall issue direction regarding cleaning of Traditional water Bodies prior to onset of summer and succeeding rainy season.
- The DC shall review availability of stock in all fair price shops in view of crop failure.
- The DC shall issue prohibitory orders with regard to sale of over ripe/rotten fruits and vegetables.
- The DC shall ensure stocking of medicines for water borne diseases in all health institutions.
- The DC shall ensure availability of Chlorine tablets and bleaching powder at the village/ Panchayats level.

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- The DC shall converge various programmes and schemes of government for tackling drought situations.

Response Action of SDM

- SDM shall submit weekly report regarding drinking water availability in respective jurisdiction from first week of May to the DC.
- SDM shall prepare route chart for distribution of drinking water in consultation with the Executive Engineer I&PH department.
- SDM shall identify source of drinking water in consultation with the I&PH dept. from where shall take their supply.
- SDM shall direct deployment of water tankers for supply of drinking water.
- SDM shall monitor smooth supply of water through tankers. There shall be made at least two trips in a day by the tankers.
- SDM shall keep record of movement of water tankers in coordination with the I&PH dept.
- SDM shall constitute a team comprising of panchayat Pradhan, Patwari and Veterinary Doctors at local level for verification of fodder procured.
- SDM shall ensure proper voucher/ invoice/ bill produced for providing transport subsidy as per relief manual.
- SDM shall have the drinking water transportation bills verified through the I&PH dept. and release payment for the same.

Response Action by I&PH

- The XEN shall submit weekly reports of status of water supply in departmental schemes from the week of May to the Superintendent Engineer.
- The SE shall compile status of water in the district and submit same to the DC on weekly basis.
- The XEN shall submit demand of supply of water through tankers to the SDM.
- The XEN shall identify source for filling of water tanker.
- The XEN shall ensure chlorination of such water supply.
- The XEN shall ensure purification of natural water sources and all departmental schemes.
- The XEN shall deploy personal (eg. Water guard) with each tanker to ensure proper and equitable distribution of water.
- The XEN shall maintain a register of movement and supply by each tanker which shall be verified by officer authorized by him.
- The XEN shall try to install more hand pumps in areas which chronically face water scarcity during summer.

Response Action by Agriculture Department.

- The Agriculture Officer shall monitor the situation for impact of drought on crop growth and consequent yield.

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- The Agri. Officer shall submit weekly report starting from last week of May and first week of January regard to status of Kharif and Rabi crops.
- The Agri. Officer shall prepare contingency plan for any crop failure due to drought and submit same to the Government and DC.
- The Agri. Officer in view of drought shall organize extensive field camps to advise farmers on alternative crop and strategies.

Response Action by Horticulture Department.

- The Deputy Director Horticulture shall monitor the situation for impact of drought on tree growth and consequent fruit yield.
- The Deputy Director shall submit weekly report starting from last week of May and first week of January with regard to status of fruit bearing trees.
- The Deputy Director shall prepare contingency plan for any crop failure due to drought and submit same to the Government and DC.
- The Deputy Director shall view of drought shall organize extensive crop and strategies.

Response Action by Health Department.

- The CMO shall ensure all medical institutions are stocked with adequate medicines, especially for water borne diseases.
- The CMO shall constitute emergency medical teams at all PHC level to attend to outbreak of any epidemic (eg. Water borne disease.).
- The CMO shall convene a meeting under the DC of all concerned departments including Revenue, Rural Deptt. I&PH, Ayurveda with regard to prevention of water borne diseases.
- The CMO shall ensure issuance of notification banning sale of over ripe/rotten and uncovered fruits/vegetables/flood by the District Magistrate.

ii) Road Accident

Response Action by SDM

- The SDM shall immediately inform the DC of occurrence of accident and establish a control room at Sub-Divisional headquarter.
- The SDM shall immediately direct SHO concern to rush Police personnel to spot.
- The SDM shall immediately direct the Tehsildars/Naib-Tehsildar to rush to the spot.
- The SDM shall immediately put the Health Dept. on the alert by information CMO/BMO concerned.
- The SDM shall depending upon the magnitude of the accident request for assistance from Commandant Home Guard, PWD etc.
- The SDM shall depending upon the magnitude rush to the spot of the accident.
- The SDM shall arrange for search & rescue on the spot taking assistance of Police, Home Guard, Fire Brigade, PRIs, NGOs and local population.

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- The SDM shall evacuate people directly involved in the accident and also general public if it is deemed necessary.
- The SDM shall direct the health dept. to depute ambulance and paramedical and medical staff to the spot immediately for on the spot treatment and first aid.
- The SDM shall arrange for dead van if so required.
- The SDM shall coordinate between the Police, Health dept. Victims and their kith and kin for search and rescue, law and order, traffic management post shall coordinate with the health dept. For conduct of immediate post mortem and early handing over of dead bodies to kith and kin.
- The SDM shall ensure submission of a brief and comprehensive detailed report of the accident within 12 Hrs to the DC. The report shall contain the following information.
 - ❖ Location and details of vehicle involved in the accident.
 - ❖ Prima facie cause of accident.
 - ❖ Detail of passengers with identification if any.
 - ❖ Detail of relief provided in form of medicines and cash.
- The SDM shall keep the DC informed on action being taken on the spot from time to time.

Response Action for Health Department

- The CMO on receiving information regarding the accident shall immediately put on casualty/ emergency ward of District Hospital for referred cases.
- The CMO shall inform the BMO concerned and the SMO of the concerned sub-divisional hospital for similar action.
- The CMO shall arrange for immediate movement of ambulance with medical and paramedical staff to the site of accident.
- The CMO shall ensure portable stretchers are available site for evacuation on the injured and the dead.
- The CMO shall ensure availability of first Aid on the spot.
- The CMO shall depute doctors from surrounding PHC/CHC to the CHC where the injured have been evacuated if staff strength is not enough at that health institution.
- The CMO shall maintain a detail of victims admitted to various health institutions including those referred to specialized health institutions outside the district. The CMO submit in writing to the DC such detail including status of health within 12 Hrs. in consultation with the SDM.

Response Action of SHO

- The SHO shall immediately inform the SDM, SP and DC regarding the incident with details of site.
- The SHO shall immediately depute a team of police personal to the site.
- Depending upon the magnitude, the SHO shall rush to the site and personally coordinate search and rescue, evacuation, traffic regulation, law and order.

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- The SHO shall communicate factual information to the SP on reaching the spot on the following.
 - ❖ Exact location
 - ❖ Prima facie cause of accident
 - ❖ Vehicles involved, transport company
 - ❖ No. of injured
 - ❖ No. of fatalities
 - ❖ Status of driver and conductor
 - ❖ Status of injured
- The SHO shall arrange for search and rescue in consultation with the SDM.
- The SHO shall ensure smooth movement of traffic.
- The SHO shall divert the traffic if required in consultation with the SDM.
- The SHO shall arrange for a guard to protect the property of the victims at the site.
- The SHO shall take necessary legal action as low and also initiate an inquiry into the causes of the accident.
- The SHO shall arrange for early post mortems and quick release of bodies to the kith and kin.
- The SHO shall submit a brief and comprehensive report regarding the accident in consultation with the SDM to the SP with in 12 Hrs of the accident.

Response Action of PWD

- The XEN concerned shall provide equipment and manpower to the SDM at the accident site on request.
- Equipment such as crane, JCB, Bulldozer, Gas cutter etc shall be provided by the XEN as per request of the SDM.
- The XEN/SDO/JE shall supervise such operations at site depending upon the magnitude of the accident as assessed by the SDM.
- The XEN shall ensure manpower is provided at site on the request of the SDM.

Response Action of Home Guards

- The Commandant shall ensure movement of fire brigade immediately to the site when called for by the SDM.
- The Commandant shall provide manpower for assistance in search and rescue, removal of dead, traffic management, first aid etc.

iii) Landslide

Response Action for PWD

- SDO/JE shall immediately inform XEN, SDM, Police Station/ Police Post concerned of occurrence of land slide.

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- SDO/JE of B&R/NH shall immediately rush to the spot on receipt of report of landslide along with Moving Vehicle-JCN/Bulldozer and manpower with manual equipment.
- SDO/JE shall assess on spot magnitude of slide and intimate XEN concerned who shall immediately inform DC / SDM. The assessment shall be of estimate time of clearance, need for diversion of traffic if any, requirement of additional equipment and manpower.
- XEN shall rush to the spot depending upon the magnitude of the land slide.
- XEN shall intimate DC/SP regarding need for diversion of traffic.
- XEN shall intimate DC in case of need for additional requirement of equipment, manpower from adjoining division or district for coordination.
- On clearance of road of landslide shall report back to SDM/DC.

Response Action for Police.

- SHO shall immediately inform SDM, PWD, SP, DC regarding occurrence of landslide.
- SHO shall immediately rush personnel to the spot for traffic control and management.
- Depending upon the magnitude of the landslide the SHO shall personally move to the spot and supervise the situation.
- SHO shall submit his independent assessment of the situation to the SP.
- In case of assessment of need to divert traffic, SHO shall in discussion with the SDM intimate SP/DC.
- SP shall intimate DC regarding need for diversion of traffic for coordination.
- The Police personnel shall ensure maintenance of law and order at spot.
- The personnel shall ensure non-interference in the road clearing work PWD.
- On opening of road, the Police personnel shall on the spot till all traffic has cleared.
- On clearance of road and traffic shall report back to the SP.

Response Action of Administration

- SDM shall immediately inform DC of occurrence of landslide.
- SDM shall immediately inform PWD of occurrence of landslide and direct movement of equipment and manpower to spot.
- SDM shall immediately inform Police Station of occurrence of landslide and direct SHO to rush personnel to spot.
- SDM shall direct Tehsildar/Naib-Tehsildar concerned to move to spot as per magnitude of the landslide.
- SDM shall activate revenue staff for assessment and report from the spot.
- SDM shall coordinate with Police and Home Guard if any Search and Rescue effort is to be launched under intimation to DC
- SDM shall rush to the spot depending upon the magnitude of the land slide and coordinate PWD, Police and Public.
- SDM shall assess need for diversion of traffic in consultation with PWD and Police order for same in consultation with the DC.
- In case of unavailability of alternate route for diversion and long duration of clearing operation, SDM shall coordinate with PRIs/NGOs/Local population to make available water and refreshment for the travelers/tourists.

Chapter - 7

Relief, Recovery, Rehabilitation, and Reconstruction Plan

Approach

Relief, rehabilitation, reconstruction and recovery are important phases of post disaster response. Relief is no longer perceived only as gratuitous assistance or provision of emergency relief supplies on time. It is on the contrary, viewed as an overarching system of facilitation of assistance to the victims of disaster for their rehabilitation in States and ensuring social safety and security of the affected persons. The relief needs to be prompt, adequate and of approved standards.

The recovery phase starts after the immediate threat to human life has subsided. During reconstruction it is recommended to consider the location or construction material of the property. The approach to the reconstruction process has to be comprehensive so as to convert adversity into opportunity. Incorporating disaster resilient features to 'build back better' will be the guiding principle. This phase requires the most patient and painstaking effort by all concerned. The administration, the stakeholders and the communities need to stay focused on the needs of this phase, as, with the passage of time, the sense of urgency gets diluted. The appropriate choice of technology and project impact assessment needs to be carried out to establish that the projects contemplated do not create any side effects on the physical, socio-cultural or economic environment of the communities in the affected areas or in their neighborhood. The involvement of community in decision making is important. Systems for providing psychosocial support and trauma counseling would be developed for implementation during the reconstruction and recovery phase.

Relief

The victims of disaster would need to be provided relief as per the relief code of the State. Displaced population may require to be housed in temporary shelters. The DDMA's would identify locations for setting up temporary camps and make an inventory in advance and make inventory of them. Use of premises of educational institutions for setting up relief camps need to be discouraged as it hampers early recovery. Relief camps will have adequate provision of drinking water, and bathing, sanitation and essential health care facilities. The PRIs, ULBs, CSOs and CBOs shall be trained in handling and running relief camps. The disaster affected population can also be roped in to manage community kitchens. Guidelines/SOPs for efficient governance of relief camps such as identification cards, rationing, entitlement, management of donations, procurement, packaging, transportation and storage etc. may be issued in advance. The stock-piling of essential relief material at suitable locations is also important. Pre-contracting of relief supplied with agencies is important during pre-disaster phase.

In case of devastating disaster extreme weather conditions can be life threatening or when the period of stay in temporary shelters is likely to be long and uncertain, construction of site specific befitting the local environment, ecology and culture, immediate shelters with

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suitable sanitary facility will be undertaken to ensure a reasonable quality of life to the affected people. The DDMA in consultation with the SDMA will plan such shelters which are cost effective and as per the local needs with multi-use potential. Pre-identification of their availability, supply and testing in the local conditions will be done.

The relief supplies would pay attention to the needs of special categories such as pregnant or lactating mothers, infants, newborns, adolescents, and aged people.

Owner Driven Construction

Reconstruction plans and designing of houses need to be participatory process involving the affected community, NGO, corporate sector and the Government. Having a clear cut policy on entitlement, criteria for GIA and land ownership, relocation, exchange of land will facilitate speedy reconstruction. After the planning process is over, while the owner driven construction is preferred option, participation of NGO, corporate sector and technical experts will be encouraged to ensure safe and better reconstruction. Reconstruction programme will be within the confines and the qualitative specifications laid down by the Government. In order to have acceptability for the safe and quality standards it will be better if the safe construction norms, designs and guidelines are finalised during normalcy so that community is well aware of them. Services of CBO, CSOs, and faith based organisation may be taken for this purpose to gain acceptance.

Reconstruction of Social Infrastructure

Essential services, social infrastructure and intermediate shelters/camps will be established in the shortest possible time. For permanent reconstruction, ideally, the work including the construction of houses must be completed within two to three years. State Government and Departments of State Government should create dedicated project teams to speed up the reconstruction process. Involvement of PRIs and ULBs for reconstruction at local level will be encouraged.

Socio-Economic Rehabilitation

Disasters destroy development and livelihood sources. In the post disaster situation there is great need to generate temporary livelihood options for the affected community. The relief and reconstruction programmes would be used to generate livelihood options for the needy. Ongoing or new programmes may be launched which may help the affected community to earn their livelihood. It would be ensured that such programmes result in the creation of assets, infrastructure, and amenities community and equally important is that such assets are hazard resistant, durable, and sustainable. Disasters may also end up in destroying the existing village or housing sites and re-settlement in the existing locations may no longer be possible. Possible sites for re-location of habitation would be identified.

Linking Recovery with Safe Development/Reconstruction – ‘Building back Better’

It will be ensured that the post disaster development/reconstruction does not end up in re-building the existing vulnerability. The reconstruction phase would be utilised to incorporate the building codes, safe construction practices, and zoning regulations. Contingency plans for reconstruction in highly disaster prone areas would be drawn out during the period of normalcy, which may include architectural and structural designs in consultation with the various stakeholders. Emphasis will be laid on plugging the gaps in the social and economic infrastructure and infirmities in the backward and forward linkages. Efforts will be made to support and enhance the viability of livelihood systems, education, health care facilities, care of the elderly, women and children, etc. Other aspects warranting attention will be roads, housing, drinking water sources, provision for sanitary facilities, availability of credit, supply of agricultural inputs, up-gradation of technologies in the on-farm and off-farm activities, storage, processing, marketing, etc.

Chapter - 8

Linking with Development Plan

The Disaster Management Act mandated us to take measures for prevention/mitigation of disasters and to ensure that appropriate preparedness measures for integration of disaster management into development plans and projects are taken and further allocation of funds for prevention, mitigation, preparedness for disaster and capacity building are also made available. Since disaster management is not a function of DM department alone but of all departments hence mitigation concern must be addressed by the respective departments in all aspects of development. The issue of DRR integration is also contained in the National Policy on Disaster Management, 2009.

A. Introduction – Disaster and Development

Natural disaster risk is intimately connected to processes of human development. Disasters put development at risk. At the same time, the development choices made by individuals, communities and nations can generate new disaster risk. But this need not be the case. Human development can also contribute to a serious reduction in disaster risk. The destruction of infrastructure and the erosion of livelihoods are direct outcomes of disaster. But disaster losses interact with and can also aggravate other financial, political, health and environmental shocks. Such disaster losses may setback social investments aiming to ameliorate poverty and hunger, provide access to education, health services, safe housing, drinking water and sanitation or to protect the environment as well as the economic investments that provide employment and income.

How can development increase disaster risk?

There are many examples of the drive for economic growth and social improvement generating new disaster risks. Rapid and unplanned urbanisation is an example. The growth of informal settlements and inner city slums, whether fuelled by international migration or internal migration from smaller urban settlements or the countryside, has led to the growth of unstable living environments. These settlements are often located in ravines, or steep slopes, along flood plains, sinking areas or adjacent to noxious or dangerous industrial or transport facilities. Rural livelihoods are put at risk by the local impacts of global climate change or environmental degradation. Coping capacity for some people has been undermined by the need to compete in a globalising economy, which at present rewards productive specialisation and intensification over diversity and sustainability.

Can development planning incorporate disaster risk?

The frequency with which our country and state experience natural disaster should certainly place disaster risk at the forefront of development planners' minds. This agenda differentiates from two types of disaster risk management. *Prospective disaster risk management* should be integrated into sustainable development planning. Development programmes and projects need to be reviewed for their potential to reduce or aggravate vulnerability and hazard. *Compensatory disaster risk management* (such as disaster preparedness and response) stands alongside development planning and is focussed on the amelioration of existing vulnerability and reduction of natural hazard that has accumulated through past development pathways. Compensatory policy is necessary to reduce contemporary risk, but prospective policy is required for medium – to long-term disaster risk reduction.

B. The Legal Context

The DM Act mandated the DDMA to “lay down guidelines to be followed by the departments of the Government of the State for the purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefore” and to “review the development plans of the different departments of the State and ensure that prevention and mitigation measures are integrated therein”. Under Section 38 (2) (e) of the Act the State Government is to ensure that the integration of measures for prevention of disaster or mitigation have been incorporated by the departments of the Government of the State in their development plans and projects. The State Government is further to ensure integration of measures to reduce or mitigate the vulnerability of different parts of the State to different disasters in the state development plan {38 (2) (f)}.

The Act also prescribes for preparation of District Plan and for incorporation of measures suggesting as to how mitigation shall be integrated into development plans and projects. The Act states that the DMPs shall prescribe “the manner in which the mitigation measures shall be integrated with the development plans and projects”. The DMPs of departments at State and district level shall also have provisions for prevention of disaster and mitigation of its effects or both in the development plans and programmes as provided for in the State DMP and as is assigned to the department or agency concerned.

C. Mainstreaming DRR into Development

Mainstreaming has three purposes:-

- To make certain that all the development programmes and projects that originate from or funded by Government are designated with evident consideration for potential disaster risks to resist hazard impact

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- To make certain that all the development programmes and projects that originate from or are funded by Government do not inadvertently increase vulnerability to disaster in all sectors: social, physical, economic and environment.
- To make certain that all the disaster relief and rehabilitation programmes and projects that originate or are funded by Government are designed to contribute to development aims and to reduce future disaster risk.

Mainstreaming DRR into Development Sectors

DRR refers to the measures used to reduce direct, indirect and intangible disaster losses. The measures may be technical, economic or social. DRR encompasses the two aspects of a disaster reduction strategy: 'mitigation' and 'preparedness'. Mitigation refers to measures aimed at reducing the risk, impact or effects of a disaster or threatening disaster situation, whereas, preparedness refers to the measures undertaken to ensure the readiness and ability of a society to forecast and take precautionary measures in advance of imminent threat, and respond and cope with the effects of a disaster by organising and delivering timely and effective rescue, relief and other post-disaster assistance. 'Mainstreaming DRR' describes a process to fully incorporate the concerns of disaster preparedness, prevention and mitigation into development and post disaster recovery policy and practice. It means completely institutionalizing DRR within the development and recovery agenda. Accordingly, the following broad objectives of mainstreaming DRR into Development will be encouraged:

- Ongoing schemes and projects of the Ministries and Departments of Gol and State Governments, as well as of all Government agencies and Institutions, including Public Sector Undertakings, will be selectively audited by designated government agencies for ensuring that they have addressed the disaster risk and vulnerability profiles of the local areas where such schemes and activities are being undertaken.
- At conceptualization or funding stage itself, the development schemes will be designed with consideration of any potential hazardous impact associated with it and incorporate measures for mitigation of the same.
- All the development schemes will be pragmatic, incorporating the awareness of local disaster risk and vulnerability, and ensuring that the schemes have addressed these concerns and included specific provisions for mitigating such disaster concerns; and
- DDMA will ensure that all the disaster relief and recovery programmes and projects that originate from or are funded by any agency satisfy developmental aims and reduce future disaster risks.

