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DISTRICT DISASTER MANAGEMENT PLAN
OF
DISTRICT KINNAUR, HIMACHAL PRADESH

PREPARED BY: -

DISTRICT DISASTER MANAGEMENT AUTHORITY
(DDMA) KINNAUR

UNDER

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

District Disaster Management Plan 2012, Kinnaur (H. P.)

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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
GoI	–	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

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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 manned at the District Level
L1 Disaster	–	Disaster which can be manned 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.

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-

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- (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.

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

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comes out with practical ways as how disaster risk reduction (DRR) issues can be integrated into development planning, policies and programmes.

Chapter – 1

District Kinnaur- An Introduction

The **Kinnaur** district is one of the twelve administrative districts of Himachal Pradesh. This district is given the special status of tribal district as schedule 5 area under the constitution of India. The district came into existence on 1st May 1960. Earlier it was a part of Mahasu district. Presently, the district headquarter is located at Reckong Peo.

Kinnaur is located between 77°45' and 79°00'35" East longitudes and between 31°05'50" and 32°05'15" north altitudes. Kinnaur is bound by Tibet and Uttaranchal on the east, Shimla district in south-west, Kullu and Lahaul-Spiti district in the north-west. Kinnaur district has a mountainous topography, ranging in altitude from 1,600 m to 6,816 m, having steep valleys carved by streams and rivulets having their origin in the glaciated ridges.

Most of the Kinnaur has a temperate climate due to its high elevation, with long winters from October to May and short summers from June to September. The lower parts of the Satluj valley and the Baspa valley receive monsoon rains. The upper areas of these valleys and lower reaches of Spiti valley in Kinnaur fall in the rain shadow area. These areas are considered to be arid regions, having climate similar to Tibet. In the lower reaches of Satluj and Bapsa Valleys, the vegetation comprises trees like pine, oak, chestnut, birch, deodar, fir, grasses and shrubs giving a lush look to the area. The rain shadow area, having higher in general, has sparse vegetation comprising hardy grasses, dry alpine scrub, dwarf juniper scrub. The transition area between these two climatic and vegetation zones is home to chilgoza dry fruit. A unique feature of Kinnaur is that the fruit trees like apple, apricot, almonds are cultivated by the farmers across these zones successfully.

The high terrains here give way to great adventure sports of all kinds including beautiful trekking routes such as the 'Parikrama of Kinner Kailash'. The district also has the Beautiful and world famous Nako Lake and three wild life sanctuaries namey Lipa-Asrang, Rakchham-Chhitkul and Rup-Bhaba. Ibex, Yak, Goral, Blue Sheep, leopard, Musk-Deer, Himalayan Black bear etc. are found in these sanctuaries.

Kinnaur has a religious mix of Hinduism and Tibetan Buddhism. People have faith in both Hindu Gods and Buddhist deities. In the ancient mythology the people of Kinnaur are known as 'Kinnars', the halfway between men and gods. Thousands years old monasteries still exist in the area. Both the Buddhists and Hindus live in perfect harmony symbolizing the traditional brotherhood and friendship of the people of both the faiths.

A number of dialects are spoken by the inhabitants of Kinnaur, which come under "Kinnauri" or 'Kanauri'. According to the classifications of languages made by the linguistic survey of India, 'Kinauri' comes

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under Tibeto-chinese family of languages. The villages on the Tibet border speak Tibetan dialects of Western Tibet. The extent of spoken Tibetan is limited to the village of Nesang, Kunnu and Charang adjoining Tibet. Jangram dialect is spoken in Jangi, Lipa and Asrang villages of Moorang Tehsils. The Shuchho dialect is spoken in the villages of Kanam, Labrang, Spillow, Shyaso, Tailing and Rushkulang of pooh Tehsil. A Kinnauri-Jangram mixture is the language used in Rakchham and Chhitkul villages of Sangla Tehsil. Besides these dialects, a high percentage of people speak Hindi also.

The Kinnaura people are classified mainly into two castes: Lower and Upper caste, again both of these categories are divided into sub classes. The caste system is more prevalent in the Lower and Middle Kinnaur regions and not so prominent in upper Kinnaur which has a deeper Buddhist influence.

Administrative Setup:

In District Kinnaur, 'Single Line Administration' was introduced in April 1988 till July 1996 and reintroduced in September 1998. Under this system, Deputy Commissioner is conferred Powers of Head of Departments in the district.

The district is divided into three administrative sub-divisions – Pooh, Kalpa and Nichar. It has five Tehsils namely Pooh, Moorang, Kalpa, Sangla and Nichar & one Sub-Tehsil i.e. Hangrang. Kinnaur has three development blocks – Pooh, Kalpa and Nichar having 65 panchayats.



Figure 1: Administrative set up in Kinnaur District



Figure 2: D.C. Office, Kinnaur (at Reckong Peo)



Figure 3: Map of Kinnaur District

Statistical Profile of District Kinnaur:

Population As per 2011 Census	
Male	43,364
Female	37,934
Rural	84,298
Urban	NIL
Sex Ratio	818 (No. of females per 1000 males)
0-6 population	Total = 7987: Male – 4090; Female – 3897
Density of Population	13 per sq. km.

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Climate												
Temperature	[With respect to Kalpa for the year 2003]											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min (in deg cent)	-4.7	-7.2	-4.2	-0.2	2.5	8.2	10.2	10.2	4.5	1.5	-2.8	-6.5
Max (in deg cent)	16.1	13.1	20.1	23.1	25.2	25.7	25.3	24.4	24.6	21.4	20.0	15.9
Total Rainfall(in mm)	0.00	0.00	23.9	83.5	59.6	28.2	78.2	32.5	26.8	04.9	0.00	0.00
Total Snowfall (in cms)	45.5	139.9	85.6	16.0	0.00	0.00	0.00	0.00	0.00	0.00	06.4	75.1

Literacy Rate of Rural Population- As Per 2011 Census	
Total	80.77
Male Literacy	88.37 %
Female Literacy	71.34%

Geographical Area (In Hectares) (Source: District Statistical Office, Kinnaur)	
Total Area	624,215
Forest Land	38,563
Cultivated Land	9,355
Non-Cultivable	576,178
Altitude	Between 2,350 m to 6,816 m above sea level.
Longitude	Between 77° 45' and 79° 00' 35" East Longitude
Latitude	Between 31° 05' 50" and 32° 05' 15" North Latitude
Major Rivers	Satluj, Spiti & Baspa

Distances	
Nearest Railway Station	Shimla - 235 Kms
Nearest Airport	Shimla - 235 Kms

Administrative Setup	
No. of Sub Divisions	3 - Pooh, Kalpa, Nichar
No. of Tehsils	5 - Sangla, Pooh, Nichar, Moorang, Kalpa.
Sub Tehsil	1 – Yangthang
Development Blocks	3 - Nichar, Kalpa, Pooh
Panchayats	65

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Villages (2001)	660 (234 Habited and 426 un-habited); average population = 335/habited village;
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Education (2010-11)	
Primary Schools	189 No. (439 teachers and 5700 students)
Middle Schools	35 No. (175 teachers and 3693 students)
High Schools	22 No. (543 teachers – high and Sr. Secondary and 1,971 students)
Sr. Sec. Schools	25 No. (1,437 students)
Colleges	1-Govt. College R/Peo. (22 teachers and 407 students)
Others	ITI R/Peo, DIET R/Peo.

Animal Husbandry (2010-11 Statistical Profile of Kinnaur)	
Hospitals	20 (17 providing AI Facilities)
Dispensaries	41 (30 equipped with AI Facilities)
AI Centres	No special AI Centre.
Poultry Farms	2
Sheep Breeding Farm	1
Other Veterinary Facilities	4

Cattle Population	As per Cattle Census 2007
Cattle	22,502
Buffalos	148
Sheep	70,333
Goats	30,325
Yak	339
Poultry	4,469
Others	3,687

Health Facilities (2010-11) (Source: District Statistical Office, Kinnaur)	
Regional Hospitals	1(Reckong Peo)
Civil Hospital	1(Chango)
Community Health Centres	4 (Pooh-1, Nichar - 2, Kalpa – 1)
Primary Health Centres	21 (Nichar -6, Kalpa – 5, Pooh -10)
Sub-Centres	31 (Nichar – 11, Kalpa -7, Pooh – 13)
Ayurvedic Hospitals	1(Reckong Peo)

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Ayurvedic Health Centres	27 (Nichar – 10, Kalpa – 7, Pooh – 10)
Homeopathy	1(Reckong Peo)
Bed Capacity	Allopathic– 206; Ayurvedic– 15;

Industrial Units	
Large Enterprises	NIL
Micro/Small Enterprises	539
Investment	463 Lakhs
Employment	1,647(Numbers)1,584 himachalies+63 Non Himachalies
Type of Enterprises	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 Kinnaur) Minor: Fabrications (Steel and Wooden Furniture, Food Processing, Auto Repair, Oil Extraction Units, Wool Carding etc.)
Handloom Units	59

General			
Number of Post Offices	Head Post Office	Reckong Peo.	
	Sub Post Offices	Bhavanagar, Kalpa, Leo, Moorang, Nichar, Pooh, Sangla, Ribba, Spillo, Tapri, Katgaon	
	Branch Post Offices	72	
Nationalized Bank Branches	Punjab National Bank	R/Peo,Karcham,Nigulsari,Kalpa	
	UCO Bank	Skibba, Yangthang, Katgaon, Sungra, Sangla, Tapri, Spillo, Reckong Peo	
	State Bank of India	Bhawanagar, Pooh, Moorang, Lippa, Giabong, Chango, R/Peo.	
	Union Bank	Nichar	
	Land Development Bank	R/Peo, Pooh	
Name of the Lead Bank	Punjab National Bank		
Cooperative Bank Branches	Kalpa, R/Peo, Moorang, Nichar, Pooh, Sangla,Tapri, Pangi, Katgaon, Sungra		
Petrol Pumps	Reckong Peo, Powari, Tapri		
Major Crops	Kharif	Cereals	Maize
		Pulses	Rajmash,Mash
		Others	Olga,Fafra,Koda,Cholai
	Rabi	Cereals	Wheat,Barley
Vegetables	Tomato, Brinjal, Cabbage, Cauliflower, Onion, Chillies, Capsicum, Peas, Reddish, Turnip, Potatoes.		

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Horticulture	Apples, Chilgoza, Apricots, Almonds, Walnuts, Pears, Grapes, Figs, Kiwi fruit.
Electrified Villages	85%
Flaura and Fauna	Portions of Kinnaur are situated high in the Himalaya, where vegetation is sparse and consists primarily of hardy grasses. Alpine species such as juniper, pine, fir, cypress, and rhododendron can be found at elevations between 3,500 and 5,000 meters, primarily in Middle Kinnaur. At lower altitudes, temperate-climate trees are found, including oak, chestnut, maple, birch, alder, magnolia, apple, and apricot. Yaks and dzos are reared by local farmers in the higher areas. Scattered populations of the Himalayan black bear and small ponies may also be found.
Roads (31.12.2008)	Total Length = 976 KMS (721 Motorable)

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 Kinnaur District

Kinnaur situated in Trans Himalayan zone of Himalayas 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 Satluj 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 Kapla and Nichar Sub-Divisions of the district. Pooh 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-tectonic, Geological, Geomorphologic and Climatic conditions of the District makes it vulnerable/susceptible 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		
	Kalpa	Pooh	Nichar
Earthquakes	Moderate	Very High	Moderate
Floods	High	Very High	High
GLOFs	Moderate	Very High	Very High
Landslides	High	High	High
Forest Fires	High	Low	High
Domestic Fires	Moderate	Moderate	Moderate
Road Accidents	Moderate	Moderate	Moderate
Avalanches	Moderate	High	Low
Cloud Bursts	Low	-NA-	Moderate
Wind Storm	Moderate	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 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 Kinnaur located on the folds of the Himalayas lies in the earthquake Zone IV and is highly prone to earthquakes.

Risk Analysis of Kinnaur District

I. Earthquakes

District Kinnaur 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 area along the Kaurik Fault and at other locations in the district is prone to earthquakes. As per the recorded history of earthquakes the district has been hit by more than 12 times by earthquakes having magnitude of 4.0 and above.



Figure 4: 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: KINNAUR				
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	878	2.1									
	Urban											
	Total	878	2.1		H					M		
A2- Stone Wall	Rural	30,394	74.6									
	Urban											
	Total	30,394	74.6		H					L		
Total-Category-A		31,812	76.7									
B-Burnt Bricks Wall	Rural	1,680	4.1									
	Urban											
	Total	1,680	4.1		M					L		
Total-Category-B		1,680	4.1									
C1-Concrete Wall	Rural	923	2.2									
	Urban											
	Total	923	2.2		L					VL		
C2-Wood Wall	Rural	4,710	11.4									
	Urban											
	Total	4,710	11.4		L					M		
Total-Category-C		5,633	13.6									
X-Other Material	Rural	2,328	5.6									
	Urban											
	Total	2,328	5.6		VL					M		
Total-Category-X		2,328	5.6									
TOTAL BUILDINGS		41,453										
ROOF												
R1-Light Weight Sloping Roof	Rural	32,535	78.5									
R1-Light Weight Sloping Roof R2-Heavy Weight Sloping Roof	Urban											
	Total	32,535	78.5		M					H		
	Rural	5,099	12.3									
R2-Heavy Weight Sloping Roof R3-Flat Roof	Urban											
	Total	5,099	12.3		M					L		
	Rural	3,819	9.2									
R3-Flat Roof	Urban											
	Total	3,819	9.2	Damage Risk as per that for the wall supporting it								
TOTAL BUILDINGS		41,453										
Probable Maximum Precipitation at a station of the district in 24 hrs is 720mm												

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Housing Category : Wall Types

Category-A : Buildings in field-stone, rural structures, unburnt brick houses, clay houses.

Category-B : Ordinary brick building: buildings of the large block & prefabricated type, half-timbered structures, building in natural hewn stone.

Category-C : Reinforced building well built wooden structures.

Category-X : Other materials not covered in A,B,C. These are generally light.

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 choked drainage.

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

Housing Category : Roof Type

Category-R1- Light Weight (Grass, Thatch, Bamboo, Wood, Mud, Plastic, Polythene, GI Metal, Absbestos Sheets, Other Material)

Category-R2- Heavy Weight (Tiles, Slate)

Category-R3- Flat Roof (Brick, Stone, Concrete)

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

(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.