D. Approaches for mainstreaming

There are three suggested approaches of mainstreaming disaster management into the development process and disaster management plans-

1. Structural Measures
2. Non Structural Measures
3. Disaster Mitigation Projects

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Based on the suggested approaches the specific action would involve:-

- a. Adopting a Sectoral approach and identification of Key sectors for mainstreaming.
- b. Within each sector, key programmes/projects would have to be identified.
- c. This has to be followed by indentifying the entry points within the programmes/projects for integration.
- d. It would also involve work at the policy and planning level be it national, state and district level.
- e. It would also need a close coordination with State Planning Commission and Finance Department for promoting DRR into all development programmes and involve working with different departments to mainstream DRR into the Departmental Plans and policies.
- f. Advocacy would have to be done for allocation of dedicated budget for DRR within the Departmental plans.
- g. Further appropriate guidelines for different sectors would have to be development and for it to be effective and sustainable it has DRR would have to be ultimately integrated to the development plans of various departments at the district and sub-district levels.

E. Illustrations of Mainstreaming DRR into ongoing Flagship Programmes

More specifically, as mentioned in the agenda some of the following flagship programmes for Government of India could be used as an entry point for mainstreaming the DRR in development plans and the following steps may be undertaken:-

Sl. No.	Name of The Programme	Department/ Sector	Proposed Strategies for DRR Integration into the Flagship Programmes
1.	Indira Awas Yojana	Rural Development	<ol style="list-style-type: none"> i. Inclusion of such measures like application of Hazard resistant design in construction of IAY houses, appropriate sitting of IAY housing in guideline of IAY ii. Development of model design for IAY houses which could be easily referred to by DRDAs at district level and used for community awareness depending on the geographical location. iii. Capacity Building of Rural masons on safe construction. iv. Capacity Building of PRIs. v. Community Awareness. vi. Capacity Building Programmes for DRDA officials on Disaster Risk Reduction issues.
2.	Mahatma Gandhi National Employment Guarantee scheme	Rural Development	<ol style="list-style-type: none"> i. Utilisation of MGNREGS funds to reduce the vulnerability of Panchayat vis a vis natural hazards such as landslide, drought, forest fire, cloud burst, flash floods, earthquake etc. ii. Giving priority to those works which reduce the vulnerability of area over the works which enhances the vulnerability of the area to natural hazards. iii. Identified works are available which take into account the hazard profile and offer continuous employment opportunities in the event of disasters

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			<p>to ensure livelihood security in the event of disasters.</p> <p>iv. Works which reduce disaster risk are given priority in plans-such as local mitigation works etc.</p> <p>v. Any other implement able suggestion within the ambit of the scheme.</p>
3.	Pradhan Mantri Gram Sadak Yojana	PWD	<p>i. The Master Plan for rural roads, the district rural road plan and identification of core network under the planning process of this scheme should, which the overall guidelines of its preparation, explicitly address the disaster risk reduction concerns and accord priority to connect the vulnerable habitations.</p> <p>ii. The technical guidelines should explicitly provide for suitable protection and inclusion of disaster risk concerns explicitly - while provision of cross drainage, slope stabilization, protection works are already included, in multi-hazard and especially flood and landslide prone areas fair weather roads need to be upgraded on a priority basis.</p> <p>iii. The maintenance guidelines are modified to ensure that in case of disasters these roads get provision for restoration to ensure all weather connectivity.</p>
4.	Sarva Siksha Abhiyaan	Education	<p>i. Development of a Policy paper of school safety.</p> <p>ii. Introducing school safety as a part of the guidelines of SSA which is currently focusing on inclusive development.</p> <p>iii. Developing model structurally safe designs for schools.</p> <p>iv. Introducing School Safety in the Teacher's Training Curriculum.</p> <p>v. Training of Rural Engineers appointed under SSA Scheme as well as the SSA State Coordinators.</p> <p>vi. Training of masons in rural areas.</p> <p>vii. Construction of Technology Demonstration Units.</p> <p>viii. Community Awareness.</p>
5.	Jawahar Lal Nehru Urban Renewal Mission	Urban Development	<p>i. Strengthening of the compliance mechanism at the detail project report submission and appraisal stage in case of infrastructure projects as well as housing scheme to ensure structural safety.</p> <p>ii. Emphasis on disaster risk audit at the stage of preparation of detail project reports.</p> <p>iii. Inclusion of amending of building byelaws to ensure structural safety as a mandatory reform in the Mission cities to ensure safe habitat development.(Both structural safety and fire safety norms).</p> <p>iv. Inclusion of disaster management as a function of the Urban Local Bodies and allocate resources.</p> <p>v. Inclusion of Disaster Resistant features in the houses being constructed under the BSUP component as well as promote development of safe habitat.</p> <p>vi. Inclusion of strategies for disaster management in the City Development Plans.</p> <p>vii. Training and Capacity Building Programmes for municipal officers on disaster risk reduction.</p>
6.	Rajiv Awas Yojana	Urban Development	<p>i. Since Rajiv Awas Yojana is focusing on developing slum free cities and Capacity Building and Community Mobilization is also an important component of RAY, through this programme attempts can be made towards community level disaster preparedness as slum dwellers often become the most vulnerable community during such disasters as floods, fire and high wind speed. The 30 cities selected on a plot basis can be targeted to initiate community based disaster preparedness activities.</p> <p>ii. Also the Housing Programmes to be implemented in these selected cities</p>

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			can ensure incorporation of hazard resistant features and safe sitting.
7.	National Rural Health Mission	Health and family welfare	i. Ensure that the village Health Plan and the District health plan explicitly address the disaster risk reduction concerns in the vulnerable habitations and the vulnerable districts and the disaster management plan as per DM Act 2005 takes links itself to the District and village Health plans. ii. Provide training to the ASHA workers on disaster health preparedness and response. iii. Strengthening of Disease Health Surveillance System in rural areas. iv. Ensuring structural safety of the CHC/PHC and other health care service delivery centers in rural areas. v. Training of doctors and hospital staffs on mass casualty management and emergency medicine. vi. Community awareness on disaster management.

The list given in the above table is an indicative one and many more line departments can be added to it. DRR planning needs to be done at Municipal and Panchayat levels with the involvement of local community representatives; and simultaneously the resource and responsibility to manage would be in the domain of the local authorities. De-centralized planning can enhance local participation along with improved efficiency and equitable benefits.

F. Mainstreaming DRR into Development Planning – Approaches

Disasters are basically unresolved problem of development. Development can increase vulnerability. Development can reduce vulnerability. The outcome rests on developmental choices. The seeds of disasters are often sown in development patterns: poor land use planning, environmental management and lack of regulatory mechanisms. It is due to this reason that despite having almost similar exposures disaster has greater impact on humans in developing or low developed countries than the developed countries. Therefore, disaster risk can best be addressed through integrating into the developmental planning, programmes and processes.

Mapping of hazards, identification of elements at risk and exposure data assist in quantifying risk. Thereafter risk reduction initiatives can be taken. Mainstreaming DRR is a prerequisite for safe and sustainable development. Mainstreaming as a term is used to describe the consideration of DRR elements in national and regional decision making process (Policy, planning and budgeting etc.). DRR integration leads to addition of specific measures to the development plans, programmes and strategies. Some of the key sector where mainstreaming/integration of DRR can be done with illustrations is as under:-

a) **Public Infrastructure:-**

- i) Incorporate disaster risk impact assessment as a part of the planning process before the construction starts.
- ii) Site analysis and risk sensitive land-use planning (either avoid development in hazard prone areas or adopt treatment and mitigation measures)
- iii) Strengthen compliance to the various provisions of the codes – set up hazard safety cell for advice and monitoring

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- iv) Disaster resistant technologies mandatory in case of all construction using public/corporate funds.
- v) Training and capacity building of the department and functionaries.

b) Housing – Rural and Urban

- i) Application of hazard resistant designs
- ii) Prepare construction guidelines for rural areas, Nagar Panchayats and Municipal Councils.
- iii) Amendment of Building bye-laws, Zoning regulations and Development Control Regulations.
- iv) Strengthening the enforcement of techno-legal and managerial regime.
- v) Training of masons, engineers, architects, contractors, promoter and builders.
- vi) Sensitization of the banking and financial institutions.
- vii) Promotion of disaster insurance in housing sector.
- viii) Having a housing reconstruction policy.

c) Health Sector

- i) Ensure hospitals and health facilities are not located in hazard-prone areas.
- ii) Analyze the internal and external vulnerabilities of existing health care facilities during emergencies.
- iii) Retrofitting of the critical hospitals.
- iv) Prepare and implement hospital preparedness plan.
- v) Training of doctors on mass casualty management, trauma care and emergency medicine.
- vi) Training of health workers on emergency preparedness and response.
- vii) Strengthening of disease surveillance system.

d) MGNREGS – Scope of work – Some illustrations

- i) Water conservation and water harvesting;
- ii) Drought proofing, including forestation and tree plantation;
- iii) Irrigation canals, including micro and minor irrigation works;
- iv) Plantation and horticulture;
- v) Renovation of traditional water bodies, including de-silting of tanks;
- vi) Land development;
- vii) Flood-control and protection works, including drainage in water logged areas; and
- viii) Rural connectivity to provide all weather access.

e) Indira Awas Yojna

- i) Study IAY housing typology and develop hazard resistant model design (taking into consideration of available local materials and culture).
- ii) Training of DRDA officials and engineers.

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- iii) Awareness generation among villagers and PRIs members and community mobilization campaign.
- iv) Construction of sample IAY units for promoting the technology.
- v) Training of Masons and community members on hazard resistant technology.

Chapter - 9

GO-NGO and IAG Coordination

Institutional and Legal Framework

The DM Act 2005 recognises that sometimes the development patterns that do not recognise disaster risk and vulnerability in the specific geographic areas may induce disasters. The proactive approach in the DM Act 2005 to address disaster risk and vulnerability through pre-disaster preparedness and mitigation activities also envisions accountability and multi stakeholder participation, including coordination of the activities of the NGOs at various levels. Sections 30 (2) (xix) of the Act mandate the DDMA for collaboration with stakeholder agencies including NGOs for the purpose of improving the effectiveness of DM. Similarly the Act mandates NGOs to act in an equitable and non-discriminatory manner for the purpose of assisting or protecting the disaster affected communities or for providing relief to the affected communities or while dealing with any effects of threatening disaster situations and has fixed the responsibility to monitor this on DDMA's vide section 34 (l). The above provisions ensure that the concerned DM interventions being addressed are supported and facilitated by the civil society organisations working at the grass roots and also takes care of the ground realities.

Section 30 (2) (xix) of the Act stipulates that the DDMA shall “advise, assist and coordinate the activities of the Departments of the Government at the district level, statutory bodies and other governmental and non-governmental organisations in the district engaged in the disaster management” and Section 24 (l) lays down that the DDMA shall “ensure that the non-governmental organisations carry out their activities in an equitable and non-discriminatory manner”. The Act also directs the State Government under Section 38 (2) (a) to coordinate “actions of different departments of the Government of the State, the State Authority, District Authorities, local authority and other non-governmental organisations”.

Sections 35 and 38 specifically emphasise the coordination of actions with NGOs. The National Policy on Disaster Management (NPDM) also states the national vision for community mobilisation and participation in DM and aims to provide momentum and sustenance through the collective efforts of all government agencies and NGOs. There is emphasis on community based disaster management, including last mile integration of the policy, plans and execution and early warning dissemination. Promoting a productive partnership with NGOs is a prominent thrust area in the NPDM.

There is a large scope for improving the engagement of NGOs in DM and on efficiently utilising their unique advantages and core competencies by strengthening humanitarian coalitions, alliances and NGO networks. There is also need to strengthen public awareness, capacity building and knowledge management through CBOs and NGOs. Institutional mechanisms for the advocacy and engagement of NGOs with government agencies on DM

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concerns require to be strengthened. Replication and scaling up of community level good practices has to be promoted.

Advantages of Involving NGOs

- i. NGOs can play a very important role in mobilising communities and in linking PRIs/ULBs with corporate sector entities for initiating DRR related activities.
- ii. The strong linkages which NGOs have with grassroots communities can be effectively harnessed for creating greater public awareness on disaster risk and vulnerability, initiating appropriate strategies for strengthening the capacity of stakeholder groups to improve disaster preparedness, mitigation and improving the emergency response capacities of the stakeholders.
- iii. In addressing the emerging concerns of climate change adaptation and mitigation, NGOs can play a very significant role in working with local communities and introducing innovative approaches based on the good practices followed in other countries.
- iv. NGOs can bring in the financial resources from bi-lateral and multilateral donors for implementing pragmatic and innovative approaches to deal with disaster risk and vulnerability, by effectively integrating and converging the various government programmes, schemes and projects to create the required synergy in transforming the lives of at-risk communities.

Actions to be taken by the DDMA

- i. Developing a database of NGOs, CBOs and Faith Based Organisations at all levels working in the field of disaster management and emergency response and other others focusing on geographic outreach and thematic capacities of the organisations.
- ii. Developing the capacity of identified NGOs, CBOs and organisations in disaster management and emergency response.
- iii. Constitution of Inter-Agency Group (IAG) for the district with an objective to:-
 - Promote and institutionalise unified response strategy in humanitarian crisis.
 - Mainstreaming the emergency preparedness as in integrated development strategy.
 - Systematise the emergency response mechanism.
 - Bringing in the culture of “working together” in emergencies and normalcy.
 - Engagement in activities that will build the capacities of stakeholders and local communities to cope with calamities.
- iv. Development of Criteria for membership of IAG: Any of the following criteria is proposed to become a member of the District IAG:-
 - District Level agencies working in emergency response and preparedness for minimum of five years.

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- International and national funding agencies supporting emergency preparedness and community led risk reduction initiatives for a minimum period of three years.
- Academic and /or research institutions actively involved on disaster related knowledge management and practices.

Membership claim may be scrutinised by a committee of the District IAG for authentication of the prospective member organisation.

Action Points

No.	Issues	Action Points
1.	Geographic spread of NGOs	Develop a database of NGOs at all levels working on disaster management focusing on geographic outreach and thematic capacities of the organisations. (Action: DDMA with the help of NGOs)
2.	Volume of support provided by NGOs	Compile statistics on quantum of support provided by NGOs at all levels, both international and national. (Action: DDMA)
4.	Coordination	Establishing inter agency mechanisms for coordination and networking activities (information and knowledge management, training and capacity building, collaborative advocacy, quality and accountability) at all levels. (Action: DDMA)
5.	Accessibility	Establish protocols for cooperation and ensure access to the affected areas with support from government agencies at respective levels like NDRF and SDRF that have good logistics base to reach inaccessible areas. (Action: DDMA, NGOs, CBOs)
6.	Hazard and vulnerability based	Conduct community centric hazard and vulnerability analysis at all levels, and develop disaster management

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	planning	plans in accordance. (Action: DDMA, NGOs)
7.	Community participation	Ensure community participation in assessment, planning, implementation and monitoring of activities at all levels. (Action: DDMA, NGOs, CBOs)
8.	Mainstreaming of Disability Issues in DM	Support the most vulnerable groups through mitigation activities as well as disaster preparedness and response, with a particular focus on the special needs of the Persons with Disabilities (PWDs). (Action: DDMA, NGOs)
9.	Gender Mainstreaming	Make women's as well as men's concerns and experiences an integral dimension in the design, implementation, monitoring and evaluation of policies and programs such that inequalities between men and women are not perpetuated through the routine operations of DM. (Action: DDMA)
10.	Focus on most vulnerable rather than only on epicentre	National level: Advocate with all actors to reach out to gap areas State level: Coordinate among actors to identify gap Areas District and Local level: Ensure targeting with equity and outreach to all excluded areas. (Action: District NGO Task Forces in DM)
11.	Rural-urban diversity	Develop the capacities of NGOs or specialised civil society agencies at all levels to manage urban as well as rural disasters and accordingly make investments. (Action: DDMA)
12.	Adherence to standards	National level: Develop minimum standards for India State level: Develop minimum standards for the state District and Local level: Develop capacities for adherence

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		to minimum standards through collective and coordinated efforts of all stakeholders (Action: DDMA, NGOs, CBOs)
13.	Transparency and accountability	Develop an agreed framework of accountability for all levels and mechanisms to bring in transparency. (Action: DDMA)
14.	Do No Harm	Advocacy at all levels on Do No Harm through disaster response and development interventions. (Action: District NGO Task Forces in DM)
15.	Exit strategy	Ensure that the NGO programmes have an exit strategy to link with long term recovery/rehab/development programs of other NGOs or the government. (Action: District NGO Task Forces in DM)

(Source: NDMA Guidelines on the Role of NGOs in Disaster Management)

Coordination of Actions of Other Actors

Disasters affect all aspect of human life and all aspects of development. Therefore, Disaster Management is a multi-agency function. It involves actions by all departments, organisation and agencies. In short, it involves all departments of the State Government, Central Government, Armed Forces, civil society and commercial organisation (NGOS, CBOs, Faith Based Organisation, Traders Organisations, Corporate Sector), international organisations working in the field of disaster response, UN Agencies etc. It is therefore, important that roles and responsibilities of each stakeholder is laid down during normal time and coordination mechanism worked out so that the same works during emergencies. It is must that regular meetings with all the stakeholders is held at least once in six months or a year. And all stakeholders are also associated in the mock drills to test their preparedness and clarity of roles and responsibility.

CHAPTER – 10

Financial Mechanism

With change of paradigm shift in DM from the relief-centric to proactive approach of prevention, mitigation, capacity building, preparedness, response, evacuation, rescue, relief, rehabilitation and reconstruction, effort would be made to mainstream and integrate disaster risk reduction and emergency response in development process, plans and programmes of the Government at all levels. This would be done by involving all the stakeholders – Government organisations, research and academic institutions, private sector, industries, civil society organisation and community. DDMA will ensure mainstreaming of disaster risk reduction in the developmental agenda of all existing and new developmental programmes and projects which shall incorporate disaster resilient specifications in design and construction. Due weightage will be given to these factors while allocating resources. Project, which help in reducing the existing vulnerability of the area would be given preference over projects which are likely to enhance it.

Disaster Response and Mitigation Funds

District Disaster Response Funds and District Disaster Mitigation funds would be created at the District Level as mandated in the Act (Section 48). The disaster response funds at the district level would be applied by the DDMA towards meeting expenses for emergency response, relief, rehabilitation in accordance with the guidelines and norms laid down by the Government of India and the State Government. The mitigation funds shall be applied by the DDMA for the purpose of mitigation as per the HP DM Rules, 2011.

Responsibilities of the State Departments and Agencies

All State Government Departments, Boards, Corporations, PRIs and ULBS will prepare their DM plans including the financial projections to support these plans. The necessary financial allocations will be made as part of their annual budgetary allocations, and ongoing programmes. They will also identify mitigation projects and project them for funding in consultation with the SDMA/DDMA to the appropriate funding agency. The guidelines issued by the NDMA vis a vis various disasters may be consulted while preparing mitigation projects.

Techno-Financial Regime

Considering that the assistance provided by the Government for rescue, relief, rehabilitation and reconstruction needs cannot compensate for massive losses on account of disasters, new financial tools such as catastrophe risk financing, risk insurance, catastrophe bonds, micro-finance and insurance etc., will be promoted with innovative fiscal incentives to cover such losses of individuals, communities and the corporate sector. In this regard, the Environmental Relief Fund under the Public Liability Insurance Act, 1991, enacted for providing relief to chemical accident victims is worth mentioning. Some financial practices such as disaster

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risk insurance, micro-finance and micro-insurance, warranty on newly constructed houses and structures and linking safe construction with home loans will be considered for adoption.

CHAPTER – 11

KNOWLEDGE MANAGEMENT

There is a need to create a network of knowledge institutions in the field of DM, to share their experiences and knowledge. The DDMA would forge ties with knowledge institutions such as NITs, IITs, CBRI, SASE, ICIMOD, GSI, CWC, IMD, Wadia Institute of Himalayan Geology Dehradun, etc., and UN Agencies and other national and international agencies dealing with emergency response will be done to utilised their experience and knowledge for DM in the district.

In acknowledgment of the need for a knowledge sharing platform on DM, and to facilitate interaction and dialogue with related areas of expertise, the DDMA website within the district website would be created. It will connect all Government Departments, statutory agencies, research organisations/institutions and humanitarian organisations to share collectively and individually their knowledge and technical expertise. ICT would be utilised to disseminate knowledge to the stakeholder so that they can benefit from it.