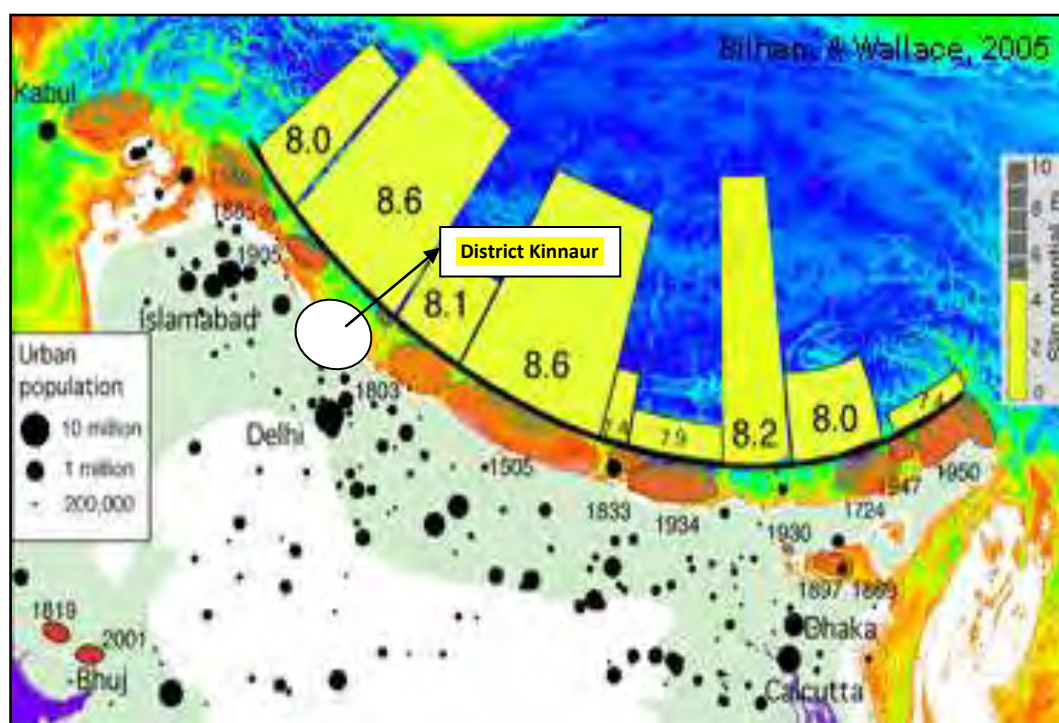


Figure 5: Probable built-up stress and likely magnitude of earthquakes in different regions of the Himalayas

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. Kinnaur has 2594 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 Kinnaur (2001 Census)

Type of disability	Total disabled	Rural	Urban	Rural			Literate	
				Gents	Ladies	Total	Gents	Ladies
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Blind	1,395	1,395	-	769	626	801	522	279
Dumb	236	236	-	111	125	35	28	7
Deaf	399	399	-	199	200	82	60	22
Handi-capped	472	472	-	250	222	256	170	86
Mentally	92	92	-	56	36	52	32	20
Total	2,594	2,594	-	1,385	1,209	1,226	812	414

II. Floods:

II.A). Flash Floods

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

II.B). River Floods

Slow build up, usually seasonal in river systems.

II.C). Coastal Floods

Associated with tropical cyclones, Tsunami waves, Strong surges.



Figure 6: Critical Infrastructure along the River Course

Factors affecting degree of danger

- Depth of water, Velocity, Duration and Date of rise, Frequency of occurrences, Seasonality, Rock strata, and Vegetation cover.

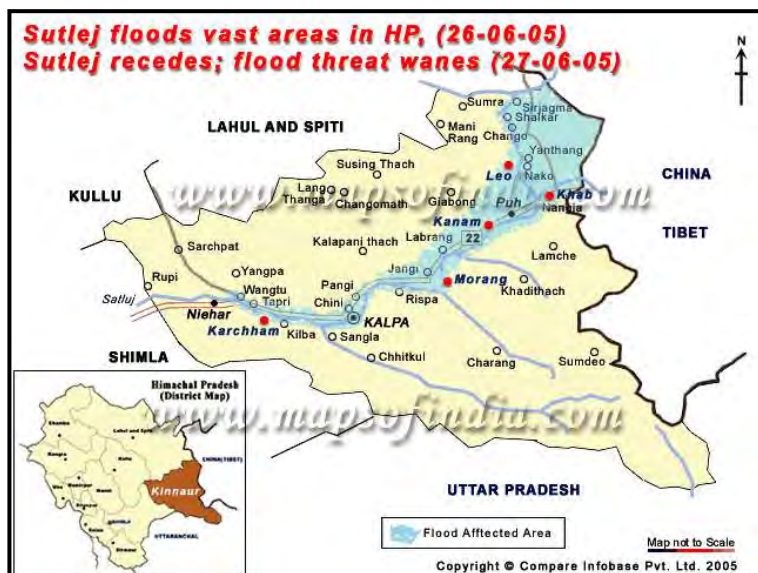


Figure 7: Flood Map of Kinnaur District

Bhaba Khad in Nichar sub-division. It leaves Kinnaur district and enters Shimla district at Chaura village cutting across the entire district and finally flows into the Arabian Sea. The Satluj and some of its tributaries are prone to floods due to Glacial Lake Outbursts (due to heavy snow melting or blockage of the exit), heavy rainfall or Cloud bursts.

As per the history of floods this river has caused havoc in the district more than once and cut off the district from rest of the country many a times. Despite all this, there appears to be total lack of appreciation of the risk vis a vis this hazard. The entire river course has been crowded with very costly infrastructure.

The muck being generated by the power projects is being dumped along the main river course. The Project Colonies such as the one constructed at Tapri which has historically faced many devastation is virtually on the river course. The repeat of 60 feet high floods in the year on the pattern of 2000 would cause huge devastation both to the power project, residential locations and road network. The Army locations along the river course would also be susceptible to such event.



Figure 8: Unscientific Dumping of Muck along the natural course of river

Despite the fact that this area is highly prone to floods there is hardly any effective and efficient early warning system in place with last mile community. The origin of past floods has been located at China and through information sharing and monitoring arrangement has been established after the 2005 floods but mode of alternating all the stakeholders has not been put in place.

III. Landslides



Figure 9: Landslide activation in Sholding Nala in Kinnaur

Kinnaur 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, heavy rainfall, toe erosion by running water and human intervention with the natural settings like various unplanned construction activity,

deforestation, faulty land use planning, use of explosives in construction, practicing unscientific mining, quarrying, tunneling methods, unscientific

dumping on the valleys etc. The shooting stone, which is very common in many parts of District Kinnaur 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-22 (Now NH 5), old Hidustan-Tibet Road and other link roads connecting the villages of the district. The important landslides of the district are *Malling landslide, Dubling landslide, Spillow landslide, Khadra Dhaank landslide, Lippa landslide, Pangji Nala landslide, Powari landslide, Sapni landslide, Brua landslide, Kuppa landslide, Urni landslides, Sholding landslide, Nathpha landslide* etc. The main road leading to Kinnaur has many flashpoints which if triggered by natural events block the connectivity to the district. 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.