Documentation of Best Practices

The indigenous technical knowledge would be documented and promoted. And in the immediate aftermath of any disaster or incident, field studies will be carried out, with the help of experts wherever needed, as an institutional measure. These studies will concentrate on identifying gaps in the existing prevention and mitigation measures and also evaluate the status of preparedness and response. Similarly, the lessons of past disasters will also be compiled and documented. The recovery and reconstruction process will also be analysed for further refining the DM processes and training needs.

CHAPTER - 12

Monitoring and Evaluation

The following monitoring and evaluation procedure would be followed to make the plan functional and a living document:-

- a) The DDMA shall regularly review the implementation of the plan.
- b) In order to improve the plan the DDMA would check the efficacy of the plan after any major disaster/emergency in the district and see what did work and what did not work and make amendments to the plan accordingly.
- c) As per Sub Section (4) of Section 31 of the Disaster Management Act, 2005 the plan would be reviewed and updated annually and the year in which the plan has been reviewed would be clearly mentioned in shape of header in each page of the plan.
- d) Resource inventory of the district fed into the IDRN would be regularly updated and appended to the plan.
- e) Names and contact details of the officers/officials who are the nodal officers or the incharge of resources to be updated on regular basis.
- f) A soft copy of the plan would always be kept in the DDMA website for reference by all concerned.
- g) A Copy of the plan would be sent to all the stakeholder departments, agencies and organisations so that they know their role and responsibilities and they are also prepare their own plans.
- h) Regular Mock Drills should be conducted to test the efficacy of the plan and check the level of preparedness of various departments and other stakeholders.
- i) Regular training and orientation of the officers/officials responsible to implement the plan should be done so that it becomes and useful document to the district administration.
- j) Regular interaction and meetings with the CPMFs and Army or any other central government agency would be done by the DDMA should that there is no problem of coordination during disasters. The representatives of these organisations should be invited as expert for the DDMA meeting. A copy of the DDMP should also be shared with them.
- k) The DEOC would assist the DDMA in keeping the plan in updated form and collecting, collating and processing the information.
- l) The DDMP would be comprehensively reviewed in the year 2013 latest by March and incorporating feedback from the departments and field officers.

District Disaster Management Plan ,2012 lahaul & Spiti H.P.

Annexure – A

IMPORTANT TELEPHONE NUMBERS (DISTRICT ADMINISTRATION)

DISTRICT ADMINISTRATION					
Sr. No.	Designation	Name	Office No.	Residence	Fax No.
1.	Dy. Commissioner	Sh. S.S. Guleria	01900-222501	222503	01900-222502
2.	SDM	Sh. Prashant Sirkek	01900-222225	222224	01900-222502
3.	P.O. ITDP	Sh. Prashant Sirkek	01900-222262	-	01900-222262
4.	P.O. DRDA	Sh. Hira Nand	01900-222422	-	01900-222422
5.	Tehsildar Lahaul	Sh. Roop Lal	01900-222258	-	01900-222502
POLICE DEPARTMENT					
6.	S.P.	Sh. Sunil Kumar	01900-222226	222227	01900-222226
7.	D.S.P.	Sh. Tejender Verma	01900-222269	-	01900-222226
8.	SHO, Keylong	Sh. Lokinder Singh	01900-222223		
9.	Dist. Inspector Police	Sh. Ram Singh	01900-222269		
PWD DEPARTMENT					
10.	Astt. Engineer, PWD	Sh. H R Bhardwaj	01900-222276	-	01900-222276
11.	JE	Sh.Chaman Lal	1900-222276	-	01900-222276
HPSEBL					
12.	SR. E.E. HPSEBL	Er. R.K. Sharma	01900-222291	-	01900-222292
13.	AE, HPSEBL Keylong	Er. Prem Chand	01900-222260	-	-
IPH					
14.	Executive Engineer	Er.S K Jaswal	01900-222209	-	01900-222209
15.	AE	Er. K.C. Thakur	01900-222246	-	-
HEALTH & AYURVEDA					
16.	C.M.O.	Dr. Shamsher Singh Pujara	01900-222243	-	01900-222243
17.	Medical Officer	Dr. Abhinav Rana	01900-222243	-	-
18.	District Ayurvedic Officer	Dr. Randheer	01900-222271	-	01900-222271
EDUCATION					
19.	Dy. Director, Higher Edu.	Sh. PN Parsheera	01900-222237	-	01900-222237
20.	Dy. Director, Elementary Education	Sh. PN Parsheera	01900-222237	-	01900-222237
21.	Principal GSS, Keylong	Sh. Kishan Lal(Off.)	01900-222257	-	-
22.	Principal DIET	Smt. Pushpa Devi	01900-241267	-	-
AGRICULTURE/HORT DEPARTMENT					
23.	Dy. Director, Hort	Sh. Sonam Bodh	01900-222250	-	01900-222250
24.	Dist. Agri. Officer	Sh.Vijay Kumar	01900-222251	-	01900-222251
OTHER OFFICERS					
25.	District Try Officer	Sh.Dorje Ram(Off.)	01900-222239	-	01900-222239
26.	C.A. O. Home Guards	Sh. Hari Singh	9418151930	-	-
27.	DFO	Sh. H L Rana	01900-222235	-	01900-222235

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28.	Regional Manager, HRTC	Sh. Mangal Chand	01900-222245	-	01900-222245
29.	Dy. Director Animal Health	Dr. Ranjeet Singh	01900-222249	-	01900-222249
30.	A.P.R.O.	Sh. Labh singh	01900-222236	-	01900-222236
31.	District F&S Controller	Sh. R.K. chadha	01900-222229	-	01900-222229
32.	DPO ICDS	Sh. Ranjit Singh	01900-222862	-	01900-222862
33.	P O Himurja	Sh. Chaudhary	01900-222916	-	01900-222916
34.	70 RCC Satingri	Mr.Anthony Selva Kumar	01900-222316	-	01900-222316
35.	Incharge Fire Post	Mehar Singh	8894122077		
36.	District Information Officer	Sh. Balwan Singh Negi	01900-222759	-	01900-222502
37.	Distt. Statistical Officer	Sh. Hira Nand	-		
38.	Distt. Welfare officer	Sh.Roshan Lal Thakur	01900-222993	-	
39.	Distt. Panchayat Officer	Sh. Ranjeet Singh	01900-222453	-	01900-222453
1. ITBP					
40.	Incharge ITBP Karga	Sh.Naresh Kumar	01900-241209	-	
2. Lahaul BLOCK					
41.	BDO	Sh.Sonam Tandup	01900-222253	-	01900-222253
42.	Tehsildar	Sh. Roop Lal	01900-222258	-	-
43.	CDPO	Sh. Raghubir Singh	01900-222281	-	-
44.	SHO Keylong	Sh. Lokinder Negi	01900-222269	-	-
3. Udaipur Sub BLOCK					
45.	S.D.M. Pooh	Sh. Nishant Thakur`	01909-246224	222225	01909-222224
46.	Naibn Tehsildar,	Sh. Om chand Sharma	01909-246240	-	-
47.	BDO	Sh. Nishant Thakur	01909-246224	-	-
48.	XEN, PWD	Sh. P D Yadav	01909-246238	-	01900-222237
49.	AE, Elect	Sh.Virender Sharma	01909-246244	-	
50.	SHO,	Sh.	01909-		
4. Spiti BLOCK					
51.	A.D.M.	Sh. Hemis Negi	01906-222202	-	01906-222202
52.	SDM	Sh.Rahul Chauhan	01906-222302	-	-
53.	PO ITDP	Sh.Rahul Chauhan	-	-	-
54.	Tehsildar	Sh. Surjan Singh	01906-222206	-	-
55.	BDO	Smt. Shanti Devi			
56.	Executive Engineer, PWD	Sh. Ashok Kumar	01906-222252		
57.	XEN, I&PH	Sh. Sat Pal Lohia	01906222380		
58.	AE, Elect	Sh. Sanjay Negi	01906222228		
59.	APRO	Sh. Ram Dev	01906-222214	-	-
60.	SHO	Harnam Singh	01906222210	98573-64739	

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Annexure - B

IMPORTANT CONTACT DETAILS FOR DISASTER RESPONSE

DISASTER MANAGEMENT DIVISION, MINISTRY OF HOME AFFAIRS

(for reporting of grave disaster and for requisitioning of Army, Air force and NDRF)

Name of Officer/Designation	Tel(Office)	Tel (Residence)	Mobile No.	Email id
R. K. Singh HOME SECRETARY	23092989 23093031 23093003 (Fax)	24103058		hshso@nic.in
A.E. Ahmad SECRETARY (Border Management)	23092440 23092717 (Fax)	24602518		secybm@nic.in
Ravindra Kumar Srivastava Joint Secretary (Disaster Management)	24638206 24610906 (Fax)	26874825		jsdm@nic.in
Dev Kumar Director (Disaster Management-I)	24642853	26266708	9871087616	
J P Mishra Director (NDM –II)	24642381			
Sanjay Aggarwal Director (NDM – III)	24642381			
Control Room (Disaster Management)	23093563 23093564 23093566	23093750(Fax)		
Toll Free No. (MHA, C/R)	011-1070			

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NATIONAL DISASTER MANAGEMENT AUTHORITY

(for reporting of grave emergencies and request for specialized response)

Name of Officer/Designation	Tel(Office)	Tel(Residence)	Mobile No.	Email id
M. Shashidhar Reddy, MLA, Vice Chairman	011-26701701 011-26701704 011-26701706(Fax)			vc@ndma.gov.in
Dr. Sutanu Behuria Secretary	011-26701710			secretary@ndma.gov.in
Shri Amit Jha, JS (Admn)	011-26701718	011-26109395	09717873412	amitjha@ndma.gov.in
Shri P K Tripathi, Advisor & JS(Mitigation)	011-26701816		09868889697	pktripathi@ndma.gov.in
Sujata Saunik, JS (PP)	011-26701817			jsadm@ndma.gov.in
Control Room	011-26701723 to 728	011-26701729 - 30		

Contact Details Of NDRF Officers

(for Specialized response during disasters)

NDRF Head Quarter

Name	Designation	Address	Tele.	Fax.	Mobile	E-mail.
Shri Rajiv ,IPS	DG	Directorate General , National Disaster Response Force (NDRF)	011-26712851 011-26161442	011-26105912.	09818916161	dg-ndrf@nic.in

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		Sector-1 R K Puram, New Delhi - 66				
Shri Mukul Goel	IG	Directorate General , National Disaster Response Force (NDRF) Sector-1 R K Puram, New Delhi - 66	011- 26160252 011- 26113014	011- 26105912.	09871115726	-
Shri Rakesh Ranjan	Dy Commandant (Proc)	Directorate General , National Disaster Response Force (NDRF) Sector-1 R K Puram, New Delhi - 66	011- 26107921	011- 26105912.	08860136649	rakeshbsf@gmail.com
Shri Om Parkash	Inspector Control Room	Directorate General , National Disaster Response	011- 26107953	011- 26105912.	08010072169	

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		Force (NDRF) Sector-1 R K Puram, New Delhi - 66				
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NDRF BNS

Name	Designation	Address	Tele.	Fax.	Mobile	E-mail.
Sh. R.K.Verma	Commandant	7th Bn NDRF, Bibiwala Road, Bhatinda(Punjab)	0164- 2246030	0164- 2246570	09417802032	comdt.27thbn@itbp.gov.in , 7thbnndrfbathinda@gmail.com
Sh.Jaipal Yadav	Commandant	8th Bn NDRF, Greater Noida,Distt.G.B.Nagar, UP	0120- 2351101, 0120- 2351087	0120- 2351105	09968610011	eighthndrf@yahoo.com , jpyadav1960@yahoo.com

Note: The NDRF Bhatinda is responsible for Himachal for normal disasters and UP based battalion for CBNR emergencies.

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SNOW & AVALANCHE STUDY ESTABLISHMENT (CHANDIGARH) (DRDO)(0172)

(For snow avalanche early warning and related issues)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	Mobile No.	Email id
A.Ganju Jt. Dir.	2699804-806	2705990	09872083177	2699802
Rajesh Chand Thakur , T.O(B)			09417049754	

GEOLOGICAL SURVEY OF INDIA

(For landslide related issues)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	Mobile No.	Email id
N.L. Sharma , Director Geological Survey of India Plot No 3 Dakshin Marg Sector 33B Chandigarh - 160020	0172- 2622529 0172- 2621945 (Fax)	0172-2661002		gsichd@sancharnet.in

INDIAN METEOROLOGICAL DEPARTMENT (SHIMLA)

(for weather related early warning and data)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	Mobile No.	Email id
Manmohan Singh , Director	0177-2626211	0177-2626490	9816127668	mm_sandhu@yahoo.co.in
R.K. Lakhnupal , Asstt Meteorologist	0177-2624976	0177-2652408	9418277093	
Ranvir Singh	0177-2624976		9418061077	ranvir_10@yahoo.com
Harminder Dutta , Caretaker (VOR)	0177-2624976		9418119123	harminder.dutta@imd.gov.in

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CENTRAL WATER COMMISSION (SHIMLA)

(For floods/flash floods and early warning thereof)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	Mobile No.	Email id
Director (M&A) CWC, Block 10, First Floor Commercial Complex, Kasumpti Shimla 171009	0177-2624036 0177-2624224 (Fax)	0177-2625307		
Ex, Engineer, Snow Hydrology Divn CWC, Block 9, First Floor Commercial Complex, Kasumpti Shimla 171009	0177- 26230260 0177-2623026 (Fax)	0177-2628247		

ARMY HQR (EXCHANGE NOS-23010131/23018197)

(For requisition of army during disasters)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	Mobile No.	Email id
DGMO	23011506 E-33170 Fax 23011506	23011506 E-33172		
ADGMO (A)	23011611 E-33174 Fax 23011617	24615208 E-35251		
ADGMO (B)	23014891 E-33176 Fax 23011617	26142269 E-39124		
Dir MO – 6	23018034 E-33220 Fax 23011617		9818106439	
GSO-I MO - 6	23019739 E-33221 Fax 23011617		E-39823 9810431696	
DirOL – 2	23335218 23018530 E-35221	23339055		

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ARMY TRAINING COMMAND, SHIMLA

(For Army assistance)

Name	Designation	Contact No.	Address
Army Exchange		0177 2804590 to 2804592	Shimla - 3

AIR HQR (EXCHANGE NO-23010231)

(For requisition of Air force in disasters)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	Mobile No.	Email id
ACAS (Ops)	23014424 23010231/7528 Fax 23017627	24672974	9871213393	
PD Ops (Off) (T&H)	23110231/7559 23016354 Fax 23016354	24642195	9871097909	
Dir Ops (T)	23010231/7545 2305857	23098030		
Dir Ops (H)	23010231/7551 Fax 23016354	25674906		
JD Ops (LS)	23010231/7546 Fax 23016354		9818220586	
JD Ops (H)	13010231/7552 Fax 23792973		9868468583	

CIVIL MILITARY LIASON FOR DISASTER RELIEF OPERATION (AIR)

CONTACT DETAILS OF AIR FORCE STATION SARSAWA, SAHARANPUR, UTTAR PRADESH

(For Requisition and Deployment of Helicopters in Disasters)

Name	Designation	Contact No.	Address
Mr. Bhanu Johri	Group Captain and Station Incharge	Tel No. 01331 244919-207 Fax No. 01331 - 244822	AF Stn, Sarsawa Saharanpur (UP), PIN - 247232

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Mr. Vineet Sharma	Wing Commander, Chief Operations Officer	As Above Cell No. + 91 7599342240	As Above
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CENTRAL CRISIS GROUP

(National Level)

(For industrial and chemical disasters)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	Mobile No.	Email id
Sh. Vijai Sharma, Secretary, Ministry of Environment & Forests, Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi-110003.	011-24361896 011-24360721 011-24360721 (Fax)	011-26883988		Vijay.sharma@nic.in
Sh. Rajiv Gauba, Joint Secretary, Ministry of Environment & Forests, Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi-110003.	011-24360634 011-24363577 (Fax)	0177-26192110	09871374660	

All India Radio

(For broadcasting services)

Name	Designation	Contact No.	Address
Mr. T K Tawal	Station Director	0177 2801899 (Office); Residence - 2831281 Fax 0177 2801899; email – airshimla@yahoo.com	Ambedkar Chowk, Shimla - 4
Mr. Devinder Mahindru	Programme Executive	0177 2563038 – O; 0177 2831748	As Above

District Disaster Management Plan ,2012 lahaul & Spiti H.P.

HQ, CE (P) DEEPAK,

(For Boarder Roads)

Name	Designation	Contact No.	Address
Mr. IR Mathur	Chief Engineer	0177 2830986 (Office); Residence – 2831850	Minto Court, Shimla - 4
Col. SS Pathania	-	0177 2633602 – O; 0177 2831748	As Above

INDO-TIBETAN BORDER POLICE, TARADEV, SHIMLA - 10

(For Requisition and Deployment in Disasters)

Name	Designation	Contact No.	Address
Sh. A S Chawla	DIG	0177 2830601 (O); 2830602 (Resi) Email – dighpitbp@sancharnet.in	Taradevi, Shimla - 10
	Staff Officer ADM to DIG	0177 2831010 (O), 2830604	As Above

BHARAT SANCHAR NIGAM LIMITED, HP CIRCLE SHIMLA - 10

(For communication related issues)

Name	Designation	Contact No.	Address
Mr. Rakesh Kapoor	Chief General Manager	0177 2620220 (O); 2625325 (Fax)	SDA Complex, Kasumpti
Mr. A V Chaturvedi	General Manager, Mobiles	0177 2673999 (O), 2673923 (Fax)	As Above
Mr. Prem Singh	General Manager, Telecom	0177 2800666 (O); 2800777 (Fax)	

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INDIAN OIL CORPORATION

(For POL and LPG)

Name	Designation	Contact No.	Address
Mr. Piyush Mittal	Divisional Manager Sales	0177 2625768 (O); 2621706 2623158 (Fax)	Block No. 21, SDA Complex, Shimla.
Mr. Mukesh Kumar	Manager, LPG	0177 2623133 (O), 2671350 (R)	As Above
Mr. Rajan Berry	Deputy Manager Sales	0177 2625363 (O)	As Above

CENTRAL PUBLIC WORKS DEPARTMENT

(For road clearance, machinery and manpower)

Name	Designation	Contact No.	Address
Mr. Gurba Singh	SE	0177 2657531 (O); 2804696 (R), Cell - 9418004466 2652476 (Fax); email – sescshimla@yao.com	CPWD, Kennedy Cottage, Shimla - 4
Mr. J K Goel	XEN Planning	0177 2658131 (O), Cell - 09318050506	As Above
Mr. M P Singh	XEN	0177 2652830 (O), 2652412 (R)	As Above

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ANNEXURE – C

TELEPHONE NUMBERS OF PUBLIC REPRESENTATIVES

List of Pradhan's Block Lahaul Distt. Lahau & Spiti

Sr. No.	Name of Gram Panchayat	Name of Pradhan	Contact No.
1	Tindi	Smt. Champa Devi	01909-254017
2	Udaipur	Sh. Shamsher Singh	94182-05816
3	Chimrit	Smt. Prem Dasi	94590-28454
4	Tingrit	Smt. Savitri Devi	94599-88998
5	Shakoli	Smt. Raj Dehi	94598-28411
6	Triloknath	Sh. Amar Lal	94597-84068
7	Thirot	Sh. Jagdish	----
8	Mooring	Smt. Prempyari	94185-41536
9	Nalda	Smt. Rajni	94188-03567
10	Jahalma	Smt. Palmo	94189-92493
11	Goharma	Smt. Lal Dehi	94184-29080
12	Jobrang	Smt. Shanti Devi	94188-45978
13	Sansa	Sh.Veer Singh	94183-56319
14	Ranika	Smt. Lata Devi	94188-44336
15	Warpa	Smt. Shakuntla Devi	94188-43646
16	Tandi	Sh. Suresh Kumar	94181-83255
17	Goshal	Sh. Dev Parkash	94590-14701
18	Mooling	Sh. Sher Singh	94597-83854
19	Gondhla	Sh. Ramesh Kumar	94187-77123
20	Khangsar	Sh. Sunder Lal	94182-70459
21	Sissu	Sh. Dharam Pal	94184-90449
22	Koksar	Sh. Om Parkash	94182-05236
23	Kardang	Smt. Dechen Yangzin	01900-222347
24	Barbog	Smt. Chhering Dolma	94185-77605
25	Kolong	Kumari Tashi Dolma	94187-74732
26	Darcha	Smt. Chhering Phunchog	94591-08071
27	Yurnath	Sh. Amar Singh	94184-11690
28	Keylong	Sh. Gialchhan	94160-63672

List of Zila Parishad,BDC Member,Pradhan in District Lahaul & Spiti District.

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List of Zila Parisad Member's

Sr.No	Name of Ward	Zila Parisad	Contact No.
1	Udaipur	Sh. Amar Nath	94184-08255
2	Triloknath	Sh. Rajeev (Vice-Chairman)	94186-00213
3	Jahalma	Smt. Sumitra Devi	94598-28383
4	Warpa	Smt. Mandassi	94591-07707
5	Keylong	Smt. Sashi Kiran	94188-90222
6	Sissu	Sh. Prem Chand	94181-18889
7	Kolong	Sh. Rigzin Sumphe Hayarpa	94185-50400

List of Panchayat Samiti Member Block Lahaul

SR.No	Name of Ward	Name of Panchayat Samiti Member	Contact No.
1	Tindi	Smt Ram Devi	94184-34228
2	Udaipur	Smt. Mani Devi	94594-86210
3	Tingrit	Smt. Nisha Dolma	94181-41919
4	Triloknath	Sh. Satish	94599-93399
5	Mooring	Sh. Sukh Dass	94185-53617
6	Jahalma	Smt. Savitri Devi	94188-03559
7	Gohrma	Smt. Sangeeta	94591-06078
8	Sansa	Smt. Sukhdehi	94183-54017
9	Tandi	Sh. Anil Kumar	94181-95550
10	Goshal	Smt. Ram Dasi	94187-20042
11	Keylong	Sh. Norbu Chhering	94180-11379
12	Kolong	Sh. Tanzin Norbu(vice-chairman)	94186-61885
13	Kardang	Smt. Tashi Angmo	94187-02647
14	Gondhla	Sh. Sanjeev kumar (chairman)	94184-31000
15	Sissu	Smt. Neela Devi	94187-74132

List of Pradhan's Spiti Block

Sr. NO	Name of Panchayat	Name of Pradhan	Contact No.
1	Loser	Smt Chamba Dolme	8988106935
2	Hull	Smt. Konchog Dolma	94187-59092
3	Khurik	Smt. Dechen Angmo	94189-91832
4	Kaza	Sh. Padma Dorje	94183-56894
5	Langcha	Kumari Nedit Kalzang	94597-17501
6	Kibber	Sh. Chhering Dorje	94189-81390
7	Demul	Smt. Padma Angmo	89917-23023
8	Laloong	Smt. Sonam Kumzom	-

District Disaster Management Plan ,2012 lahaul & Spiti H.P.

9	Dhankar	Sh. Sonam Dorje	94594-83430
10	Kungri	Sh. Chhimed Dorje	94590-43109
11	Sagnam	Smt. Dorje Yudon	94187-73757
12	Tabo	Sh. Tashi Chhering	94593-00508
13	Gue	Sh. Ashok Kumar	94187-57498

13.4 List of Zila Parishad,BDC Member,Pradhan in District Lahaul & Spiti District.

List of Zila Parisad Member's

Sr.No	Name of Ward	Zila Parisad	Contact No.
1	Loser	Smt. Tenzin Chonzom (Chairman)	94591-02546
2	Kaza	Smt. Dolkarma	94595-72012
3	Sagnun	Smt. Chhewang Zangmo	89880-55750

List of Panchayat Smiti Member's Spiti Block

Sr.No.	Name of Ward	Name of Panchayat Smiti Member	Contact No.
1	Loser	Smt. Bhutid Chomo	8988038065
2	Hal	Smt. Kalzang Dolma	
3	Khurik	Smt. Lusang Dolma	
4	Kibber -1	Smt. Tenzin Bhutid(Chair Man)	
5	Kibber-2	Smt. Dekid Palmo	9418537592
6	Kaza-1	Sh. Angdui Norbu(Vice Chairman)	
7	Kaza-2	Sh. Sonam Chhoden	
8	Langcha	Sh. Nawang Tashi	9459013177
9	Demul	Kumari Nawang Dolma	
10	Laloong	Smt. Dekit Jompa	
11	Dhanker	Sh. Tandup Giacho	
12	Tabo	Sh. Sundop Chhering	9459965437
13	Gue	Sh. Chhering Targay	
14	Kungri	Smt. Chhering Yudon	
15	Sagnam	Smt. Hishay Dolma	

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ANNEXURE - D

THE LIST OF RESOURCE PERSONS FOR SEARCH & RESCUE AND FIRST AID

Sr. No.	Name	Organization/ Group	Address	Contact No.
1.	Sh. Prem Singh	Tinan Adventure and Sports Club Gondhla	VPO Gondhla Distt. Lahaul and Spiti	9418065506
2.	Sh. Gialchhen Thakur	Layul Ski and Mountaineering Club Keylong.	VPO Keylong	9418063672
3.	Sh. Norbu Panwnspa	-do-	VPO Yurnath	9418953738
4.	Sh. Ramesh	Yuvak Mandal, Kaza	VPO kaza.	
5.	Sh. Chhewang	Yuvak Mandal, Losar	VPO Losar Distt. Lahaul Spiti	
6.	Smt. Poonam	MM Udaipur	VPO Udaiaur	

ANNEXURE – E

VOLUNTEERS LIST OF NEHRU YUVA KENDRA

Sr. No.	Name	Designation	Address	Contact No.
1.	Smt. Bimla	National Youth Corps Volunteers	VPO Kwaring Distt. Lahaul and Spiti	9418359361
2.	Smt. Sonam Chhomo	-do-	-do-	9459990311
3.	Smt. Dechen Dolma	-do-	VPO Keylong Distt. Lahaul and Spiti	9459832546
4.	Sh. Dorje	Youth Worker	-do-	9418977213
5.	Sh. Nawang Chhering	National Youth Awardee	-do-	
6.	Sh. Devi Singh	Youth Worker	-do-	
7.	Sh. Dorje	X-NYK-Volunteer	-do-	9418971668

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Annexure - f

List of Nodal Officers for Disaster Management

Sr. No.	Name of Nodal Officer	Designation	Contact No.	Alternate Nodal Officer	Contact No.
1.	Sh. HL Rana	DFO	01900-222235	Range Officer	01900-222235
2.	Sh. Tejender Verma	Dy.SP	01900-222269	DI	01900-222226
3.	Sh. RK Sharma	XEN, HPSEBL	01900-222291	AE, HPSEBL	01900-222260
4.	Sh. SK Jaswal	XEN, I&PH	01900-222209	AE, I&PH	01900-222246
5.	Sh. HR Bhardwaj	AE, PWD	01900-222276	JE, PWD	01900-222276
6.	Dr. Abhinav Rana	MO, RH Keylong	01900-222243	MO	01900-222243
7.	Sh. RK Chadha	DFSC	01900-222229	Inspector	01900-222229
8.	Sh. Sonam Bodh	DHO	01900-222250	-	-
9.	Sh. Vijay Kumar	DAO	01900-222251	-	-
10.	Sh.	AE BSNL	01900-222400	-	-
11.	Sh. PN Parsheera	Dy. Dir. Edn.	01900-222237	-	-

ANNEUXRE - G

RESOURCE INVENTORY

Lahaul Sub Division

Equipment /Machinery

Blankets	Quantity in Nos	Contact Person	Telephone No.
Road Roller	3	AE PWD Keylong	01900-222276
Bulldozers Wheeled/Chain	2	-do-	-do-
Buses	2	D.Agrl.Officer SP Keylong	01900-222251 01900-222226
Air Compressor	4	AE PWD Keylong	01900-222276
J.C.B	2	-do-	-do-
Fire Post	1	Fire Post Keylong	88941-22077
Heavy Truck	2	AE PWD Keylong	01900-222276

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Light Ambulance Van	6	CMO Keylong	01900-222243
Stretcher normal `	2	-do-	-do-
Tipper Heavy Duty	1	AE PWD Keylong	01900-222276
Bullero Jeep	2	-do-	-do-
Hacksaw	4	AE HPSEBL Keylong	01900-222260
Shovel	4	-do-	-do-
Rope	200 Mtrs.	-do-	-do-
Extension Ladder-35 Feet	1	Incharge Fire Post	88941-22077
Jhumar	6 Pieces	SDM Keylong	01900-222225
Pully Big	2 No.	-do-	-do-
Repelling Rope	200 Mtrs.	-do-	-do-
Halmet	20 Nos.	-do-	-do-
Gloves	20 Nos.	-do-	-do-
Figure of 8 decender	6 Nos.	-do-	-do-
Chest Harness	5 Nos.	-do-	-do-
Sit Harness	5 Nos.	-do-	-do-
Gaiter	20 Nos.	-do-	-do-
Rucksack	20 Nos.	-do-	-do-
Climbing Rope	300 Mtrs.	-do-	-do-
Head Lamp	5 No.	-do-	-do-
Avalanche Rod	4 No.	-do-	-do-
Holofil Jackets	20 Nos.	-do-	-do-
Wind proof Suit	20 Nos.	-do-	-do-

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Sun Glasses	20 Nos.	-do-	-do-
Search Light 12 Volts	4 Nos.	-do-	-do-
Torches	5 Nos.	-do-	-do-
Caravinner plain	10 Nos.	-do-	-do-
Caravinner Screw	10 Nos.	-do-	-do-
Technicians/Skilled labours			
Chowkidar/Sweeper/Helper			
	3	IPH Keylong	01900-222209
	15	PWD Keylong	01900-222276
	2	HPSEBL Keylong	01900-222291
Driver/Operator			
	1	HPSEBL Keylong	01900-222291
	4	PWD Keylong	01900-222276
	2	IPH Keylong	01900-222209
Engineer			
	4	IPH Keylong	01900-222209
	2	BDO Keylong	01900-222253
	11	PWD Keylong	01900-222276
	8	HPSEBL Keylong	01900-222291
Fitter			
	1	PWD Keylong	01900-222276
	2	IPH Keylong	01900-222209
Surveyor			
	2	PWD Keylong	-do-
	1	IPH Keylong	01900-222209
Communication/Network			
Wireless Police/Forest	Keylong	Distt. Supervisor	01900-222226
Wireless HPSEB	4	HPSEBL Keylong	01900-222291



Search and Rescue

Name	Location	Contract Number	Distance
Army Transit Camp	Dalang	-	12Km form Keylong
Fire Post	Keylong	-	0
Home Guards	Keylong	94181-51930	0
Police Station	Keylong	01900-222223	0`
ITBP	ITBP,Karga	01900-241209	8KM from Keylong
70 RCC (GREF)	Satingri	01900-222316	6KM from Keylong

❖ Command Control and coordination

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Control Room	Address	Contact No.	Incharge
1	D.C. Keylong	01900-222501	DC Keylong
2	SDM Keylong	01900-222225	
3	Tehsildar Keylong	01900-222258	



Health Deptt.

Control Room	Address	Contract No.	Incharge
1	RH Keylong	01900-222243	MO I/C RH Keylong
2.	PHC Gondhla		BMO PHC Gondhla

Evacuation, Rescue & Relief

Evacuation	Location	Address	Contact no
	Tehsildar Keylong	Tehsildar Keylong	01900-222258
First aid and Post First and Medical Attention	CMO, Lahaul & Spiti at Keylong		
Transportation	RM:HRTC Keylong		
Minimum Personal needs of evacuees	:As per the prevailing situation		
Security	Police Department		
Communication	Wireless /Mobile/Telephone		
Designated place for the dead	Local bodies /NGOS and Admn.		
Identification of dead	-Do-		
Disposal of dead	-Do-		



Medical

Primary Health Centres

Sr. No.	Name	Distance form Head Quarter	Address Contact Number	Ambulance Surgery	Surgery
1	PHC Gondhla	14 Kmtrs.		-	-
2	PHC Sissu	32 Kmtrs.		-	-
3	PHC Tholang	10Kmtrs		-	-
4	PHC Gemur	18 Kmtrs		-	-
5	PHC Darcha	24 Kmtrs		-	-
6	CHC Shansha	20Kmtrs.		-	-

Sub divisional hospital: Nil

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Private Hospital:

Nil

SUB DIVISION Udaipur

Equipment /Machinery

Blankets	Quantity in Nos	Contact Person	Telephone No.
Road Roller	1	XEN PWD Udaipur	01909-222238
Bulldozers Wheeled/Chain	3	-do-	-do-
Air Com pressure	2	-do-	-do-
J.C.B	2	-do-	-do-
Heavy Truck	1	-do-	-do-
Light Ambulance Van	1	BMO Udaipur	
Stretcher normal	1	-do-	
Tipper Heavy Duty	1	PWD Udaipur	01909-222238
Bullero Jeep	3	-do-	-do-
Shovel	4	HPSEBL Udaipur	94184-30120
Hacksaw	4	-do-	-do-
Technicians/Skilled labours			
Chowkidar/Sweeper/Helper	1 16 3	IPH Udaipur PWD Udaipur HPSEBL	
Driver/Operator	4	PWD Udaipur	01909-222238
Engineer	3 1 6 6	IPH Udaipur BDO Udaipur PWD Udaipur HPSEBL Udp	01909-222224 01909-222238
Fitter	1 2	PWD Udaipur IPH Udaipur	01909-222238
Surveyor	2	PWD Udaipur	-do-

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Communication/Network			
Wireless Police/Forest	Udaipur	In charge	

SUB DIVISION Kaza

❖ EMERGENCY RESOURCES INVENTORY

Equipment/Machinery

Blankets	Quantity In Nos.	Contact Person	Telephone No.
Bulldozers	7	XEN PWD	01906-222252
JCB	3	-do-	-do-
Air compressor	6	-do-	-do-
Road Roller	7	-do-	-do-
Canter	2	-do-	-do-
Truck	4	-do-	-do-
Tipper	2	-do-	-do-
Bolero Camper/Jeep	4	-do-	-do-
Hot mix Plant	1	-do-	-do-
Saw Mill	1	-do-	-do-
Engineer	9	IPH Kaza	01906-222380
	1	BDO Kaza	01906-222211
	12	PWD Kaza	01906-222252
	12	HPSEBL Kaza	01906-222228
Surveyor	1	IPH Kaza	01906-222380
Communication/Network			
Wireless Police/Forest	Spiti at Kaza	Police Wireless	

Command Control and Coordination

Control Room	Address	Contact No.	Incharge
1.	ADM Kaza	01906-222202	ADM Kaza
2.	SDM Kaza	01906-222302	
3.	PO ITDP	01906-222302	

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4.	Tehsildar	01906-222206	
5.	SHO	01906-222210	

❖ Health deptt.

Control Room	Address	Contact No.	Incharge
1.	Civil Hospital	94180-19518	BMO Kaza.
2.	PHC Tabo		MO Tabo.

❖ Evacuation, Rescue & Relief

Evacuation	Location	Address	Contact No.
	Tehsildar	Tehsildar Kaza	01906-222206
First aid and post attention:	First and Medical	BMO, Kaza	
Transportation		Incharge:HRTC Kaza.	
Minimum Personal needs of evacuees		: AS per the prevailing situation	
Security		Police Department	
Communication		Wireless/Mobile/Telephone	
Designated Place for the dead		Local bodies/NGO's and Admn.	
Identification Place for the dead		-DO-	
Disposal of dead		-DO-	

❖ Medical

Primary Health Centers

Sr. No	Name	Distance from Head Quarter	Address Contact Number	Ambulance	Surgery
1	PHC Tabo				No
2	PHC Sagnam				No
3	PHC Kibber				No
4	PHC Losar				No
5	PHC Hansa				No

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INVENTORY WITH FORCES

Equipment/Machinery with (Gref)

Similarly, If the threat of flash floods seems to be looming large over the district (though there is no such indication as such) the Border Road Organization, which is maintaining the national highway has sufficient paraphernalia from Rohtang Pass To Sarchu and Tandi to Karu Nallah to meet any such eventuality. The BRO have 11 dozers, 19 Tippers, 3 Load Carrier, 5 JCB, 5 Tracked Excavators, 4 Snow Cutter,13 Air-Compressor,1 Electric Generator 30-KVA and 6 Gen Sets. In addition to this, they have 4 water trucks, 4 Tata 407&207 and one Ambulance which can be handy in relief and rescue operation.

Equipment/ Machinery with (Police)

The Himachal Pradesh Police has established communication network (Wireless system) at Koksar Udaipur Tindi Keylong Kaza & Sumdo and one Control room at District headquarter.

Equipment/Machinery with (ITBP)

The Indo-Tibet border police who have their post at Karga are always there to provide a helping hand and rescue and relief operations in case such a disaster occur.

The ITBP have their following paraphernalia ready viz. Sleeping Bags High Altitude-2 Nos., Jackets 2 Nos., Trousers-2 Nos., Rope Climbing 3 Nos., Rope Repelling 2 Nos., Caravinner Plain type 5 Nos., Caravinner Screw type 3 Nos., Ice Axe 6 Nos., avalanche Rod 1 No., Snow Gainty 2 No., Man Pack Carrier 3, Gloves 2, Two men Tent 4, Wind Cheater 10.

Equipment/ Machinery with (Home Guards)

The Himachal Pradesh home guards too have been putting their concentrated efforts to fights any eventuality in the form of disaster, They too have submitted their inventory list with the administration, which includes Sleeping Bags, Tents, Air Mattress, Parka Coat etc.,

In the event of Disaster, it is to be ascertained that to lives and properties could be kept at minimum by administering the feasible measures and for the very purpose is this Disaster management plan.

Annexure - H

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FLOW CHART FOR DISPOSAL OF DEAD BODIES AT DISTRICT LEVEL

1. Activate the DM Plan
2. Nodal Officer in the incident Response System will activate all other stake-holders associated with Disposal of the Dead.
3. Establish an information Centre at the site of Disaster/District HQ.
4. Inform all other Stake-holders, both in government and Non-Governmental sector, including the elected, Panchayati Raj functionaries and the community.
5. Activate search and Rescue teams of Fire & Emergency Services, Police, SDRF, Civil Defense, NDRF and NGOs for the retrieval of the injured and the dead.
6. The injured will get the priority for First Aid and evacuation to hospital.
7. Prepare a record of details of the bodies retrieved in the Dead Body Inventory Record Register, allocated individual Identification Number, photographed, and then Dead Body Identification Form initiated.
8. Associate relatives and community members for the identification of the bodies.
9. Hand over the identified bodies to the relatives or the community, and if necessary after cross-matching Dead Body Identification Form with that of the Missing Person Form, for the last rites as per local, cultural and religious denomination.
10. Unidentified or unclaimed dead bodies/body parts shall be transported to the mortuaries for proper preservation and storage at the designated sites.
11. Consult relatives, legal and forensic experts for positive identification.
12. Final disposal of unidentified bodies/body parts shall be done by District authorities after applying all the possible means of identification as per the legal provisions.

13. The bodies of foreign nationals shall be properly preserved either by embalming or chemical methods and then placed in body bags or in coffins with proper labeling. Handing over and transportation of such bodies shall take place through the Ministry of Extern Affairs, in consultation with the Consular offices of the concerned countries and other actors such as International Committee of the Red Cross, if necessary and possible.

Annexure - I

GUIDELINES FOR DISPOSAL OF ANIMAL CARCASSES

1. Guidelines for Burial

- 1.1. Burial shall be performed in the most remote area possible.
- 1.2. Burial areas shall be located a minimum of 300 feet down gradient from wells, springs and other water sources.
- 1.3. Burial shall not be made within 300 feet of streams or ponds, or in soils identified in the country soil survey as being frequently flooded.
- 1.4. The bottom of the pit or trench should be minimum 4 to 6 feet above the water table.
- 1.5. Pits or trenches shall approximately be 4 to 6 feet deep. They should have stable slopes not steeper than 1 foot vertical to 1 foot horizontal.
- 1.6. Animal Carcasses shall be uniformly placed in the pit or trench so that they do not exceed a maximum thickness of 2 feet. The cover over and surrounding shall be a minimum of 3 feet. The cover shall be shaped so as to drain the runoff away from the pit or trench.
- 1.7. The bottom of trenches left open shall be sloped to drain and shall have an outlet. All surface runoff shall be diverted from entering the trench.
- 1.8. Burial areas shall be inspected regularly and any subsidence or cavities filled.

2. Guidelines for Composting

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- 2.1 Select site that is well drained, at least 300 feet from water sources, sinkholes, seasonal seeps or other landscape features that indicate hydrological sensitivity in the area.
- 2.2 Lay 24-inch bed of bulky, absorbent organic material containing sizeable pieces 4 to 6 inches long. Wood chips or hay straw work well. Ensure the base is large enough to allow for 2-foot clearance around the carcass.
- 2.3 Lay animal in the centre of the bed. Lance the rumen to avoid bloating and possible explosion. Explosive release of gases can result in odour problems and it will blow the cover material off the composting carcass.
- 2.4 When disposing large amounts of blood or body fluid, make sure there is plenty of material to absorb the liquid. Make a depression so blood can be absorbed and then cover, if a blood spill occurs, scrape it up and put back in pile.
- 2.5 Cover carcass with dry, high-carbon material, old silage, sawdust or dry stall bedding (some semi-solid manure will expedite the process). Make sure all residuals are well covered to keep odours down, generate heat or keep vermin or other unwanted animals out of the window.
- 2.6 Let it sit for 4 to 6 months, then check to see if carcass is fully degraded.
- 2.7 Reuse the composted material for carcass compost pile, or remove large bones and land apply.
- 2.8 Site cleanliness is the most important aspect of composting; it deters scavengers, and helps control odours and keeps good neighborly relations.