IV. Snow Avalanches

The high mountain ranges and higher reaches of District Kinnaur remains snow covered for most part of the year as it receives heavy snowfall during the winters. The intermittent snowfall in the district forms many layers of snow/ice on the ground, which remains frozen during the winters. The snowfall during the month of February and March cause the mass of snow move down the slopes of the mountains and the valleys. This is called 'Snow Avalanche'. The snow avalanches are unlike glaciers are smaller in mass and faster in movement. The flash points of avalanches are: *Bhagat Nalla, Tinku Nalla, Pyala Nalla (Jangi)* and *Ralli on the National Highway-22*. Besides, the avalanche is observed in the valleys and slopes of the various villages in the district particularly in *Lippa, Jangi, Rispa, Thangi, Kunnu-Charang, Pangji, Barang, Kalpa, Mebar, Roghi, Sangla,*

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Rakchham, Chhitkul, Batsehri, Shong, Sapni, Yula and Bhaba valley etc. where there is heavy snowfall in the month of February and March.

V. 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 Kinnaur is spread over an area of 6,407 sq. Kms. out of which, approximately 546,970 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 Kalpa and Nichar Sub-division of the district are relatively thickly forested and the Pooh Sub-division of the district is sparsely covered by the vegetation and forms part of the 'Cold Desert'. There are 3 wild-life sanctuaries in the district namely Lipa-Asrang, Rakchham-Chhitkul and Rupi-Bhaba.

The incident of forest-fire is not observed very commonly and frequently in the district. It is very less observed in the Sub-division Pooh and is observed in Nichar and Kalpa Sub-divisions. 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, use of traditional 'JHOKTI' (Mashaal/torch) made of Turpentine rich woods of pine and Chilgoza tree (*pinus gerardiana*) by local people for movement during nights. Use of traditional harvesting of thorny bushes for fodder and more importantly short circuiting/ sparking of electrical transmissions lines crossing over the forests.

V. b). Domestic Fires

District Kinnaur comprises 65 panchayats having 234 habited villages and 426 un-habited villages with average population of 335 habitants per village. 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. In some cases, a person can jump from one roof to another. Most of the traditional houses in Kalpa and Nichar Sub-division and Moornag tehsil and some villages of Pooh tehsil in Sub-division Pooh are made up by using large number of wood in the form of beams, binders, columns, roofs and floors to make the house earthquake resistant and keep it warm and cozy as well. The houses in Hangrang Sub-tehsil and some villages of Pooh Sub-tehsil are made up mainly of stone, mud/clay, thatch and thin woods due to scarcity of trees in the area. The clustered houses that too over a slopy land in the villages except Hangrang Sub-tehsil with the large scale use of timber in the houses and heavy stock of dried fuel-woods for domestic use and dry stock of fodder for animals make the houses very prone to fire in Sub-division of Kalpa and Nichar and some parts of Pooh. The fire-incidences in villages is also caused by use of Mashaal/candles, Matchsticks, short-



Figure 10: Kalpa village in Kinnaur

circuit, sparking, LPG leakage, sparks from traditional chimneys and use and stocking of highly inflammable and combustible 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 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 cumulonivous 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 recarving 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. Kalpa and Nichar Sub-divisions of Kinnaur district are 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 Kinnaur 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. Sub-Division Pooh is highly prone to this Hazard in District Kinnaur.

VIII. Road Accidents



Figure 11: Tranda Gorge while entering into Kinnaur via Rampur (Shimla)

Highway-22 was featured in the History Channel's *Deadliest Roads* series for its hazardous driving conditions. The old Hindustan Tibet Road is again very dangerous at many places like Roghi, Urni, Pangi, Thopan etc. Similarly, the link road to the various villages again equally dangerous such as roads to Chhota Khamba, Kandaar, Katgaon, Sangla, Sapni, Brua, Shong, Roghi, Pangi, Purbani, Jangi, Lippa, Asrang, Nesang, Hango etc. The roads are zigzag with blind curves, devoid of proper parapets at most of its length, unmetalled with pot-holes and no passing points at many places which makes the movement of traffic very hazardous. If any vehicle meets with an accident, it falls down into the Satluj river or deep gorge straight with no chance of survival. 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 Kinnaur.

District Kinnaur has good network of roads which include part of NH-22 (now NH-5) from Wangtu to Sumdo, old Hindustan Tibet Road from Tapri to Kanam and other link roads connecting the various villages of the district. The roads in the district include motorable roads, and jeepable roads, both metalled and unmetalled. The National Highway-22 meanders along the Satluj river towards Spiti across very rugged and steep terrains. At many places, the road has been constructed by cutting the hard rocks into half tunnels such as 'Tranda Gorge', Shri Mati Dhaank, Kanam, Tilasangdhar, Maling Naala etc. Not too long ago, a section of the National



Figure 12: Narrow roads and deep gorges in Kinnaur

Overall Vulnerability of the District

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



Figure 13: Overall Vulnerability of Himachal Pradesh (Source: HP state Council for Env. Sc. & Tech)

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Table 3: Showing overall Vulnerability of District Kinnaur 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	Very High	High	Very High	High	High	High	Very High	High	High
Infrastructure	Very High	Very High	Very High	High	Moderate	Moderate	Low	High	Low
Houses	Very High	Very High	High	Moderate	Low	Low	Very High	High	Nil
Social Sector	Very High	High	Moderate	Low	Moderate	Low	Very High	Low	High
Livelihood Sector	Very High	High	Moderate	Low	Very High	High	High	High	High
Environment	Very High	Very High	Very High	High	Very High	Very High	Very High	Very High	Low

History of Disasters & Hazard Profile of District Kinnaur

I. Seismic Hazard Profile of Kinnaur

The table below describes the likely seismic intensity that can be experienced by each district of the State and Kinnaur can experience intensity in the MSK Scale upto VIII. Kinnaur has history of earthquakes and the major earthquake, which shook the district and caused widespread damage, is 1975 earthquake the details of which are given below.

Parameters of 1975 Kinnaur Earthquake:

Location	-	31°90' N, 78°50' E
Date	-	19 th January, 1975
Time	-	08 h 12 m 9 s, Indian Standard Time
Magnitude	-	5.8 Richter scale
Intensity (max.)	-	VIII on MM Intensity Scale
Causalities	-	60 persons and several hundred injured.

The epicentral distance was about 25 km from Kinnaur town. Nearly 2000 dwellings are reported to have suffered heavy damage. Recent random rubble masonry and dressed stone masonry construction suffered extensive damage. Heavy flat roofs suffered greater damage. Buildings constructed in hollow concrete blocks or dressed stone masonry in cement-mortar developed small cracks in walls. Light structures made of corrugated iron sheets nailed to timber frames and arches did not suffer any damage. The temples (monasteries) and monuments also suffered badly. Some of the pictures of earthquake damage are given in Figure 14.



Figure 14: Physical Damage Pictures of 1975 Kinnaur Earthquake

Database of significant earthquakes that have shaken Kinnaur has been prepared and tabulated in Table 4. It is seen that the district has been shaken by more than 12 times with earthquake having magnitude 4 and above on the Richter Scale.