Note: Animals that show signs of a neurological disease, animals that die under quarantine and those with anthrax should not be composted.

Reference: USDA Natural Resource Conservation Service, Arkansas Livestock and Poultry Commission, University of Arkansas.

LOW CHRT FOR DISPOSAL OF ANIMAL CARCASSES AT DISTRICT LEVEL

- a. Activate the DM Plan.
- b. Nodal Officer in the Incident Response System will activate all other stakeholders associated with the disposal of Animal Carcasses.
- c. Establish an Information Centre at the site of Disaster/District HQ.

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- d. Inform all other Stake-holders, both in government and Non-Governmental sector, including the elected, Panchayati Raj functionaries and the community.
- e. Activate Animal Carcass Retrieval teams for the recovery and retrieval of the injured livestock and the animal carcasses.
- f. Injured livestock will get the priority for First Aid and evacuation to hospital.
- g. Prepare a record of details of the animal carcasses retrieved.
- h. Associate owners of the livestock, or their relatives and community members for the identification of the animal carcasses.
- i. Hand over the identified animal carcasses to the owners for disposal at the selected site.
- j. All unidentified animal carcasses will be photographed preferably before transportation for disposal.
- k. Unidentified or unclaimed animal carcasses shall be transported to the designated site for disposal by District authorities as per the Disaster Plan.

Annexure – J

DISTRICT DISASTER MANAGEMENT AUTHORITY LAHAUL ANS SPITI, HP.

Emergency Support Functions (ESFs) Plan at District Level

In the aftermath of a natural disaster wherein District Administration's overall coordination is needed the command, control and coordination will be carried out under the ESFs Plan. District EOC shall activate the ESFs and the concerned Department/Agency of each ESFs shall identify requirements in consultation with their counterparts in affected districts, mobilize and deploy resources to the affected areas of the district. The District EOC shall maintain a close link with the State EOC.

ESFs shall be responsible for the following:

1. The designated authorities for each of ESF shall constitute quick response teams and assign the specific task to each of the member.
2. The designated authorities for each of the ESF shall identify and earmark the resources i.e. Manpower and materials to be mobilized during the crisis.
3. An inventory of all the resources with details shall be maintained by each of the designated authority for each of the ESF.
4. The designated authority for each of the ESF will also enter into pre-contracts for supply of resources, both goods and services to meet the emergency requirements.
5. The designated authority for each of the ESF will be delegated with adequate administrative, legal and financial powers for undertaking the tasks assigned to them.

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Primary and Secondary Agencies

The designated primary agency, acting as the State agency shall be assisted by one or more support agencies (secondary agencies) and shall be responsible for managing the activities of the ESF and assisting the district in the rescue and relief activities and ensuring that the mission is accomplished. The primary and secondary agencies have the authority to execute response operations to directly support the needs of the affected districts.

Agency for Each Emergency Support Functions and Roles to be performed

ESF No.	ESF	Primary Agency	Secondary Agency	Responsibilities of Primary Agency	Activities for Response	Role of Secondary Agency
1.	Communication	BSNL	Police Units of Armed Forces in the area	Coordination of national actions to assure the provision of telecommunication support the state and district; Coordinate the requirement of temporary telecommunication in the affected areas.	Responsible for coordination of national actions to assure the provision of telecommunication support the state and district response elements; Coordinate the requirement of temporary telecommunication in the affected areas.	Make available police wireless network at the affected locations; Coordinate for the other networks available such as Ham Radios or HPSEB network etc.;; The units of armed forces in the area would provide communication network on the request of the competent authority.
2	Public Health	Department of Health and Family Welfare (CMO/MS ZH)	Department of Ayurveda (DAMO)	To coordinate, direct and integrate State level response;	Provide systematic approach to patient care; Perform medical evaluation	To perform the same functions as assigned to the primary agency;

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				<p>Direct activation of medical personnel, supplies and equipment;</p> <p>Coordinate the evacuation of patients;</p> <p>Provide human services under the Dept of health;</p> <p>To prepare and keep ready Mobile Hospitals and stock;</p> <p>To network with private health service providers;</p> <p>To provide for mass decontamination;</p> <p>Check stocks of equipment and drugs.</p>	<p>and treatment as needed;</p> <p>Maintain patient tracking system to keep record of all patients treated;</p> <p>Mobilization of the private health services providers for emergency response.</p> <p>In the event of CNBR disaster to provide for mass decontamination of the affected population;</p> <p>Maintain record of dead and arrange for their post mortem.</p>	<p>Provide manpower to the primary agency wherever available and needed;</p> <p>Make available its resources to the primary agency wherever needed and available.</p>
3.	Sanitation/ Sewerage Disposal	Urban Development and Rural Development	Irrigation and Public Health	<p>Make arrangement for proposal disposal of waste in their respective areas;</p> <p>Arrange adequate material and manpower to maintain cleanliness and hygiene.</p>	<p>Ensure cleanliness and hygiene in their respective areas;</p> <p>To arrange for the disposal of unclaimed bodies and keeping record thereof;</p> <p>Hygiene promotion with the availability of mobile toilets;</p>	<p>Repair the sewer leakages immediately;</p> <p>Provide bleaching powder to the primary agencies to check maintain sanitation.</p>

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					To dispose off the carcass.	
4.	Power	HPSEB Ltd. (XEN)	Himurja	<p>Provide and coordinate State support until the local authorities are prepared to handle all power related problems;</p> <p>Identify requirements of external equipment required such as DG sets etc;</p> <p>Assess damage for national assistance.</p>	<p>Support to Local Administration;</p> <p>Review the total extent of damage to the power supply installations by a reconnaissance survey;</p> <p>To provide alternative means of power supply for emergency purposes;</p> <p>Dispatch emergency repair teams equipped with tools, tents and food;</p> <p>Hire casual labour for the clearing of damaged poles etc.</p>	<p>Make arrangement for and to provide the alternative sources of lighting and heating to the affected populations and for the relief camps.</p>
5.	Transport	Department of Transport (RM HRTC)	HRTC, Civil Aviation. (RM, HRTC, DTDO)	<p>Overall coordination of the requirement of transport;</p> <p>Make an inventory of vehicles available for various purposes;</p> <p>Coordinate and implement emergency related response and recovery functions, search and rescue and</p>	<p>Coordinate arrangement of vehicles for transportation of relief supplies from helipads/airports to the designated places;</p> <p>Coordinate arrangement of vehicles for transportation of SAR related activities.</p>	<p>Make available its fleet for the purpose of SAR, transportation of supplies, victims etc;</p> <p>Act as stocking place for fuel for emergency operations;</p> <p>Making available cranes to the Distt.</p>

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				damage assessment.		Administration; To coordinate for helicopter services etc. required for transportation of injured, SAR team, relief and emergency supplies.
6.	Search and Rescue	Civil Defence, Home Guards, Fire and Emergency Services (Commandant HG)	SDRF, Armed and Para military forces, Police, Red Cross, VOs, Volunteers and 108.	Establish, maintain and manage state search and rescue response system; Coordinate search and rescue logistics during field operations; Provide status reports of SAR updates throughout the affected areas.	GIS is used to make an estimate of the damage area and the deployment of the SAR team in the area according to the priority; Discharge all ambulatory patients for the first aid which has the least danger to health and others transported to safer areas.	108 and Red Cross to make available ambulances as per requirement; SDRF, VOs and Volunteers to assist the primary agency in SAR; Armed and para military forces to provide assistance to civil authorities on demand; Police to arrange for the transportation and postmortem of the dead.
7.	Public Works and Engineering	HP PWD (XEN)	CPWD, National Highways Authority of India, MES,	Emergency clearing of debris to enable reconnaissance; Clearing of roads;	Establish a priority list of roads which will be opened first; Constructing major temporary shelters;	Making machinery and manpower available to the PWD and to keep national highways and other facilities in

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			BRO	<p>Assemble casual labour;</p> <p>Provide a work team carrying emergency tool kits, depending on the nature of disaster, essential equipment such as</p> <ul style="list-style-type: none"> • Towing vehicles • Earth moving equipments • Cranes etc. <p>Construct temporary roads;</p> <p>Keep national and other main highways clear from disaster effects such as debris etc.;</p> <p>Networking with private services providers for supply of earth moving equipments etc.</p>	<p>Connecting locations of transit/relief camps;</p> <p>Adequate road signs should be installed to guide and assist the relief work;</p> <p>Clearing the roads connecting helipads and airports;</p> <p>Restoring the helipads and making them functional;</p> <p>Rope in the services of private service providers and secondary services if the department is unable to bear the load of work.</p>	functional state.
8.	Information and Communication	District Collectorate (AC)	Department of IT/NIC	Operate a Disaster Welfare Information (DWI) System to collect, receive, and	Documentation of response/ relief and recovery measures;	Render necessary assistance in terms of resources, expertise to

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			(DIO, NIC)	<p>report and status of victims and assist family reunification;</p> <p>Apply GIS to speed other facilities of relief and search and rescue;</p> <p>Enable local authorities to establish contact with the state authorities;</p> <p>Coordinate planning procedures between district, the state and the centre;</p> <p>Provide ready formats for all reporting procedures as a standby.</p>	<p>Situation reports to be prepared and completed every 3-4 hours.</p>	<p>the primary agency in performing the assigned task.</p>
9.	Relief Supplies	Collectorate (AC)	<p>Department of Food and Civil Supplies</p> <p>(DFSC, AM CSC)</p>	<p>To collect, process and disseminate information about an actual or potential disaster situation to facilitate the overall activities of all responders in providing assistance to an affected area in consultation;</p> <p>Coordinate activities involved with the</p>	<p>Support to Local Administration;</p> <p>Allocate and specify type of requirements depending on need;</p> <p>Organize donation (material) for easy distribution before entering disaster site.</p>	<p>To assist the primary agency in arranging and supplying relief supplies;</p> <p>To assist the primary agency in running the relief camps.</p>

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				<p>emergency provisions;</p> <p>Temporary shelters;</p> <p>Emergency mass feeding;</p> <p>To coordinate bulk distribution of emergency supplies;</p> <p>To provide logistical and resource support to local entities;</p> <p>In some instances, services also may be provided to disaster workers;</p> <p>To coordinate damage assessment and post disaster needs assessment.</p>		
10.	Food & Supplies	Department of Food and Public Distribution (DFSC)	Department of Cooperation (ARCS)	<p>Requirement of food and clothing for affected population;</p> <p>Control the quality and quantity of food, clothing and basic medicines;</p> <p>Ensure the timely distribution of food and clothing to the people;</p>	<p>Make emergency food and clothing supplies available to population;</p> <p>Ensure the provision of specific nutrients and supplementary diet for the lactating, pregnant women and infants.</p>	<p>Ensuring the distribution of food supplies to the affected population through the PDS network etc.</p>

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				Ensure that all food that is distributed is fit for human consumption.		
11.	Drinking water	Department of I & PH (XEN)	Department of Urban Development (Secretary SADA)	<p>Procurement of clean drinking water;</p> <p>Transportation of water with minimum wastage;</p> <p>Special care for women with infants and pregnant women;</p> <p>Ensure that sewer pipes and drainage are kept separate from drinking water facilities.</p>	<p>Support to local Administration;</p> <p>Water purification installation with halogen tablets etc.</p>	To assist the primary agency wherever ULB is associated in the distribution of potable water.
12.	Shelter	Collectorate (AC)	HIMUDA, HP PWD, UD and Panchayati Raj	<p>Provide adequate and appropriate shelter to all population;</p> <p>Quick assessment and identifying the area for the establishment of the relief camps;</p> <p>Identification of public buildings as possible shelters;</p> <p>Identifying the population</p>	<p>Support to Local Administration;</p> <p>Locate adequate relief camps based on survey of damaged houses;</p> <p>Develop alternative arrangements for population living in structures that might be affected even after the disaster.</p>	<p>HIMUDA and HP PWD would assist the primary agency in establishing temporary shelters of larger dimensions;</p> <p>Department of Panchayati Raj through local Panchayats would assist the primary agency in establishing shelters of smaller dimensions.</p>

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				<p>which can be provided with support in their own place and need not be shifted reallocated;</p> <p>Locate relief camps close to open traffic and transport links.</p>		
13.	Media	<p>Department of Public Relations</p> <p>(APRO)</p>	Local DD and AIR	<p>To Provide and collect reliable information on the status of the disaster and disaster victims for effective coordination of relief work at state level;</p> <p>Not to intrude on the privacy of individuals and families while collecting information;</p> <p>Coordinate with DOCs at the airport and railways for required information for international and national relief workers;</p> <p>Acquire accurate scientific information from the ministry of Science and Technology;</p> <p>Coordinate with all TV and</p>	<p>Use and place geographical Information to guide people towards relief operation;</p> <p>Use appropriate means of disseminating information to victims of affected area;</p> <p>Curb the spread of rumours;</p> <p>Disseminate instructions to all stakeholders.</p>	To assist the primary agency in discharge of its role.

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				<p>radio networks to send news flashes for specific needs of Donation;</p> <p>Respect the socio-cultural and emotional state of the disaster victims while collecting information for dissemination.</p>		
14.	Help lines	Collectorate (AC)	Department of Public Relations	<p>To receive distress calls from the affected people and coordinate with the control room;</p> <p>To facilitate the optimization of donations received in kind;</p> <p>Co-ordinate, collect, process, report and display essential elements of information and to facilitate support for planning efforts in response operations;</p> <p>Co-ordinate pre-planned and event-specific aerial reconnaissance operations to assess the overall disaster situation;</p> <p>Pre-positioning assessment</p>	<p>One of the most critical needs will be having a simplified way of identifying and tracking victims and providing assistance;</p> <p>Identify locations for setting up transit and relief camps, feeding centres and setting up of the Help lines at the nodal points in the state and providing the people the information about the numbers.</p>	<p>To assist the primary agency in performing its job effectively and provide its manpower and resources for the purpose.</p>

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				<p>teams headed by the State coordinating officer and deployment of other advance elements;</p> <p>Emergency clearing of debris to enable reconnaissance of the damaged areas and passage of emergency personnel and equipment for life saving property protection and health and safety.</p>		
15.	Animal Care	Department of Animal Husbandry (AD AH)	Department of Panchayati Raj (DPO)	<p>Treatment of animals;</p> <p>Provision of vaccination;</p> <p>Disposal of dead animals.</p>	<p>To arrange for timely care and treatment of animals in distress;</p> <p>Removal of dead animals to avoid outbreak of epidemics.</p>	To assist the primary agency in performing its role.
16.	Law and Order	Police (SP)	Home Guards (Commandant Home Guards)	<p>Having sound communication and security plan in place to coordinate law and order issues;</p> <p>Training to security personnel in handling disaster situations and issues related to them.</p>	<p>To maintain law and order;</p> <p>To take measure against looting and rioting;</p> <p>To ensure the safety and security of relief workers and material;</p> <p>To take specific measure for the protection of weaker and vulnerable sections of the</p>	To assist the primary agency by making available manpower.

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					society; To provide safety and security at relief camps and temporary shelters.	
17.	Removal of trees and fuel wood	Forest (DFO)	Forest Corporation (AM FC)	Removal of fallen trees; To provide fuel wood for the relief camps and public; Have adequate storage of fuel wood and make arrangement for distribution thereof; To provide fuel wood for cremation.	Arrange for timely removal of trees obstructing the movement of traffic; Arrange for timely removal of tress which have become dangerous; Make arrangement for fuel wood for the relief camps and for general public; Provide fuel wood for mass cremation etc.	To support and supplement the efforts of the primary agency.

ANNEXURE – K

STANDARD OPERATING PROCEDURES

FOR PERFORMING ESF

BY

VARIOUS DEPARTMENTS

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OPERATING PROCEDURE GUIDELINES FOR FOREST DEPARTMENT

Planning Assumptions

- There is no substitute for maintaining standards of services and regular maintenance during normal times. This affects the response of the department to any disaster situation.
- The department is required adopt appropriate measures to ensure that community participates substantially.
- For effective preparedness, the department must have a disaster response plan or disaster response procedures clearly defined in order to avoid confusion, improve efficiency in cost and time.
- Orientation and training for disaster response plan and procedures accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during emergency operations need to be imparted to the officials and the staff. Select personnel can be deputed for training as “NODAL OFFICER – FOREST” at district level.

Action Plan Objective in a Disaster Situation

- Forest protection

Activities on Receipt of Warning or Activation of District DMAP (DDMAP)

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with District control room and your departmental offices within the division.
- Appoint one officer as “NODAL OFFICER – Forest” at district level.

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- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Fill departmental vehicles with fuel and park them in a protected area.
- Check available stocks of equipments and materials which are likely to be most needed after disaster.
- Provide information to all concerned, about disasters, likely damages, and information about ways to protect the same.
- All valuable equipments and instruments should be packed in protective covering and stored in room the most damage-proof.
- Establish work schedules to ensure that the adequate staff are available

Relief and Rehabilitation

- Assess the extent of damage to forests, nurseries and storage facilities and the requirements to salvage or re-plantation.
- Establish contact with remote sensing department to assess damage
- Afforestation measures should be coordinated with DRDA to ensure employment assurance to disaster hit people, with Soil Conservation Officer to ensure stabilization of slopes and district control room.
- Ensure that the adequate conditions through cleaning operations are maintained to avoid water-logging and salinity in low lying areas.
- A pests and disease monitoring system should be developed to ensure that a full picture of risks is maintained.
- Plan for emergency accommodations for forest staff from outside the area.
- Information formats and monitoring checklists should be used for programme monitoring and development and for reporting to DCR. This is in addition to existing reporting system in the department.
- Establishment of a public information center with a means of communication, to assist in providing an organized source of information. The department is responsible for keeping the community informed of its potential and limitations in disaster situations.

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- The NGOs and other relief organizations should be aware of the resources of the department.
- Ensure availability of fuel and fodder for disaster effected people.

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OPERATING PROCEDURE GUIDELINES FOR POLICE DEPARTMENT

Planning Assumptions

- For effective preparedness the need is for the disaster response procedures to be clearly defined.
- Orientation and training for disaster response plan and procedures accompanied by simulated exercises will keep the department prepared for such eventualities. Special skills required during emergency operations need to be imparted to the officials and the staff. Select personnel can be deputed for training as “NODAL OFFICER – Police” at the district level.

NORMAL TIME ACTIVITY

- Assess preparedness level and report the same as per the format to District Control Room every six months
- Maintain a list of disaster prone areas in the district
- Organise training on hazardous chemicals for police officers to facilitate handling of road accidents involving hazardous materials
- Designate an area, within police station to be used as public information center

Action Plan Objective in a Disaster Situation

- Maintain Law and order

Activities On Receipt of Warning or Activation of DDMAP

- Within the district, all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officers or those on leave may be recalled.
- All personnel required for disaster management should work under the overall supervision and guidance of District Disaster Manager.
- Establish radio communications (and assist in precautionary evacuation activities) with
 - State Emergency Operations Center
 - District control room

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- Departmental offices
- All district level officials of the department would be asked to report to the DDM.
- Appoint one officer as “Officer-in-Charge – Police” at the district level
- The DDM shall provide “Officer-in-Charge - Police” or the field staff as the need be, with all needed authorizations with respect to
 - Recruiting casual labourers.
 - Procuring locally needed emergency tools and equipment and needed materials.
 - Expending funds for emergency needs.
- The “Officer-in-Charge - Police” will ensure that all field staff and other officers submit the necessary reports and statement of expenditure in a format as required by DDM
- Provide guards as needed for supply depots such as cooperative food stores and distribution centers.
- Identify anti-social elements and take necessary precautionary measures for confidence building.

Evacuation

- All evacuations will be ordered only by the DC, SP, Fire Brigade.
- For appropriate security and law and order, evacuation should be undertaken with assistance from community leaders.
- All evacuations should be reported to DC or District Superintendent of Police immediately.

Relief and Rehabilitation

- Immediately after the disaster, dispatch officers to systematically identify and assist people and communities in life threatening situations.
- Help identify the seriously injured people, and assist the community in organizing emergency transport of seriously injured to medical treatment centers.

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- Ensure that the police stations are functioning immediately after the disaster at all required locations, as may be requested by the district control room, and that staff are available for the variety of needs that will be presented.
- Assist and encourage the community in road-clearing operations.
- Identify roads to be made one-way, to be blocked, alternate routes, overall traffic management and patrolling on all highways, and other access roads to disaster site.
- Provide Security in transit and relief camps, affected villages, hospitals and medical centers and identify areas to be cordoned off.
- Transport carrying transit passengers (that is, passengers traveling through buses and passing through the district), should be diverted away from the disaster area.
- Provide security arrangements for visiting VVIPs and VIPs.
- Assist district authorities to take necessary action against hoarders, black marketers and those found manipulating relief material.
- In conjunction with other government offices, activate a public information center to:
 - Respond to personal inquiries about the safety of relatives in the affected areas
 - Compile statistics about affected communities, deaths, complaints and needs
 - Respond to the many specific needs that will be presented
 - Serve as a rumor control center
 - Reassure the public
- Make officers available to inquire into and record deaths, as there is not likely to be time nor personnel available, to carry out standard postmortem procedures.
- Monitor the needs and welfare of people sheltered in relief camps.
- Coordinate with military service personnel in the area.

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OPERATING PROCEDURE GUIDELINES FOR HEALTH DEPARTMENT

- There is no substitute for maintaining standards of services and regular maintenance during normal times. This affects the response of the department to any disaster situation.
- For effective preparedness, the department must have disaster response procedures clearly defined in order to avoid confusion, improve efficiency in cost and time.
- Orientation and training for disaster response plan and procedures, accompanied by simulated exercises, will keep the department prepared for such eventualities. Special skills required during disaster situations need to be imparted to the officials and the staff.
- Select personnel can be deputed for training as “NODAL OFFICER”.

ACTION PLAN OBJECTIVE IN A DISASTER SITUATION

- Providing efficient and quick treatment
- Preventing outbreak of epidemics.

ACTIVITIES ON RECEIPT OF WARNING OR ACTIVATION OF DDMAP

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officers or those on leave may be recalled.
- All personnel required for disaster management should work under the overall supervision and guidance of District Disaster Manager.
- Ensure that personnel working within the district come under the direction and control of the DDM.
- Appoint one person as “NODAL OFFICER”.
- Review and update precautionary measures and procedures, and review with staff, the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Stock emergency medical equipment which may be required after a disaster.

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- Determine type of injuries/illnesses expected and drugs and other medical items required, and accordingly ensure that extra supplies of medical items be obtained quickly.
- Provide information to all hospital staff about the disasters, likely damages and effects, and information about ways to protect life, equipment and property.
- Discharge all ambulatory patients whose release does not pose a health risk to them. If possible, they should be transported to their home areas.
- Non-ambulatory patients should be relocated to the safest areas within the hospital. The safest rooms are likely to be:
 - On Ground Floor
 - Rooms in the center of the building away from windows
 - Rooms with concrete ceilings.
- Equipment supplies such as candles, matches, lanterns and extra clothing should be provide for the comfort of the patients.
- Surgical packs should be assembled and sterilized. A large enough number should be sterilized to last four to five days. The sterilized surgical packs must be stored in protective cabinets to ensure that they do not get wet. Covering the stock with polythene is recommended as an added safety measure.
- All valuable instruments, such as surgical tools, ophthalmoscopes, portable sterilizers, CGS, dental equipments, etc., should be packed in protective coverings and store rooms considered to be the most damage-proof.
- Protect all immovable equipment, such as x-ray machines, by covering them with tarpaulins or polythene.
- All electrical equipments should be unplugged when disaster warning is received.
- Check the emergency electrical generator to ensure that it is operational and that a buffer stock of fuel exists. If an emergency generator is not available at the hospital, arrange for one on loan.
- All fracture equipment should be readied.
- If surgery is to be performed following the disaster, arrange for emergency supplies of anesthetic gases.
- Check stocks of equipments and drugs which are likely to be most needed after the disaster. These can be categorized generally as:

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- Drug used in treatment of cuts and fractures, such as tetanus toxoid, analgesics and antibiotics.
- Drugs used for the treatment of diarrhea, water-borne diseases and flu (including oral rehydrating supplies).
- Drugs required to treat burns and fight infections.
- Drugs needed for de-toxication including breathing equipments.
- Assess the level of medical supplies in stock, including :
 - Fissure materials
 - Surgical dressings
 - Splints
 - Plaster rolls
 - Disposable needles and syringes
 - Local antiseptics.
- Prepare an area of the hospital for receiving large number of casualties.
- Develop emergency admission procedures (With adequate record keeping).
- Orient field staff with DDMAP, standards of services, procedures including tagging.
- Hospital administrators should
 - Establish work schedules to ensure that adequate staff are available for in-patient needs.
 - Organise in-house emergency medical teams to ensure that adequate staff are available at all times to handle emergency casualties.
 - Set up teams of doctors, nurses and dressers for visiting disaster sites.

RELIEF AND REHABILITATION

- Transport should be arranged for the transfer of seriously injured patients from villages and peripheral hospitals to general hospitals. If roads are blocked, a method should be established to request helicopter transport.
- Establish health facility and treatment centres at disaster sites.
- The provision of medical services should be coordinated by the CMO with district control room.
- Procedures should be clarified between
 - Peripheral hospitals

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- Private hospitals
- Blood banks
- General hospitals and
- Health services established at transit camps, relief camps and affected villages.
- Maintain check posts and surveillance at Transport depots and all entry and exit points from the affected area, especially during the threat or existence of an epidemic.
- An injury and disease monitoring system should be developed to ensure that a full picture of health risks is maintained.
- Monitoring should be carried out for epidemics, water and food quality and disposal of waste in transit and relief camps, feedings centers and affected villages.
- Plan for emergency accommodations for auxiliary staff from outside the area.
- Information formats and monitoring checklists should be used for programme monitoring and development and for reporting to Emergency Operations Center. This is in addition to existing reporting system in the department.
- Seek security arrangements from district police authorities to keep curious persons from entering hospital area and to protect staff from hostile actions.
- Establishment of a public information center with a means of communication to assist in providing an organized source of information. The hospital is responsible for keeping the community informed of its potential and limitations in disaster situations.
- The Local Police, rescue groups, and ambulance teams should be aware of the resources of each hospital.

STANDARDS OF SERVICE

Tagging

Tagging is the process of prioritizing transfer of injured, based on first hand assessment of the medical officer on the disaster site. It is based on the medical criterion of chance of survival. Decision is made regarding cases which can wait for treatment, these which should be taken to more appropriate medical units, and these which have no chances of surviving. The grouping is based on the benefit that the casualties can expect to derive from medical care, not on the seriousness of the injuries.

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Whenever possible, the identification of patients should be accomplished concurrently with triage. This is done by attaching a tag to each patient, usually color-coded to indicate a given degree of injury and the priority for evacuation.

Red Tag

This tag signifies that the patient has a first priority for evacuation. Red-tagged patients need immediate care and fall into one of the following categories:

- 1 Breathing problems that cannot be treated at the site.
- 2 Cardiac arrest (witnessed).
- 3 Appreciable loss of blood (more than a litre).
- 4 Loss of consciousness.
- 5 Thoracic perforations or deep abdominal injuries.
- 6 Certain serious fractures:
 - a. Pelvis
 - b. Thorax
 - c. Fractures of cervical vertebrae
 - d. Fractures or dislocations in which no pulse can be detected below the site of the fracture or dislocation
 - e. Severe concussion.
 - f. Burns (Complicated by injury to the air passages)

Green Tag

This tag identifies those patients who receive second priority for evacuation. Such patients need care, but the injuries are not life-threatening. They fall into the following categories:

1. Second-degree burns covering more than 30 per cent of the body.
2. Third-degree burns covering 10 percent of the body.
3. Burns complicated by major lesions to soft tissue or minor fractures.
4. Third –degree burns involving such critical areas as hands, factor face but with no breathing problems present.
5. Moderate loss of blood *(500-1000cc)

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6. Dorsal lesions, with or without injury to the spinal column.
7. Conscious patients with significant craniocerebral damage (serious enough to cause a subdural hematoma or mental confusion). Such patients will show one of the following signs:
 - a. Secretion of spinal fluid through ear or nose
 - b. Rapid increase in systolic pressure
 - c. Projective vomiting
 - d. Change in respiratory frequency
 - e. Pulse below 60ppm
 - f. Swelling or bruising beneath the eyes
 - g. Anisocoric pupils
 - h. Collapse
 - i. Weak or no motor response
 - j. Weak reaction to sensory stimulation (Profound stupor)

Yellow Tag

Used on patients who are given third priority for evacuation and who fall into the following categories:

1. Minor Lesions
2. Minor fractures (fingers, teeth, etc).
3. Other minor lesions, abrasions, contusions.
4. Minor burns:
 - Second-degree burns covering less than 15% of the body
 - Third degree burns covering less than 2% of the body surface
 - First-degree burns covering less than 20% of the body, excluding hands, feet, and face.
5. Fatal Injuries
 - Second and third-degree with burns over more than 40 percent of the body with death seeming reasonably certain.
 - Second and third-degree burns over more than 40% of the body with other major lesions, as well as major cranio-cerebral lesions etc.
 - Cranial lesions with brain tissue exposed and the patient unconscious.

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- Cranio-cerebral lesions where the patient unconscious and has major fractures.
- Lesions of the spinal column with absence of sensitivity and movement.
- Patients over 60 years old with major lesions.

It should be noted that the line separating these patients from red-tag casualties is very tenuous. If there are any red-tag patients, this system will have to be followed. If there are none, the yellow-tag patients with apparently fatal injuries become red-tag candidates. The reason is simple: If there are many red-tag patients who apparently cannot be saved because of their injuries, the time spent on the dying wounded could be better spent on the patients with chance to survive.

Black Tag

Black tags are placed on the dead, i.e. casualties without a pulse or respiration who have remained in that condition for over 20 minutes, or whose injuries render resuscitation procedures impossible.

Evacuation Procedure under the following conditions

- 1) Casualties not trapped or buried. Evacuate in the following order:
 - a. Red-tag casualties.
 - b. Green-Tag casualties.
 - c. Yellow-Tag casualties.

- 2) Casualties not trapped or buried. Evacuate in the following order:
 - a. Red-tag casualties.
 - b. Green-Tag casualties.
 - c. Yellow-Tag casualties.
 - d. Black-tag casualties not trapped or buried.
 - e. Trapped black-tag casualties.

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Vector Control Standards

Vector control programmes should be planned so as to cope with two distinct situations:

- The initial phase immediately following the disaster, when control work should concentrate on the destruction, by a physical or chemical process, of vermin on persons, their clothing, bedding and other belongings and on domestic animals. An emergency sanitation team should be available from the beginning for carrying out these disinfestations.
- The period after the disaster subsided, control work should be directed towards proper food, sanitation, safe disposals of wastes, including drainage, and general personal cleanliness.

Suggested Vector Surveillance Equipment and Supplies

- Collecting Bags
- Collecting forms
- Mouth or battery powered aspirations
- Tea strainer
- Flashlight and spare batteries
- Grease pencil
- Memo pad
- Sweep net
- Pencil
- Tweezers
- White enameled dipper
- Keys and other references
- Labels
- CDC light traps (Optional)
- Collecting vials
- Aedes aegypti Ovitrap (Optional)
- Bulb syringe or medicine dropper
- Fly grill

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- Mirror

Suggested Rodent Surveillance Equipment and Supplies

- Teaching aids
- Transfer bags
- Plastic bags
- Vials
- Plastic cups
- Alcohol
- Rubber bands
- Forceps
- Scissors
- Insecticide dusting pan
- Snap traps
- Formaldehyde
- Live Traps
- Acute rodenticides
- Gloves
- Anti Coagulant rodenticides
- Flashlights and batteries.

Materials and equipment

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

1. Equipment for pediatric intravenous use	36
2. Tensiometers for children and adults	12
3. Assorted ferrules Boxes	2
4. Tracheal cannulae	36
5. Set of laryngoscopes for infants, children And adults	1 each
6. Endotracheal tubes, No. 7 Murphy	36
7. Endotracheal tubes, No. 8	36
8. Nasogastric probes	36

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9. Oxygen masks, for adults and children	2
10. Large scissors for cutting bandages	3
11. Plastic linings	60
12. Phonendoscopes	15

Sterilization Unit Supplies

1. Tracheotomy set	6
2. Thorachotomy set	6
3. Venous dissection set	6
4. Set for small sutures	12
5. Bottles for drainage of thorax	10
6. Hand scissors No. 4	6
7. Syringes (disposables) x 2cc	60
8. Syringes (disposables) x 10cc	90
9. Syringes (disposables) x 50cc	60

Ambulance Fleet

The ambulances will carry the following equipment:

1. Oxygen, Oxygen Mask, and manometer.
2. Stretchers and blankets
3. Emergency first aid kit
4. Suction equipment
5. Supplies for immobilizing fractures
6. Venoclysis equipment
7. Drugs for emergency use
8. Minimal equipment for resuscitation maneuvers

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

Equipments and Supplies required for Vermin control for a population of 10,000

Power sprayers	2
Hand-pressured sprayers, capacity 20-30 litres	50

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Dusters (hand-operated, plunger type)	50
Dusters (power-operated)	2
Space sprayer	1
Adequate supply of accessories and spare parts for the above equipment	
o Insecticides:	
DDT, technical powder	0.5 tons
DDT, 75% water wettable	1-2 tons
DDT, 10% powder	1 ton
Dieldrin, 0.625 – 1.25% emulsifiable concentrate or wettable power	100 Kg
Lindane, 0.5% emulsifiable concentrate or wettable power	100 Kg
Chlordane, 2% emulsifiable concentrate or wettable power	100 Kg
Malathion, 1% emulsifiable concentrate or wettable power	100 Kg
Dichlorvos emulsion	100 litres
Rodenticides, anticoagulant type (warfarin, etc.)	1-2 Kg
Rodent traps	100
Screen for fly control	10 rolls
Garbage cans, capacity 50-100 litres	300-500
<i>a* Quantity depends on availability and on distribution points</i>	

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OPERATING PROCEDURE GUIDELINES FOR IRRIGATION AND PUBLIC HEALTH DEPARTMENT

Planning Assumptions

- There is no substitute for maintaining standards of services and regular maintenance during normal times. This affects the response of the department to any disaster situation.
- Operating procedures for mobilizing community participation during various stages of disaster management. The department is required to adopt appropriate measures to ensure that community participates substantially.
- For effective preparedness, the department must have a disaster response plan or disaster response procedures clearly defined in order to avoid confusion, improve efficiency in cost and time.
- Orientation and training for disaster response plan and procedures accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during emergency operations need to be imparted to the officials and the staff. Select personnel can be deputed for training as “NODAL OFFICER – Water supply” and “Officer-in-Charge – Water supply” at state and district level respectively.
- To the extent possible, preventive measures as recommended in the preparedness and mitigation document of DDMA should be undertaken to improve departmental capacity to respond to a disaster.

Normal Time Activity

- Assess preparedness level and report the same as per the format to the District Control Room every six months.
- Identify flood prone rivers and areas and activate flood monitoring mechanisms.
- Mark water level gauges on rivers, dams, and reservoirs.
- Establish disaster management tool kits with at sub-divisional levels consisting of ropes, pulley blocks, jungle knives, shovels, cement in bags, concrete pans, gunny bags, cane baskets.

Action Plan Objective in a Disaster Situation

- Restoration of water supply to the affected area
- Monitor flood situation

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- Monitor and protect irrigation infrastructure
- Restore damaged infrastructure

Activities on Receipt of Warning or Activation of DDMAP

- Within the affected district/sub-division all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with Emergency operations Centre at State HQ, District Control Room and your departmental and field offices within the division.
- Appoint one officer as “Officer-in-Charge – Water Supply and Irrigation” at district level.
- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Fill departmental vehicles with fuel and park them in protected area.
- Make sure that the hospital storage tank is full and hospital is conserving water.
- Inform people to store an emergency supply of drinking water.
- Organize on the receipt of disaster warning continuous monitoring of
 - Wells
 - Intake structures
 - Pumping stations
 - Buildings above ground
 - Pumping mains
 - The treatment plant
 - Bunds of Dams
 - Irrigation Channels
- The inlet and outlet to tanks should be inspected to ensure that waterways are unobstructed by trees and vegetation.
- Any repairs/under construction activity should be well secured with sandbags, rock falls, etc.

Relief and Rehabilitation

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- Carry out emergency repair of all damages to water supply system.
- Assist health authorities to identify appropriate source of potable water.
- Identify unacceptable water sources and take necessary precautions to ensure that no water is accessed from such sources, either by sealing such arrangements or by posting department guards.
- Arrange for alternate water supply and storage in all transit camps, feeding centers, relief camps, cattle camps, and also the affected areas, till normal water supply is restored.
- Ensure that potable water supply is restored as per the standards and procedures laid down in “Standards of Potable Water”.
- Continue round the clock inspection and repair of bunds of dams, irrigation channels, control gates and overflow channels.
- Continue round the clock inspection and repair of pumps, generators, motor equipment and station building.
- Plan for emergency accommodations from staff from outside the area.
- Report all activities to the head office.

On the recommendations of “NODAL OFFICER – “Water Supply”/ Deputy Commissioner/District

Control Room

- Provide for sending additional support along with food, bedding, tents
- Send vehicles and any additional tools and equipments needed.
- Standby diesel pumps or generators should be installed in damage proof buildings.
- A standby water supply should be available in the event of damage.
- Establish procedures for emergency distribution of water if existing supply is disrupted.
- Make provisions to acquire tankers and establish other temporary means of distributing water on an emergency basis.
- Make provisions to acquire containers and storage tanks required for storing water on an emergency basis.
- Prepare plan for water distribution to all transit and relief camps, affected villages and cattle camps and ensure proper execution of these plans.
- A minimum level of stock should be maintained for emergencies, and should include extra lengths of pipe, connections, joints, hydrants and bleaching powder. Adequate tools should be on hand to carry out emergency repair.

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- Make sure auxiliary generators and standby engines are in good working order.
- Acquire a buffer stock of fuel for the motors and store in a protected place.
- Establish emergency work gangs for immediate post-disaster repair.

Standards of Services

Water Supply

Piped Water

- After any repair on the distribution system, the repaired main should be flushed and disinfected with a chlorine solution of 50 mg/litre for contact period of 24 hours, after which the main is emptied and flushed again with potable water.
- If the demand for water is urgent, or the repaid main cannot be isolated, the concentration of the disinfecting solution may be increased to 100mg/litre and the contact period reduced to 1 hour.
- At the end of disinfection operations, but before the main is put back into service, samples should be taken for bacteriological analysis and determination of chlorine residue.
- When a water treatment plant, pumping station, or distribution system is so badly damaged that operation cannot be restored for some time, other methods described in the following paragraphs must be used.

Private System (open well or tube)

- Water from these sources, with adequate chlorination as necessary, can be connected to a distribution system or hauled to points of consumption.

Springs and wells (non-private)

- Ground water originating from deep aquifers (such as is obtained from deep wells and certain springs) will be free from contamination if certain simple protective measures are taken.
- When springs are used as a source of water supply for disaster area, careful attention must be paid to geological formations. Limestone and certain rocks are liable to have holes and cracks, especially after earthquake that may lead to the contamination of ground water.
- A sanitary survey of the area surrounding a well site or spring is of utmost importance. This survey, which should be carried out by a qualified professional environmental health worker, should provide information on source of contamination, geological structures (with

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particular reference to overlying soil and rock formations) quality and quantity of ground water, direction of flow etc.

- The well selected as a source of water, should be at least 30m away from any potential source of contamination, and should be located higher than all such sources. The upper portion of the well must be protected by an external impervious casing, extending at least 3m below and 30cm above ground level. The casing should be surrounded by a concrete platform at least 1m wide, that slope to allow drainage away from the well; it should connect to the drain that will carry the spilled water away. The opening for drop pipes should be sealed to prevent outside water from entering the well. The rim of manholes should project at least 8cm above the surrounding surface, and the manhole cover must overlap this rim.
- Immediately after construction or repair, the well should be disinfected. First the casing and lining should be washed, and scrubbed with strong chlorine solution containing, 100mg of available chlorine per litre. A strong solution is then added to produce concentration of 50-100 mg/litre in the water stored in the well. After adequate agitation, the well water is left to stand for at least hours, and then pumped out. The well is then allowed to refill. When the residual chlorine of the water drops below 1 mg/litre the water may be used.
- Most of water is stated above applies also to the location and protection of springs. The following points may be added:
 - The collection installation should be so built as to prevent the entrance of light.
 - The overflow should be so located as to prevent the entrance of surface water at times of heavy rainfall.
 - The manhole cover and gates should be locked.
 - Before using the water, the collection chamber should be disinfected with a chlorine solution.
 - An area within a radius of 50m around the spring should be fenced off to prevent ground surface contamination.