Table: 4 History of Significant Earthquakes in Kinnaur (Mw 3.0 and above)

Sr. No.	Date	Magnitude	Coordinates	Tentative Location
1.	1809	5.5	30°42'00" N 78°30'00" E	Near Labrang
2.	19.1.1975	6.7	32°07'28" N 78°64'14" E	Kaurik Village
3.	2.2.1975	5.1	32°33'36" N 78°53'00" E	Indo China Border
4.	19.7.1975	5.1	31°57'00" N 78°35'24" E	Near Chango
5.	29.7.1975	5.5	32°34'12" N 78°29'24" E	Near Kanam
6.	6.7.1976	5.1	32°36'24" N 78°21'00" E	Near Raksham
7.	8.9.1976	5.3	32°14'08" N 78°45'36" E	Near Baspa
8.	19.2.1977	5.4	31°48'00" N 78°45'48" E	Near Rangbar Thachang
9.	27.3.1977	5.1	32°40'12" N 78°39'36" E	Lenchichi
10.	13.6.1981	5.0	31°49'12" N 78°27'36" E	Nalpaya Thach
11.	28.5.1981	5.2	31°49'48" N 78°25'48" E	Barling
12.	27.2.1983	5.3	32°36'00" N 78°34'12" E	Khadi Thach
13.	30.5.1999	4.9	31°48'36" N 78°54'36" E	Near Miyang Lung
14.	28.4.2000	4.1	31°30'36" N 78°15'00" E	Near Mehbar
15.	17.6.2000	4.3	31°48'00" N 78°27'00" E	Near Nalpaya Thach
16.	20.7.2006	3.5		Kinnaur district
17.	9.1.2009	3.0		Kinnaur district

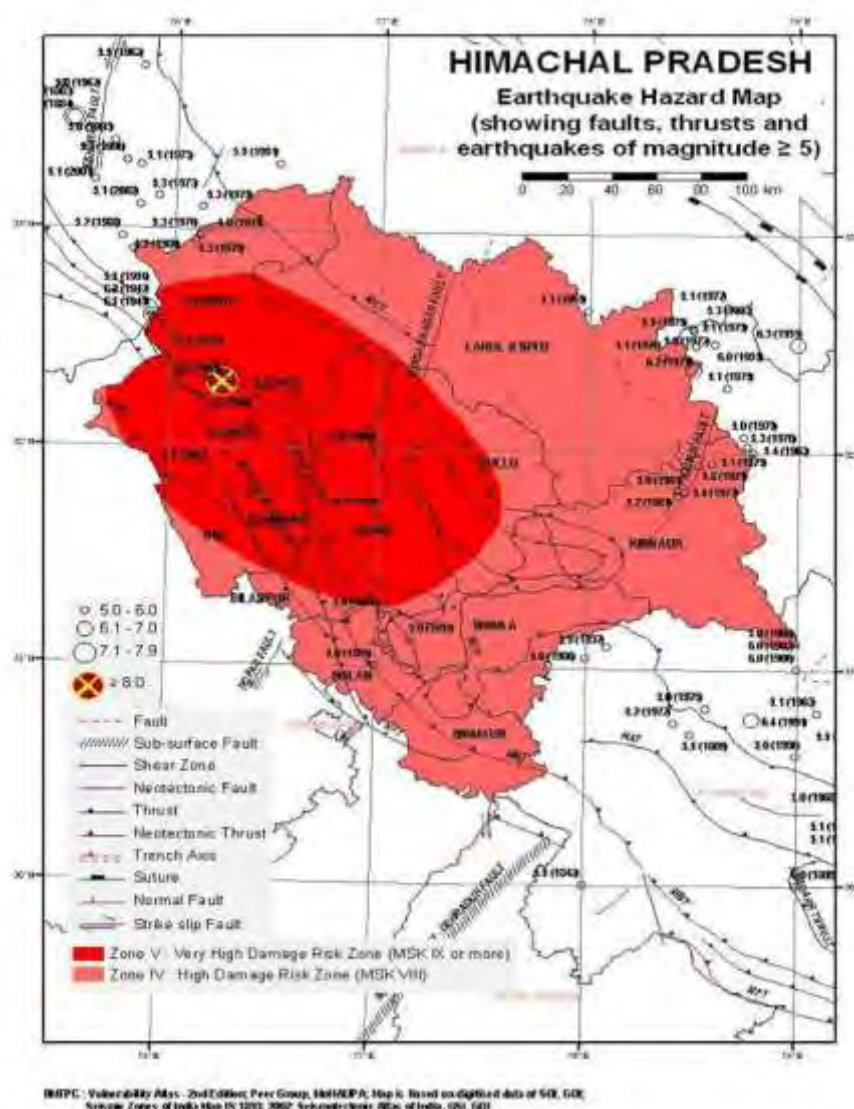


Figure 15: Earthquake Hazard Map of Himachal Pradesh

Table: 5 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

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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 Kinnaur experiences earthquakes at regular intervals and is highly likely to be hit by earthquake.

II. Landslide Hazard of the District

The geographical nature of Kinnaur is very steep. The slopes are unstable. Table 6 below gives description of important landslides in the State and it contains landslide of Kinnaur too. As per the table 7 below 868 square kilometres area of the district is severely prone to landslides. And 4,956 square kilometres area is prone to highly prone to landslides. The severity of landslides in the district can be seen from the pictures of Leo village and Sholding nala.

Table: 6 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	

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Landslide Prone Areas of Himachal Pradesh (Sq. Kms)					
District	Sever to very High	High	Moderate to Low	Unlikely	Total Area
Bilaspur	216	842	83	1	1142
Chamba	2120	3829	351	70	6370
Hamirpur	0	851	204	45	1100
Kangra	123	3698	1233	557	5611
Kinnaur	868	4956	498	0	6322
Kullu	1820	3512	65	3	5401
Lahaul & Spiti	127	11637	1825	2	13591
Mandi	968	1978	826	98	3870
Shimla	893	3345	767	14	5019
Sirmaur	95	1805	614	228	2742
Solan	556	1118	157	79	1910
Una	2	678	517	311	1508
Total	7788	38249	7140	1408	54586
%age	14.27	70.07	13.08	2.58	

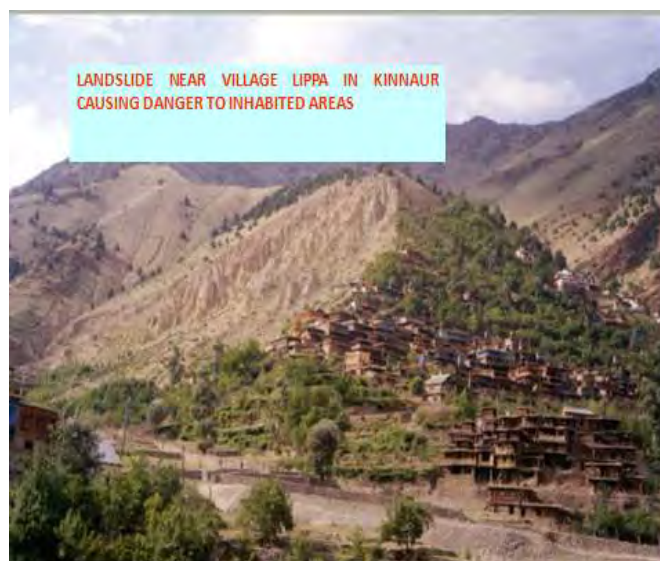


Table: 7 Landslide Hazard Profile of Himachal Pradesh

Figure 16: Picture of Landslide Lipa, Kinnaur

III. Avalanche Hazard of the District

Table 8: 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 & 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 prone to avalanche accidents too. As per the recorded history 32 incidents of avalanche hazard have taken place in which 129 persons were killed and 9 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) **31st July and 1st August 2000 in Satluj valley.** Increase in water level of Satluj up to 60 feet above the normal level. The flash flood was termed as the one that occurs once in 61,000 years. Widespread damage in the valley right from its confluence with Spiti river near Khab to downstream areas. Extensive damage to 200 Km of NH-22, washed away 20 bridges, 22 Jhulas and badly damaged 12 bridges. About 1,000 irrigation, sewerage, flood protection and water supply schemes were badly damaged. 135 people and 1673 cattle lost their lives. The total estimated loss was to the tune of Rs. 1466.26 crore.

ii) **Pareechhu Lake Outburst, 2005**

- Flash flood in Satluj river due to breach in the Parechu lake in Tibetan catchment on 26th June 2005
- Washed away the NH-22 at a number of places, 10 bridges, 11 ropeways washed away, 15 motor able bridges and 8 jeep able and footbridges damaged/affected, 10 Km stretch of NH-22 between Wangtoo and Samdo was washed away, and various link roads were damaged.
- Total loss estimated to the government as well as public property was some Rs. 610 crore.