Surface water

- Surface water should be used as source of water supply only as a last resort.
- Measures should be taken to protect the watershed from pollution by animals and people. As it is usually difficult to enforce control regulations, the point of intake for water supply should be located above any tributary carrying grossly contaminated water. The pump intake should be screened and placed so that it will not take in mud from the stream bed or

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floating debris. The device can be something extremely simple, such as perforated drum fixed in the middle of the stream.

Treatment

- Water should be tested for the presence of Escherichia coli and unsafe concentrations of nitrate as soon as possible. Detection of E. coli indicates contamination by human waste and therefore requires immediate protective and corrective measures.
- Monitoring of water quality should be restored or initiated immediately. During the disaster, daily determination of the chlorine residual in public water supply is sufficient.

Disinfection

- Chlorine and chlorine-librating compounds are the most common disinfectants. Chlorine compounds for water disinfection are usually available in three forms:
 - Chlorinated lime or bleaching powder, which has 20% by weight of available chlorine when fresh. Its strength should always be checked before use.
 - Calcium hypochlorite, a more stable compound sold under various proprietary names. This compound contains 70% by weight of available chlorine. If properly stored in tight container and in dark cool place, it preserves its chlorine contents for considerable period.
 - Sodium hypochlorite, usually sold as solution of approximately 5% strength under a variety of proprietary names. Its use in water disinfection is limited to small quantities and special circumstances.

Methods of chlorination

Gas chlorinator

- These machines draw chlorine gas from a cylinder containing liquid chlorine, mix it in water and inject into supply pipe. Mobile gas chlorinators are made for field use.

Hypochlorinators

- These are less heavy than gas chlorinator and more adaptable to emergency disinfection. Generally, they use a solution of calcium hypochlorite or chlorinated lime in water and discharge it into a water pipe or reservoir. They can be driven by electric motors or petrol engines and their output can be adjusted.

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- Hypochlorinators are small and easy to install. They consists usually of a diaphragm pump and standard accessories, including one or more rubber-lined, solution tanks and a chlorine residual testing set. The usual strength of solution is 0.1% and it seldom rises above 0.5%

The Batch Method

- In the absence of the chlorinators, water is disinfected by batch method. This method is more likely to be used in emergencies. It involves applying a predetermined volume of chlorine solution of known strength to a fixed volume of water by means of some gravity arrangements. The strength of the batch solution should not be more than 0.65% of chlorine by weight as this is about the limit of solubility of chlorine at ordinary temperatures. For example 10g of ordinary bleaching powder (25% strength) dissolved in 5 litres of water gives a stock solution of 500mg/litre. For disinfection of drinking water, one volume of the stock solution added to 100 volumes of water gives a concentration of 5mg/litre. If after 30 minutes contact the chlorine residual is more than 0.5mg/litre this dosages could be reduced.
- After the necessary contact period, excess chlorine can removed to improve the taste by such chemicals as sulphur dioxide, activated carbon, or sodium thiosulphate. The first two are suitable for permanent installations, whereas sodium thiosulphate is more suitable for use in emergency chlorination. One tablet containing 0.5g of anhydrous sodium thiosulphate will remove 1mg/litre of chlorine from 500 litres of water.

Continuous Chlorination

- This method, in which porous containers of calcium hypochlorite or bleaching powder are immersed in water, in use mainly for wells and springs but is also applicable to other types of water supply. A free residual chlorine level of 0.7 mg/litre should be maintained in water, treated for emergency distribution. A slight taste and odor of chlorine after half an hour gives an indication that chlorination is adequate. In flooded areas where the water distribution system is still operating, higher chlorine residual should be maintained. Occasionally, an unpleasant taste develops from the reaction of chlorine with phenolic or the other organic compounds. This taste should be accepted, as it is an indication of safe disinfection.

Filtration-Disinfection

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- In this method water is mixed with diatomaceous earth, then passed through the filter unit in which filtering partitions (septa) are installed. Mobile purification units using this process have been produced with capacities up to 50,000 litres per hour. They consist essentially of :
 - A centrifugal pump driven by a rope-started gasoline engine.
 - A filter (diatomic)
 - A hypochlorinator
 - A slurry feeder and an air compressor.
 - A precoat and recirculation tank.
 - A chlorine solution tank.
 - Hose adapters
 - Valves (pump suction, inlet, drain, outlet, flow control air release, etc) and
 - A tool box. Instructions in the manuals supplied with such units must be followed.

Physical Protection

- In disaster situation, physical protection of water supplies for use, is a major consideration. In addition to such barriers as walls and fences, guards may be necessary to prevent mobs from overrunning and damaging treatment units, pumping stations, tankers, distribution stations, and temporary collection facilities. Intake structures, wells and springs should also be protected against misuse. The character and extent of such protection will depend on the local situation.

Ice Supply

- Required ice should be supplied from a commercial manufacturing plant where it is made from safe water and where sanitary regulations are observed.
- It should be distributed in trucks designed for the purpose, equipped with tools for the safe handling of ice.
- After drinking water is secured within stricken areas, making water available for domestic use (such as leaning and washing) should be considered.

Coagulation-Disinfection

- Removal of the organic matter greatly lessens the amount of chlorine needed for disinfection. There are many factors that govern the coagulation process. These include:

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1. Hydrogen-ion concentration. The optimum pH value for coagulation is the value that the best floe formation and setting. The pH value of water changes when coagulants are used and has to be adjusted to its optimum value by addition of alkali or acids.
2. Mixing. Coagulants must be thoroughly mixed with the water to give satisfactory results. This may be accomplished by (a) pump action, whereby the coagulant solution is added to the suction pipe of the pump and pump does the mixing; (b) the drip bottle method i.e. hanging a drip-bottle over the discharge pipe or hose of raw water that feeds the tank and letting the coagulant solution drip on to the water jet; or (c) dissolution, i.e. allowing the discharge of raw water to splash on to a basket containing solid coagulant.
3. Coagulant dosage. The amount of the coagulant and chemicals required to adjust the pH value of water may be calculated when the pH and the type of alkalinity are known. However the optimum dosage for given water may be determined approximately using the jar test.

Coagulation-Filtration-Disinfection

- In this method filtration is added to the procedures described above. If temporary reservoir can be arranged, it is preferable to let the water settle before filtering it. In mobile purification units, however the water is filtered through a pressure filter without setting. They usually have a capacity of 4000-7000 litres per hour, and consist essentially of:
 - A centrifugal pump directly coupled to a gasoline engine.
 - A filter (pressure, rapid and filter)
 - A hypochlorinator
 - A chemical solution tank
(One for alum and one for soda ash)
 - A chlorine solution tank.
 - Hose adapters
 - Valves (pump suction, inlet, drain, outlet, flow control air release, etc) and
 - A tool box. Instructions in the manuals supplied with such units must be followed.

OPERATING PROCEDURE GUIDELINES FOR ANIMAL HUSBANDRY DEPARTMENT

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Planning Assumptions

- There is no substitute for maintaining standards of services and regular maintenance during normal times. This affects the response of the department to any disaster situation.
- Operating procedures for mobilizing community participation during various stages of disaster management have been given in section on “Areas of Community Participation”. The department is required to study these and adopt appropriate measures to ensure that community participates substantially.
- For effective preparedness, the department must have a disaster response plan or disaster response procedures clearly defined in order to avoid confusion, improve efficiency in cost and time.
- Orientation and training for disaster response plan and procedures accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during emergency operations need to be imparted to the officials and the staff. Select personnel can be deputed for training as “NODAL OFFICER – Veterinary Services” at district level respectively.
- To the extent possible, preventive measures as recommended in the preparedness and mitigation document of DDMAP should be undertaken to improve departmental capacity to respond to a disaster.
- Hospital staff be aware of damage – proof hospital rooms/buildings.
- A standby generator be made available for every hospital
- At least one kerosene – powered refrigeration unit be made available for storage of drugs.
- Orientation and training for disaster response plan and procedures, accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during disaster situation need to be imparted to the officials and the staff.
- To the extent possible, preventive measures as recommended in the preparedness and mitigation document of DMAP should be communicated to the community to prevent extensive loss of livestock.

Action Plan Objective in a Disaster Situation

- Treatment of injured cattle.

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- Protection and care of abandoned/lost cattle.

Activities on Receipt of Warning or Activation of DDMAP

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with
 - District control room
 - Veterinary aid centres and hospitals (including private practitioners) within the district.
- The Deputy Director, Veterinary Dept. will act as “Nodal Officer – Veterinary Services”.
- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipments and the post-disaster procedures to be followed.
- Fill departmental vehicles with fuel and park them in protected area.
- Stock emergency medical equipments, which may required after disaster.
- Determine what injuries/illnesses may be expected, and what drugs and other medical items will be required, in addition to the requirements of setting up cattle camps, and accordingly ensure that extra supplies of medical items and materials be obtained quickly.
- Provide information to all staff of veterinary hospitals and centers about the disasters, likely damages and effects, and information about ways to protect life, equipment and property.
- Surgical packs should be assembled and sterilized.
- Arrange for emergency supply of anesthetic drugs.
- Prepare an area of the hospital for receiving large number of injured livestock.
- Establish work schedules to ensure adequate staff are available round the clock.
- Set up teams for visiting disaster site.

Relief and Rehabilitation

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- Organise transfer of injured livestock from village to veterinary aid centres wherever possible
- The provision of medical services should be coordinated by Nodal Officer-Veterinary Services with District Control Room, and cattle camps.
- Establish cattle camps and additional veterinary aid centres at disaster sites and designate an Officer-in-Charge for the camp.
- Estimate the requirement of water, fodder and animal feed, for cattle camps and organise the same.
- Ensure the adequate sanitary conditions though cleaning operations are maintained in order to avoid outbreak of any epidemic.
- An injury and disease monitoring system should be developed, to ensure that a full picture of risks is maintained.
- Plan for emergency accommodations for veterinary staff from outside the area.
- Information formats and monitoring checklists as given in Annexure should be used for programme monitoring and development and for reporting to Emergency Operations Centre. This is in addition to existing reporting system in the department.
- Establishment of public information centre with a means of communication, to assist in providing an organized source of information. The hospital is responsible for keeping the community informed of its potential and limitations, in disaster situations.
- The local police and rescue group should be aware of the resources of each veterinary aid centre and hospital.
- Provide information to all staff of veterinary hospital and centres about the disaster likely damages and effects, and information about ways to protect life, equipment and property.
- Surgical packs should be assembled and sterilized.
- Enough stock of surgical packs should be sterilized to last for four to five days.
- The sterilized packs must be stored in protective cabinets to ensure that they do not get wet. Covering the stock with polythene is recommended as an added safety measure.
- All valuable equipments and instruments should be packed in protective coverings and stored in room the most damage-proof.

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- Check the emergency electrical generators, to ensure that it is operational, and that a buffer stock of fuel exists. If an emergency generator is not available at the hospital, arrange for one on loan.
- Arrange for emergency supplies anesthetic drugs.
- Check stocks of equipment and drugs, which are likely to be most needed after disaster.
- Fill hospital storage tanks and encourage water savings. If no storage tank exists, water for drinking should be drawn in clean container and protected.
- Prepare an area of hospital for receiving large number of injured livestock.
- Develop emergency admission procedure (with adequate record keeping).
- Cattle camps and hospital administrator should
 - Establish work schedules to ensure that adequate staff are available
 - Set up teams of veterinary doctors, and assistants for visiting disaster sites.

Standards for Cattle Camps

1. The minimum number of cattle in the cattle camp should be about 100 and the maximum 500.
2. The cattle camp should be located at suitable sites, bearing in mind, the adequate supply of water and shade are most essential for well being of the cattle.
3. Cattle sheds constructed should not exceed 20 sq. feet per animal. Suitable arrangements for water trough and manger(s) should be made.
4. The feeding centres for cattle should be located in such a manner that
 - There is adequate supply of drinking water
 - There is sufficient shade for cattle to rest during the afternoon
 - They are located as near the rail head as possible
 - They are conveniently located, not beyond a radius of 8 Km from the affected villages.

The cattle will require 6 Kg per cattle head per day of fodder, and 1 to 1½ Kg per cattle head per day, of the concentrate like Bago molasses.

Each cattle camp will have a minimum of one camp manager, two labourers and two sweepers.

Operating procedure guidelines for PWD department

Planning Assumptions

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- There is no substitute for maintaining standards of services and regular maintenance during normal times. This affects the response of the department to any disaster situation.
- The department is required to adopt appropriate measures to ensure that the community participates substantially.
- For effective preparedness, the department must have a disaster response plan or disaster response procedures clearly defined in order to avoid confusion, improve efficiency in cost and time.
- Orientation and training for disaster response plan and procedures accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during emergency operations need to be imparted to the officials and the staff. Select personnel can be deputed for training as “NODAL OFFICER – PWD” at district level respectively.
- To the extent possible, preventive measures as recommended in the preparedness and mitigation document of DDMAP should be undertaken to improve departmental capacity to respond to a disaster.

Action Plan Objective in a Disaster Situation

- Restoration of roads to their normal condition.
- Repair/reconstruction of public utilities and buildings.

Activities on Receipt of Warning or Activation of DDMAP

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with District control room and your departmental offices within the division.
- All district level officials of the department would be asked to report to the Deputy Commissioner/DDM.
- Appoint one officer as “Nodal Officer - PWD” at district level.
- The “Nodal Officer - PWD” will be responsible for mobilizing staff and volunteers to clear the roads in his section, should a disaster strike.

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- The “NODAL OFFICER – PWD” should be familiar with pre-disaster precautions and post disaster procedures for road clearing and for defining safe evacuation routes where necessary.
- All officers³ should be notified and should meet the staff to review emergency procedures.
- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Vehicles should be inspected, fuel tanks filled and batteries and electrical wiring covered as necessary.
- Extra transport vehicles should be dispatched from HQ and stationed at safe and strategic spots along routes likely to be effected.
- Heavy vehicles should be moved to areas likely to be damaged and secured in a safe place.
- Inspection of all roads, bridges, government buildings and structures must be done and structures which are endangered by the impending disaster identified.
- Emergency tool kits must be made available and should include
 - Crosscut saws
 - Axes
 - Power chain saw
 - Sharpening Files
 - Chains and tightening wrenches
 - Pulley block with chain and rope
- The designation of routes strategic to evacuation and relief should be identified and marked in close coordination with the DCR.
- Establish a priority listing of roads which will be opened first, the most important being roads to hospitals and main trunk routes.
- Give priority attention to urgent repair works in disaster affected areas.
- Identify locations for setting up transit and relief camps, feeding centers and quantity of construction materials required and inform the DCR accordingly.

Relief and Rehabilitation

- All works teams should be issued two-way communication **link**.

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- Provide a work team carrying emergency tool kits, depending on the nature of the disaster, essential equipments such as
 - Towing vehicles
 - Earth moving equipments
 - Cranes etc.
- Each unit should mobilize a farm tractor with chain, cables and a buffer stock of fuel.
- Adequate road signs should be installed to guide and assists the drivers.
- Begin clearing roads. Assemble casual labor to work with experienced staff and divide into work gangs.
- Mobilise community assistance for road clearing by contacting community organizations.
- Undertake clearing of ditches, grass cutting, burning, removal of debris and the cutting of dangerous trees along the roadside in the affected area through maintenance engineer's staff.
- Undertake repair of all paved and unpaved road surfaces including edge metalling, potholes patching and any failure of surface, foundations in the affected areas by maintenance engineer's staff and keep monitoring their conditions.
- Undertake construction of temporary roads to serve as access to temporary transit and relief camps and medical facilities for disaster victims.
- As per the decision of the district control room, undertake construction of relief camps, feeding centres, medical facilities, cattle camps.
- An up-to-date report of all damages and repairs should be kept in the district office report book and communicate the same to the district control room.
- If possible, review of the extent of damage (by helicopter) should be arranged for the field Officer-in-Charge, in order to dispatch most efficiently road clearing crews, and determine the equipments needed.

STANDARDS FOR RELIEF CAMPS

Tent Camps

- The layout of the site should meet the following specifications.
 1. 3-4 hectares of land/1000 peoples
 2. Roads of 10 meters width
 3. Minimum distance between edge of roads and tents of 2 mtrs.
 4. Minimum distance between tents of 8 mtrs.

5. Minimum floor area/tent of 3 square meters per person.
- Water distribution in camp sites consists of
 1. Minimum capacity of tanks of 200 litres
 2. Minimum capacity per capita of 15 liters/day
 3. Maximum distance of tanks from farthest tent of 100 meters.
 - Solid waste disposal containers in tent camps should be
 1. Waterproof
 2. Insect-proof and
 3. Rodent-proof
 4. The waste should be covered tightly with a plastic or metallic lid
 5. The final disposal should be by incineration or by burial.
 - The capacities of solid waste units should be, 1 litre/4-8 tents; or 50-100 litres/25-50 persons.
 - Excreta and liquid waste should be disposed in bore-holed or deep trench latrines in tent camps. Specifications for these are:
 1. 30-50 meters from tents.
 2. 1 seat provided/10 persons
 3. Modified soakage pits should be used for waste water by replacing layers of earth and small pebbles with layers of straw, grass or small twigs. These needs to be removed on a daily basis and burned.

Buildings

Buildings used for accommodating disaster victims should provide the following:

1. Minimum floor area of 3.5 sq. meters/person
2. Minimum air space of 10 sq. meters/person
3. Minimum air space circulation of 30 cubic meters/person/hour and
4. There should be separate washing blocks for men and women.
5. Washing facilities to be provided are:
 - 1 hand basin/10 persons
 - 1 wash bench of 4-5 meters/100 persons and 1 shower head/50 persons in temperate climates
6. Toilet accommodation in buildings housing displaced persons, should meet these requirements:
 - 1 seat/25 women

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- 1 seat plus 1 urinal/35 men
 - Maximum distance from building of 50 meters.
7. Refuse containers are to be plastic or metallic and should have closed lids. To be provided are:
- 1 container of 50-100 liters capacity/25-50 persons.

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Operating procedure guidelines for HPSEB

Planning Assumptions

- There is no substitute for maintaining standards of services and regular maintenance during normal times. This affects the response of the department to any disaster situation.
- The department is required to adopt appropriate measures to ensure that community participates substantially.
- For effective preparedness, the department must have a disaster response plan or disaster response procedures clearly defined in order to avoid confusion, improve efficiency in cost and time.
- Orientation and training for disaster response plan and procedures accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during emergency operations need to be imparted to the officials and the staff. Select personnel can be deputed for training as “NODAL OFFICER – Power Supply” at district level.
- To the extent possible, preventive measures as recommended in the preparedness and mitigation document of DDMA, should be undertaken to improve departmental capacity to respond to a disaster.

Normal Time Activities

- Assess preparedness level and report the same as per format to District Control Room every six months.
- Establish at each sub-station a disaster management tool kit comprising cable cutters, pulley blocks, jungle knives, axes, crowbars, ropes, hacksaws and spanners. Tents for work crews should also be storage.

Action Plan Objective in a Disaster Situation

- Restore the power supply and ensure uninterrupted power to all vital installation, facilities and site.

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Activities on Receipt of Warning or Activation of DDMAP

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with District control room and your departmental offices within the division.
- All district level officials of the department would be asked to report to the Deputy Commissioner/DDM.
- Appoint one officer as “NODAL OFFICER – Power Supply” at district level.
- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Assist the state authorities to make arrangements for standby generators in the following public service offices from the time of receipt of alert warning
 - Hospitals
 - Water Supply Stations
 - Collectorate
 - Police stations
 - Telecommunications buildings
- Fill departmental vehicles with fuel and park them in a protected area.
- Check emergency tool kits, assembling any additional equipment needed.
- Immediately undertake inspection from the time of receipt of alert warning of
 - High tension lines
 - Towers
 - Substations
 - Transformers
 - Insulators
 - Poles and
 - Other equipments
- Review the total extent of the damage to power supply installations by reconnaissance flight, if possible.

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On the recommendations of the Deputy Commissioner/District Control Room/ "Nodal Officer– Power Supply" of the department in the district

- Instruct district staff to disconnect the main electricity supply for the affected area.
- Dispatch emergency repair gangs equipped with food, bedding, tents, and tools.