Pareechu Lake

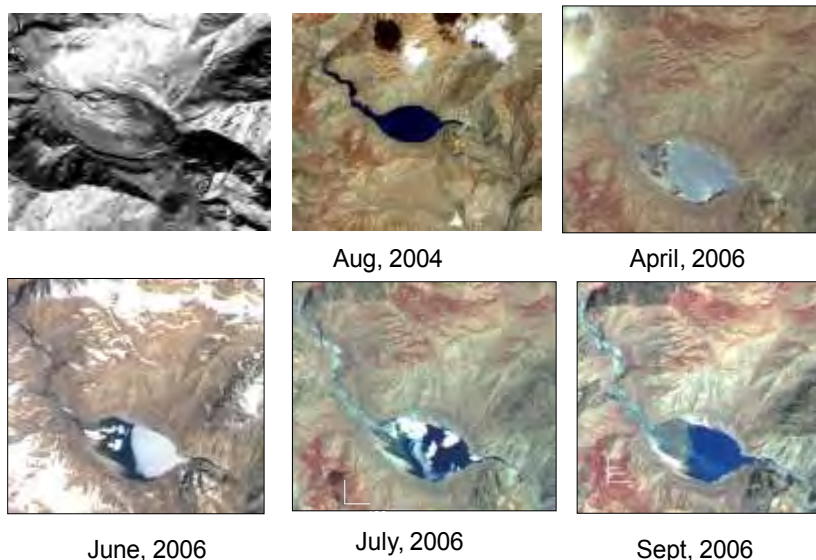


Figure 17: Pareechu 2005

Table 9: Some of the devastating Floods, which caused heavy damage to Private as well as Public Property in Kinnaur District.

Prominent Flash Floods.	History of Damage Occurred
8 July 1973	Lake formed by the blockage of Satluj river due to Nathpa rock fall damaged Sanjay powerhouse, loss of about Rs. 45 million estimated.
19 Jan. 1975	In Satluj basin two blockages were observed in Spiti valley. One on Parechu River between Sumdo and Kaurik due to landslide created by 19 Jan. 1975 earthquake, which occurred along the Sumdo-Kaurik fault. Blockage was 60m in height and 150m in length created temporary lake. In march this lake burst causing flash floods in Spiti valley

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On 29 th Sept. 1988 (2.30 a.m.) a flash flood occurred due to cloud burst in Soldang Khad.	Caused heavy loss of life and property in the Soldng village. - Washed away the Bhabanagar water works. - Washed away 2 Km of NH-22 across Soldan Khad. - Created landslides along the eastern slopes of Soldan Khad and damaged road to Ponda. - Lake was formed on the Satluj river near conference. - Block stopped the flow of Satluj river for about 30 minutes and created a temporary lake having dimensions roughly about 6000 m long. 200-250 m wide and 25-30 m deep extending up to Wangtoo Bridge. - Lake water entered Sanjay Vidut Pariyojna and damaged the Power House.
31 July and 2 August 1991 24 Feb 1993 4th and 5th September	Cloudburst and flash flood along Soldan Khad in Satluj valley killed 32 people, 15 houses, 35 bigha agriculture land, 600 apple trees, 2Km of road of NH 22 and 20 m bridge on Soldan Khad washed away. Agriculture land along Leo village situated downstream. Flood washed away 15 houses, 35 bigha of agriculture land and about 600 apple trees in Soldang village. Satluj river blocked twice due to major landslide and rock fall near Jhakri and Nathpa, damaging NH-22. Another flash flood occurred in two phases along Duling Khad on 4th and 5th September causing extensive damage in Tapri, district Kinnaur.
- First flash flood occurred on 4th September 1954 at 2 p.m. After cloudbursts in the upper catchments of Duling and damaged the PWD rest house. - Another flood came at 6 a.m. and 9 a.m. on 5th Sept. 1995 bursting the lake formed during the previous cloudbursts.	32 people and 35 cattle lost their lives. - Huge debris formed a fan along Satluj and formed a take partially blocking the Satluj - Flash flood caused heavy damage due to change in course of Satluj from left to right bank increased the tow and lateral erosion at Tapri. - Washed away 19 houses, HRTC workshop along with 3 buses. - Change in course is still causing tow erosion to NH-22.
4-5 Sept. 1995	Flash flood along Panwi Khad in Satluj valley washed away 19 houses, 3 buses, HRTC workshop and damaged HPPWD rest house at Tapri.
August 1997	Cloudburst and flash flood along Satluj river killed 19 people, 464 cattle, 105 houses damaged, 10 cattle sheds and 39-hectare agriculture land. Total loss was estimated Rs.672.9 million.
Flash floods in the night of 31st July and 1st August 2000 in Satluj valley.	Flash floods in the Satluj valley resulting in the increase in water level of Satluj an up to 60 feet above the normal level. The flash flood was termed as the one that occurs once in 61,000 years. Widespread

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	damage in the valley right from its confluence with Spiti river near Khab to downstream areas. Extensive damage to 200 Km of NH-22, washed away 20 bridges, 22 Jhulas and badly damaged 12 bridges. About 1000 irrigation, sewerage, flood protection and water supply schemes were badly damaged. Expensive damage to hydel projects including NJPC. 135 people and 1673 cattle lost their lives. The total estimated loss was to the tune of Rs. 1466.26 crore.
Flash flood in Satluj river due to breach in the Parachoo lake in Tibetan catchment on 26th June 2005	Extensive damage as a result of risen water level of Satluj river due to breach in Parachoo lake formed in Tibet catchments. Washed away the NH-22 at a number of places, 10 bridges, 11 ropeways washed away, 15 motor able bridges and 8 jeep able and footbridges damaged/affected, 10 Km stretch of NH-22 between Wangtoo and Samdo was washed away, and various link roads were damaged. Total loss estimated to the government as well as public property was some Rs. 610 crore.

(Source: Bhandari, 1988; Sah et al, 1996; Sah and Mazari 1998; Sah and Bist, 1988; Paul et al, 2000, Revenue Department, Govt. of Himachal Pradesh).



Figure 18: Picture showing damage to roads



Figure 19: 2005 Floods- Loss of Kharo Bridge



Figure 20: 2005 Flood: Damage to Leo Village



Figure 21: Loss of road and landslides

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As is evident the district has suffered the most from the floods owing to excessive rains, burst of glacial lakes and flash floods etc. and the statics given in the following table show the rainfall pattern in the district is changing and more and more rains would be experienced by the district.

Table 10: Yearly Rain Fall in District Kinnaur (Statistical Book 2010-11)

Year	Rain (M.M)		Year	Rain (M.M)
1999	1,003.3		2005	1,616.7
2000	1,218.9		2006	1,424.8
2001	1,446.0		2007	1,015.3
2002	1,004.2		2008	1,765.0
2003	607.1		2009	2,270.6
2004	1,457.1		2010	1,831.8

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 Tsonong Himal 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 :-

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Table 11: 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.)

Table 12: Potentially dangerous glacial lakes in Sutlej Basin Himachal Pradesh, based on inventory study of 2004

Lake No.	Latitude N	Longitude E	Length (m)	Area (sq.km)
Satluj_gl 7	31°45'44.73"	78°06'44.25"	262.1	0.03
Satluj_gl 10	32°00'37.86"	78°23'24.62"	384.6	0.06
Satluj_gl 13	32°15'57.63"	78°23'03.14"	325.9	0.03

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

40 glacial lakes have been mapped in the Sutlej 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 Pareechoo lake in the year 2005.

V. Wind Storm Hazard

As per the above map Kinnaur district falls under very high damage risk zone for wind hazard and can experience wind speed upto 55m/s.



Figure 22: Wind hazard Map of Himachal Pradesh

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VI Fire Accidents

In this district, most of the houses in the villages have been constructed 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 fire services make the villages a perfect case of domestic fire disasters. Many such cases have happened in the past in the district. Also the majority of the land in the district is forest land. Forest fires are very common. 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 13: - Incidents related to Fire Disaster in Kinnaur (Distt. Stat Book 2010-11)

Year	No. of Calls received	Details of Human Lives		Details of Cattle		Cost of Property (in lakh)	
		Lives saved	Lives lost	Lives lost	Lives lost	Saved	Loss
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1995	6	-	-	-	-	5.85	0.91
1996	8	37	1	-	-	15.20	9.63
1997	6	-	7	-	-	0.67	3.95
1998	17	-	11	-	-	28.63	171.93
1999	20	-	9	-	-	22.05	117.37
2000	9	-	20	-	-	19.30	20.14
2001	11	-	11	-	-	28.75	28.91
2002	19	-	34	-	13	24.71	802.80
2003	8	-	9	-	-	217.50	14.16
2004	12	-	29	-	-	236.50	234.93
2005	12	-	39	-	-	28.10	10.49
2006	6	-	23	-	-	6.30	1,343.25

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2007	16	-	7	-	4	35.80	278.85
2008	17	-	2	-	-	51.73	110.65
2009	13	-	4	-	-	66.25	485.11
2010	10	-	12	-	-	13.55	25.61
2011	5	-	3	-	-	52.10	2,505.25

Details of some big Fire accidents happened in Kinnaur district:-

Rakchham village Fire Incident:

Location	-	31°23' N, 78°21' E
Date	-	18 th November, 2002
Time	-	Evening
Causalities	-	No Casualties in form of death
Loss (Est.)	-	Rs. 69,074,000

This fire accident was one of the most devastating fire disasters in the history of the district. On the evening of 18th November 2002, a fire broke out in the Rakchham village of Tehsil Sangla. In this incident, 120 houses were totally burnt along with the ancient Kali Temple. Some cattle also died in the fire as the fire spread out very rapidly and giving no much time to the villagers to rescue their belongings. An estimated loss of Rs. 7 crores was reported.

Brua village Fire Incident:

Location	-	31°20' N, 78°10' E
Date	-	4 th April, 2009
Time	-	5:45 P.M.
Causalities	-	No Casualties in form of death or injury
Loss (Est.)	-	Rs. 32,181,323

A fire broke out on dated 4th April 2009 evening in Brua village of Tehsil Sangla. 40 wooden houses were totally burnt along with the belongings in the fire accident. An estimated loss of Rs. 3 crores was reported.

VII Road Accidents

The highly 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:-

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Table 14: Road Accidents in District Kinnaur (Stat. Handbook 2010-11)

Year	Number of Accidents	No. of Deaths	No. of Injured persons	No. of Accidental Vehicle
(1)	(2)	(3)	(4)	(5)
1980-81	9	1	15	10
1990-91	18	11	57	20
1995-96	47	22	80	47
1999-00	..	..	..	..
2000-01	41	28	81	45
2001-02	42	77	41	42
2002-03	10	20	24	10
2003-04	44	37	83	44
2004-05	43	52	86	43
2005-06	27	22	34	27
2006-07	31	37	51	32
2007-08	38	28	54	38
2008-09	54	42	92	54
2009-10	64	43	79	64
2010-11	51	65	64	51

Chapter-3

SUB-DIVISION WISE HAZARD PROFILE & EVALUATION

The Kinnaur district is divided into 3 sub-divisions namely Kalpa, Pooh & Nichar. As discussed in the earlier chapter, the Kinnaur district is vulnerable to the hazards mainly like 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, the villages of Pooh sub-division and Kalpa sub-division near the Indo-Tibet belt are 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 Kalpa

HAZARD PROFILE & EVALUTION:

The lower regions of Kalpa sub-division lie near the Satluj river and Baspa river respectively, which make these regions highly prone to the floods and landslides mainly in the months of July and August. In the upper regions of the sub-division, the problem of drought due to minimum rainfall has arisen in past history. As the people are highly dependent on their horticulture practices in these areas, the crop production can be highly affected causing severe economic loss to the farmers. The kalpa sub-division is prone to following hazards especially:

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

History of Disasters

- Flash flood in Satluj in August, 2000 in which the low lying areas were washed away and remaining portion also developed cracks.
- Flash flood in Parchu/ Satluj in 26 June 2005, and Baspa River in July, 2005 in which road was heavily blocked between Samdu to Wangtu including washing away of bridges on NH -22 Khab, Akpa, Khari, Karchham, Leo, and 2 No. NJPC Bridges, in addition to washing way of the road at large No. of points thereby disconnecting large parts of the district.

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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 2001.
- Cloud burst occurred in 1997 in Wangtu which washed away 2 bridges on NH-22 at Wangtu and formed a lake submerging road length of 1.5 Km. There by cutting off the district and washing away wangtu the part of Panvi village.
- Cloud burst in Brua village in June 2000, in which half the village was washed away and remaining portion also developed cracks.
- Rakchham village fire incident in November 2002, in which 120 houses were totally burnt with estimated loss of Rs. 7 crore.
- Brua village fire incident in April 2009, in which 40 houses were burnt with estimated loss of Rs. 3 crore.

Physio-geographic Data

- Area Rock and Sandy
- Soil Black and Sandy
- Drainage pattern By Kuhal
- Rainfall/ Snow fall Both Average Rain fall 49 mm/cm
- Topographical feature: The area consisting high peaks sandy rocky.
- Economy Horticulture, Agriculture, and pine, Neoza are the main features,
people are very obedient, wise and hard worker.