Relief and Rehabilitation

- Hire casual labourers on an emergency basis for clearing of damaged poles and salvage of conductors and insulators.
- Begin repair/reconstruction
- Assist hospital in establishing emergency supply by assembling generators and other emergency equipments, if necessary.
- Establish temporary electricity supplies for other key public facilities, public water systems, etc.
- Establish temporary electricity supplies for transit camps, feeding centres, relief camps, district control room and on access roads to the same.
- Establish temporary electricity supplies for relief material godowns.
- Compile an itemized assessment of damage, from reports made by various electrical receiving centres and sub-centres.
- Report all activities to the head office.
- Plan for emergency accommodations for staff from outside the area.

On the recommendation of the Nodal Officer – Power Supply/Deputy Commissioner/District Control Room, at state level, HPSEB shall

- Send cables, poles, transformers and other needed equipment
- Send vehicles and any additional tools needed.
- Provide additional support as required.

OPERATING PROCEDURE GUIDELINES FOR AGRICULTURE DEPARTMENT

Planning Assumptions

- There is no substitute for maintaining standards of services and regular maintenance during normal times. This affects the response of the department to any disaster situation.
- The department is required to adopt appropriate measures to ensure that community participates substantially.
- For effective preparedness, the department must have a disaster response plan or disaster response procedures clearly defined in order to avoid confusion, improve efficiency in cost and time.
- Orientation and training for disaster response plan and procedures accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during emergency operations need to be imparted to the officials and the staff. Select personnel can be deputed for training as “NODAL OFFICER – Agriculture” at district level.
- To the extent possible, preventive measures as recommended in the preparedness and mitigation document of DDMAP should be communicated to the community to prevent extensive loss of crops and plantations.

Action Plan Objective in a Disaster Situation

- Restore the agricultural operations (including soil conditions)
- Crop protection
- Restore agriculture produce market.

Activities on Receipt of Warning or Activation of DDMAP

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with District control room and your departmental offices within the division.
- Appoint one officer as “NODAL OFFICER – Agriculture” at district level.

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- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Fill departmental vehicles with fuel and park them in a protected area.
- Check available stocks of equipments and materials which are likely to be most needed after disaster.
- Stock agricultural equipments which may be required after disaster
- Determine what damage, pests of diseases may be expected, and what drugs and other insecticides items will be required, in addition to requirement of setting up extension terms for crop protection, and accordingly ensure that extra supplies and materials, be obtained quickly.
- Provide information to all concerned, about disasters, likely damages to crops and plantations, and information about ways to protect the same.
- All valuable equipments and instruments should be packed in protective covering and stored in room the most damage-proof.
- All electrical equipments should be unplugged when disaster warning is received.
- Extension officers should be assisted to
 - Establish work schedules to ensure that the adequate staff are available
 - Set up the teams of extension personnel and assistants for disaster sites.

Relief and Rehabilitation

- Assess the extent of damage to soil, crop, plantation, micro-irrigation systems and storage facilities and the requirements for replantation or salvaging
- Make extensive use of soil and water testing laboratories
- Provision of agricultural services should be coordinated with irrigation department, DRDA, District Control Room
- Estimate the requirement of
 1. Seeds
 2. Fertilizers
 3. Pesticides and labour
- Organise transport, storage and distribution of the above with adequate record keeping procedures
- Ensure that the adequate conditions through cleaning operations are maintained to avoid water-logging and salinity in the low lying areas.

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- A pests and disease monitoring system should be developed to ensure that a full picture of risks is maintained.
- Plan for emergency accommodations for agriculture staff from outside the area.
- Information formats and monitoring checklists as given in section on “Information and Monitoring Tools” should be used for programme monitoring and development and for reporting to DCR. This is in addition to existing reporting system in the department.
- Establishment of a public information center with a means of communication, to assist in providing an organized source of information. The department is responsible for keeping the community informed of its potential and limitations in disaster situations.
- The NGOs and other relief organizations should be aware of the resources of the department.
- Assist farmers to re-establish their contacts with agriculture produce market and ensure that appropriate prices to offer to them.

Annexure - L
First Information Report

Name of the District

Date of Report

1. Nature of Calamity
2. Date and Time of Occurrence
3. Number and Names of the areas affected
4. Population Affected
5. Number of Persons
 - a) Died
 - b) Missing
 - c) Injured
6. Animals
 - a) Affected
 - b) Lost
7. Crops Affected
8. Number of houses damaged
9. Damage to Public Property

Annexure - M

Rapid Assessment Format for Disaster Management Team

[Aim to determine immediate response of the locality]

Type of Disaster _____; Date _____;

Time _____;

Team

Member _____

1. Name of the location	
2. Administrative Unit and Division	
3. Geographical location	
4. Local Authorities interview(with name, address, designation)	
5. Estimated total population	
6. Worst affected areas/population - No of Blocks - G.P - Village	
7. Areas currently inaccessible	
8. Type of areas affected	
9. Distance from the District Head Quarters(Km)	
Accessibility of the areas	
10. Effect on population (a) Primary affected population - Children below 1 year - Children between 1 and 5 years old - Women - Pregnant and lactating women - Elderly (above 60)	Number

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<ul style="list-style-type: none"> - Disabled (b) Death/Reports of starvation (c) Orphans (d) Injured (e) Missing (f) Homeless <ul style="list-style-type: none"> - Number of people - Number of families (g) Displaced/Migrated (h) Evacuated (i) Destitute (j) Need of counseling for traumatized population 	<p style="text-align: center;">Yes/No</p>
<p>11. Building</p> <ul style="list-style-type: none"> (a) Building collapsed/wasted away (b) Building partially collapsed/wasted away (c) Buildings with minor damages (buildings that can be retrofitted) (d) Number of schools affected <ul style="list-style-type: none"> - Gravity of the damages (e) Number of hospitals and Health Centers affected <ul style="list-style-type: none"> - Gravity of the damages (f) Number of Government buildings affected <ul style="list-style-type: none"> - Gravity of the damages (g) Any other building affected <ul style="list-style-type: none"> - Gravity of the damages 	<p style="text-align: center;">Number</p> <p style="text-align: center;">Scale 1 to 5 where 1 is no damages and 5 is completely destroyed</p>
<p>12. Infrastructure</p> <ul style="list-style-type: none"> (a) Road Damaged/destroyed <ul style="list-style-type: none"> - Scale of the damage - Location - Km (b) Railways damaged <ul style="list-style-type: none"> - Location - Km - Is the railway still working (c) Bridges damaged/collapsed <ul style="list-style-type: none"> - Locality - Villages isolated (d) Damages to the Communication Network (e) Damages to the Electricity Network (f) Damages to the Telecommunication Network 	<p style="text-align: center;">Scale 1 to 5 where 1 is normal and 5 is completely destroyed/washed away</p> <p style="text-align: center;">Yes/No</p> <p style="text-align: center;">Yes/No</p> <p style="text-align: center;">Yes/No and scale of the damages</p> <p style="text-align: center;">Scale 1 to 5 where 1 is no damages and 5 is completely destroyed</p>
<p>13. Health Facilities</p> <ul style="list-style-type: none"> (a) Infrastructure damaged <ul style="list-style-type: none"> - Hospitals 	<p style="text-align: center;">Number</p> <p style="text-align: center;">Scale 1 to 5 where 1 is no damages and 5 is completely destroyed</p>

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<ul style="list-style-type: none"> - Health Centers - Vaccination Centers (b) Availability of Doctors <ul style="list-style-type: none"> - In the area - In the district (c) Availability of Paramedical staff <ul style="list-style-type: none"> - In the area - In the district (d) Local Staff affected <ul style="list-style-type: none"> - Doctors - Paramedical Staff (e) Conditions of equipments Specify which equipments (f) Availability of medicines/drugs <ul style="list-style-type: none"> - Typology (g) Availability of Vaccinations <ul style="list-style-type: none"> - Typology (h) Any immunization campaign was undertaken before the disaster (i) Possibility of diseases outbreak (j) Other health problems 	<p>Number</p> <p>Number</p> <p>Number</p> <p>Scale 1 to 5 where 1 is no damages and 5 is completely destroyed</p> <p>Yes/No</p> <p>Yes/No</p> <p>Yes/No</p> <p>Yes/No</p> <p>Yes/No</p> <p>List</p>
<p>14. Water Sanitation</p> <ul style="list-style-type: none"> (a) Availability of safe drinking water (b) Availability of sanitation facilities (c) Availability of Disinfectant <ul style="list-style-type: none"> - Typology (d) Damages to the Water/Sewage systems (e) Damages to the water supply system (f) Availability of portable water system (g) Agencies participating in WATSAN 	<p>Yes/No</p> <p>Yes/No</p> <p>Yes/No</p> <p>Scale 1 to 5 where 1 is no damages and 5 is completely destroyed</p> <p>Yes/No</p> <p>List</p>
<p>15. Crops/Agriculture Damage</p> <ul style="list-style-type: none"> (a) Crop Damaged <ul style="list-style-type: none"> - Typology - % Of Hectare damaged - In Upland/medium/low - Paddy or Non paddy - Irrigated or non-irrigated (b) Normal and actual rainfall assessment (c) Livestock loss (d) Availability of Health services for livestock (e) Cattle feed/folder availability 	<p>Mm</p> <p>Number</p> <p>Yes/No</p> <p>Number</p>

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<p>(f) Damage to agriculture infrastructure</p>	<p>Tonnes</p> <p>Scale 1 to 5 where 1 is no damages and 5 is completely destroyed</p>
<p>16. Food/Nutrition</p> <p>(a) Availability of food/stocks</p> <p style="margin-left: 20px;">(1) Family</p> <p style="margin-left: 20px;">(2) Relief</p> <p style="margin-left: 20px;">(3) PDS</p> <p style="margin-left: 20px;">(4) Community Kitchen</p> <p>(b) Expected duration of the food stock</p> <p>(c) Most affected groups</p> <ul style="list-style-type: none"> - Infant - Children - Pregnant and lactating mothers - Elderly <p>(d) Where are the different groups located?</p> <p>(e) Levels of malnutrition?</p> <p>(f) Type of food required</p> <p>(g) Total quantity/ration levels required</p> <p>(h) How is the food supply and nutrition situation likely to evolve in coming weeks/months?</p>	<p>Yes/No</p> <p>Kg</p> <p>Tonnes</p> <p>Tonnes</p> <p>Kg</p> <p>Days</p> <p>To be ticked</p> <p>Days</p> <p>To be ticked</p>
<p>1. 15.Secondary Threats</p> <p>(a) Potentially hazardous sites</p> <p>(b) Existence of epidemics</p> <p>(c) Scarcity of Food</p> <p>(d) Scarcity of Water</p> <p>(e) Scarcity of Shelter</p> <p>(f) Scarcity of Clothes</p> <p>(g) Any other problem</p>	<p>List</p>
<p>16. Response</p> <p>(a) <u>Local:</u> Govt./NGOs/CSOs/Individuals Type of assistance</p> <p>(b) <u>National:</u> Govt./NGOs/CSOs Type of assistance</p> <p>(c) <u>International:</u> Govt./NGOs/CSOs Type of assistance</p>	<p>To be ticked Description</p> <p>To be ticked Description</p> <p>To be ticked Description</p>
<p>17. Logistic and Distribution system</p> <p>(a) Availability of Storage facilities</p>	<p>Yes/No</p>

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<p>(c) IV fluid (d) ORS (e) Vitamin A (f) Vaccines (g) Mobile units(quantity to be specified) (h) Cold chain system</p> <p>1.3 Education:</p> <p>(a) Infrastructure temporary / permanent (b) Teachers (c) Teachers kits (d) Reading materials (e) Availability of mid-day meal</p> <p>Crop/Agriculture (a) Need of seeds (b) Fertilizer , Pesticide (c) Type of Seed required (d) Availability of local variety (e) Availability of resources</p> <p>Infrastructure: (a) Repair of roads (b) Repair of railways and bridges (c) Power Supply (d) Telecommunication (e) Equipments required for restoration (f) Manpower required</p>	<p>List</p> <p>Yes/No and specify location Yes/No and specify location</p> <p>List</p> <p>Number of Man days</p>
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- **Observation:**

- **Source of information:**

- **Site Visit:**

- **Interaction with affected population:**

- **Assessment Carried By:**

Annexure - N

Guidelines for Requisitioning of Armed Forces in Aid of Civil Administration

Procedure for Provision of Aid

1. The Armed Forces are conscious of not only their constitutional responsibility in-aid to civil authority, but also, more importantly, the aspirations and the hopes of the people. Although such assistance is part of their secondary role, once the Army steps in, personnel in uniform wholeheartedly immerse themselves in the tasks in accordance with the Army's credo - **SERVICE BEFORE SELF**.

2. Assistance during a disaster situation is to be provided by the Defence Services with the approval and on orders of the central government. In case, the request for aid is of an emergency nature, where government sanctions for assistance is not practicable, local military authorities when approached for assistance should provide the same. This will be reported immediately to respective Services Headquarters (Operations Directorate) and normal channels taken recourse to, as early as possible.

Requisition Procedure

3. Any state unable to cope with a major disaster situation on its own and having deployed all its resources will request Government of India for additional assistance. Ministry of Defence will direct respective service headquarters to take executive action on approved requests. The chief secretary of state may initiate a direct request for emergency assistance, for example, helicopter for aerial reconnaissance, or formation of local headquarter (Command/Area Headquarters) or naval base or air force station.

Coordination

4. The responsibility for coordination of disaster relief operations at various levels is as follows:

- a) Inter-service Coordination at Central Level: Cabinet secretariat (Military Wing). A case for co-opting a Tri Service RRF to cater for emergency situations within India and in the region is under consideration of COSC. This JCC would be responsible for coordination and directing all rescue/relief operations to ensure synergy of efforts of all three services in management of disasters.
- b) Service Headquarters
 - (i) Military Operations Directorate (MI-6) at Army Headquarters
 - (ii) Director of Naval operations at Naval headquarters
 - (iii) Directorate of Operations (Transport and Maritime) at Air Headquarters
- c) Command and Lower Formation Headquarters: Senior General Staff Officers (Operations)
- d) State Level: Service liaison officer deputed to form a part of Joint Control Centre.

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- e) Local Level: Nominated Commander of troops and senior civil administrator in-charge of relief.

5. The Armed Forces may be called upon to provide the following types of assistance:

- a) Infrastructure for command and control for providing relief. This would entail provision of communications and technical manpower.
- b) Search rescue and relief operations at disaster sites.
- c) Provision of medical care at the incident site and evacuation of casualties.
- d) Logistics support for transportation of relief materials
- e) Setting up and running of relief camps
- f) Construction and repair of roads and bridges to enable relief teams/ material to reach affected areas.
- g) Repair, maintenance and running of essential services especially in the initial stages of disaster relief.
- h) Assist in evacuation of people to safer places before and after the disaster
- i) Coordinate provisioning of escorts for men, material and security of installations,
- j) Stage management and handling of International relief, if requested by the civil administration.

Disaster Relief Operation

6. Important aspects of policy for providing disaster relief are as under:

- a) Disaster relief tasks can be undertaken by local commanders. However, HQ Sub Area is to be informed at the first opportunity and then flow of information to be maintained till completion of the task.
- b) Effective and efficient disaster relief by the army while at task.
- c) Disaster relief tasks will be controlled and coordinated through Commanders of Static Headquarters while field units Commanders may move to disaster site for gaining firsthand knowledge and ensuring effective assistance.
- d) Once situation is under control of the civil administration, army aid should be promptly de-requisitioned.
- e) Adequate communication, both line and radio, will be ensured from Field Force to Command Headquarters.

Procedure to Requisition Army, and Air Force

- 7. It will be ensured by the local administration that all local resources including Home Guards, Police and others are fully utilised before assistance is sought from outside. The District Collector will assess the situation and project his requirements to the State Government. District Control Room will ensure that updated information is regularly communicated to the State Control Room, Defence Service establishments and other concerned agencies.
- 8. District Collector will apprise the State Government of additional requirements through State Control Room and Relief Commissioner of the State.

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9. Additional assistance required for relief operations will be released to the District Collector from the state resources. If it is felt that the situation is beyond the control of state administration, the Relief commissioner will approach the Chief Secretary to get the aid from the Defence Services. Based on the final assessment, the Chief Secretary will project the requirement as under while approaching the Ministry of Defence, Government of India simultaneously for clearance of the aid:

Aid from Army: Head quarters Sub Area Commander, and Headquarters of Western Command Chandimandir.

Aid from Air Force: Sector Commander Sarsawa, Saharanpur (Contact Person: Wg. Cdr. Vineet Sharma – 07599342240; Fax No. 01331 – 244822), and Western Air Command Headquarters, Delhi.

Army authorities to be contacted for disaster relief are as under:

10. Co-Ordination between Civil and Army: For deployment of the Army along with civil agencies on disaster relief, co-ordination should be carried out by the district civil authorities and not by the departmental heads of the line departments like Police, Health & Family Welfare, PWD and PHED etc.
11. Overall Responsibility When Navy and Air Force are also being Employed: When Navy and Air Force are also involved in disaster relief along with the Army, the Army will remain overall responsible for the tasks unless specified otherwise.

13. Principles of Employment of Armed Forces

- a) **Judicious Use of Armed Forces:** Assistance by Armed Forces should be requisitioned only when it becomes absolutely necessary and when the situation cannot be handled by the civil administration from within its resources. However, this does not imply that the response must be graduated. If the scale of disaster so dictates, all available resources must be requisitioned simultaneously.
- b) **Immediate Response:** When natural and other calamities occur, the speed for rendering aid is of paramount importance. It is clear that, under such circumstances, prior sanction for assistance may not always be forthcoming. In such cases, when approached for assistance, the Army should provide the same without delay. No separate Government approval for aid rendered in connection with assistance during natural disasters and other calamities is necessary.
- c) **Command of Troops:** Army units while operating under these circumstances continue to be under command of their own commanders, and assistance rendered is based on task basis.
- d) **No Menial Tasks:** While assigning tasks to troops, it must be rendered that they are not employed for menial tasks e.g. troops must not be utilised for disposal of dead bodies.
- e) **Requisition of Aid on Task Basis:** While requisitioning the Army, the assistance should not be asked for in terms of number of columns, engineers and medical teams. Instead, the- civil administration should spell out tasks, and leave it to

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army authorities to decide on the force level, equipment and methodologies to tackle the situation.

- f) **Regular Liaison and Co-ordination:** In order to ensure that optimum benefit is derived out of Armed Forces employment, regular liaison and coordination needs to be done at all levels and contingency plans made and disseminated to the lowest level of civil administration and the Army.
- g) **Advance Planning and Training:** Army formations located in areas prone to disaster must have detailed plans worked out to cater for all possible contingencies. Troops should be well briefed and kept ready to meet any contingency. Use of the Vulnerability Atlas where available must be made.
- h) **Integration of all Available Resources:** All available resources, equipment, accommodation and medical resources with civil administration, civil firms and NGOs need to be taken into account while evolving disaster relief plans. All the resources should be integrated to achieve optimum results. Assistance from outside agencies can be superimposed on the available resources.
- i) **Early De-requisitioning:** Soon after the situation in a disaster-affected area has been brought under control of the civil administration, Armed Forces should be de-requisitioned.

REQUISITION FOR ARMY AID BY CIVIL AUTHORITIES

(NATURAL CALAMITIES)

Reference No. : Calamities

1. From :
2. To :
3. For Information -
4. Date and time origination of demand -
5. Situation as at area _____ an
Heavy flood in area _____ due rising of rigor
_____ civilians marooned. Own evacuation resources
insufficient meet requirement. In view continuous heavy, rains in upper regions, more areas
may be affected marooning another _____ civilians of _____ region.
6. **Type of extent of aid required for**
 - (i) Equipment and personal, to evacuate marooned civil.

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- (ii) Medical assistance for approximately _____ civilians.
- (iii) Tentage for _____ families if available.

7. **Likely duration and period of aid required**

for _____ days with effect from _____
(present situation permitting)

8. **Officer in charge Army aid to contact.**

9. **Name of civil Liaison Officer detailed.**

Mr. _____ (Telephone No.) _____

10. **Arrangement made by civil authorities to guide Army aid to place of operations.**

Mr. _____ will meet Army aid part at _____ on receipt of
information from Army authorities)

11. **Special Instructions.**

- (i) School building at _____ being made available to
hourse personnel and also for medical arrangements.
- (ii) Sufficient stocks of required medicines in the present contingency being made
available to treat effected civilians population.
- (iii) Road Bridge at _____ is unserviceable.

12. Please acknowledge.

Signature

Office Seal

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DE-REQUISITION OF ARMY AID (NATUAL CALAMITIES)

1. **Reference No.** _____ **Date:** _____
2. **From** _____ - _____
3. **To** _____ - _____
4. **Information** - _____
5. Army aid requisitioned vide our reference No. _____ of _____ is hereby de-requisitioned with effect from _____ hrs on _____.
6. Please acknowledge.

Signature

Office Seal

Appointment