Transportation Network:

- By Road - Bus and other goods carrier
- Helipad/Emergency landing fields
- Helipad at Sangla and R/Peo

Panchayat	Village	Landmark
Roghi	Roghi	Temple
Kalpa	Kalpa and Yuwaringi	-do –and Stadium
Duni	Kothi and Yuwaringi	Temple
Kothi	Kothi and Kashmir	--do--
Telengi	Telengi	--do--
Khawangi	Khawangi	--do
Pnagi	Pangi	--do--
Brang `	Brang	--do
Powari	Powari and Tangling	--do--
Mebar	Mebar and Ralli	--do
Purbani	Purbani	--do--
Shudarang	Shudarang	Both Temple

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Kilba	Kilba	Temple
Sapni	Sapni and Baturi And Kanai	Temple and Fort
Brua	Brua	Temple
Shong	Shong	--do--
Chansu	Chansu	--do--
Kamroo	Kamroo and Kuppa	Temple and Fort
Sangla	Sangla	Temple and Rest house
Themgrang	Themgrang and Boning saring	Helipad between Sangla and boning Saring
Batseri	Batseri	Temple
Rakchham	Rakchham	--do--
Chittkul	Chittkul	--do--

Demographic Features:

Human Population	Male	Female	S C	ST
Kalpa Tehsil 17630	9505	8125	1419	12651
Sangla Tehsil 11731	6131	5600	787	9710

Animal Population	Cattle	Goat	Sheep	Bullock	Mule
Kalpa Tehsil 17630	5919	2171	11433	338	206
Sangla Tehsil	8022	7270	22768	242	220

Land Utilization:

Property	Agri.	Non-Agri	Forest	Houses
Kalpa Tehsil 39090	768	34170	4152	
Sangla Tehsil	990	124323	2909	

B. Sub-Division Nichar

Nichar sub-division starts entering the boundary of Kinnaur district. This sub-division has 18 gram panchayats. The sub-division at lower areas near Satluj 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:

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Hazard Evaluation:

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

History of Disasters

- Flash flood in Satluj in June 1996 in which main bus stand of Tapri was washed away along with HRTC buses.
- 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 2001.
- Flash Flood in Parchu/Satluj in 26 June 2005, And Baspa River in July, 2005 in which road was heavily blocked between Samdu to Wangtu including washing away of Bridges on NH-22 Khab, Akpa, Khari, Karchham, Leo, and 2 No. NJPC Bridges in addition to washing away of the road at large No. of points thereby disconnecting large parts of the district.
- Cloud burst in 1997 in Wangtu which washed away 2 bridges on NH-22 at Wangtu and formed a lake submerging road length of 1.5 km. There by cutting off the district and washing away Wangtu the part of Panvi village.

Physio-geographic Data

Area : 118621 Hect.
Soil : Sandy

Helipad /Emergency landing fields

Panchayat	Village	Altitude	Latitude	Longitude	Landmark
-	R/Peo	2260 Mtrs.	31.30"45N	78.16"10"E	
Meeru	Meeru	5500 ft.	31.35N	78.05E	
Sungra	Bhabanagar	1500 mtr	31.33"59"N	77.56"58"E	
Meeru	JP Company	5850 ft.	31°30'57.84" N	78°09'07.32" E	

Demographic features

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Human Population	Male	Female	S C	S T	Landless Labourers	Vulnerable	Density
25566	12824	12742	11936	14169	-	-	-

Animal Population	Cattle	Goat	Sheep	Bullock	Mule
48113	10090	14264	23287	249	223

Land utilization:

Property	Agri.	Horti.	Non-Agri.	Forest	Houses	Industries	Public Utilities
	3403	-	55744	25542	4771	6	2

C. Sub-Division Pooh

Sub-Division Pooh is spread along the Indo-Tibet Border and Lahaul & Spiti. This sub-division comprises of 24 scattered panchayats. On the ridges of the Indo-Tibet Border, the 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 in the lower lying belts such as Chango, Shailkhar, Leo, Moorang, Pooh and Spillo Panchayats due to Spiti river and Parchhu lake which has emerged as a potential destructive subject for this region in last decade. While, the panchayats at higher elevation may suffer from the problem less rainfall causing severe damage to the crop production and hence affecting their main source of livelihoods. This sub-division is prone to the hazard especially:

Hazard Evaluation:

Pooh sub-division

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

History of Disasters

- Earthquake in Kaurik village located near the boundary of pooh sub-division in January 1997 of 6.7 Magnitude.

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- Earthquake in Chango village in July 1975 of 5.1 Magnitude.
- Earthquake in Kanam village in July 1975 of 5.5 Magnitude.
- Flash flood in Parchu/Satluj in 26 June 2005, in which road was heavily blocked between Samdu to Wangtu including washing away of Bridges on NH-22 Khab, Akpa, Kharo, Karchham, Leo and 2 No. NJPC Bridges, an addition to washing away of the road at large No. of points thereby disconnecting large parts of the district.
- 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 2001.
- Cloud burst occurred in 1997 in Wangtu which washed away 2 bridges on NH-22 at Wangtu and formed a lake submerging road length of 1.5 km. There by cutting off the district and washing away Wangtu the Part of Panvi village.
- Landslide in Maling Naala (1968) damaging NH-22 and is still active.

Physio-geographic Data

- Area : 3400 Sqr. Km.
- Soil : Sandy
- Drainage Pattern : The rivulets, nullahs, springs, drain in to Satluj Basin.
- Rainfall/Snowfall : Scant rainfall, moderate to heavy snow
- Topographical features : As given the introductory profile.

Transportation Network:

- Road
- Helipad/Emergency landing fields.

Panchayat	Village	Altitude	Latitude	Longitude	Landmark
Pooh	Pooh	9087 ft.	31°45'08.09" N	78°345'1.66" E	Rest House
Giabung	Giabung	9738 ft.	31°46'50.35" N	78°26'33.76" E	Helipad
Jangi	Jangi	8058 ft.	31°36'05.24" N	78°26'10.93" E	Helipad
Nako	Nako	11811 ft.	31°53'10.16" N	78°37'40.30" E	Lake and Helipad

Demographic features:

Human Population	Male	Female	SC	ST	Landless Laborers	Vulnerable	Density
24083	13042	11041	7116	16967	-	All	6/sq.Km

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Animal Population	Cattle	Goat	Sheep	Bullock	Mule
	5153	11178	25555	970	340

Land utilization:

Property	Agri.	Horti.	Non-Agri	Forest	Houses (Nos)	Industries	Public utilities(Buldg)
	2217 Ha	-	-	6291	4488	Nil	Detail under Address

Chapter - 4

Capacity Analysis

The vulnerability of the district to various hazards is high to very 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

Kinnaur has 3634 regular (163 Gazetted and 3471 non-gazetted) government employees and 1,264 daily wages/contractual employees. And 1226 employees of various government undertakings out of which 1029 are regular and 197 are on daily wages/contractual. 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

Kinnaur has only one fire station situated at the district HQ. The villages of kinnaur 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 station in each Tehsil HQs/valley of the district for better and timely response. These fire stations can be trained and equipped for multi-hazard response.

Home Guards Network

First Battalion of Home Guards is stationed at Kinnaur with a total strength of 552. This human resource is trained in DM. But their deployment to non-disaster duty would prohibit their utilisation for disaster related matters.

Table: 15 Police Network in Kinnaur

Sr. No.	Name of the Establishment	Total Strength	Contact No.	Wireless Network
Police Stations				
1.	Police Station Bhabha Nagar		01786 – 253455	Yes
2.	Police Station Pooh		01785 – 232420	Yes
3.	Police Station Reckong Peo		01786 – 222210	Yes
4.	Police Station Sangla		01786 – 242617	Yes
Police Posts				

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5.	Police Post Nichar		01786-204544	Yes
6.	Police Post Kafnu, Nichar		01786-262352	Yes
7.	Police Post Tapri, Nichar		01786-261230	Yes
8.	Police Post Karchham, Sangla		01786-202210	Yes
9.	Police Post Kalpa		01786-226010	Yes
10.	Police Post Murang		01785-252524	Yes
11.	Police Post Yangthang, Hangrang		01785-236180	Yes
Outer Police Posts				
12.	Outer Post Chaura, Nichar		94595-82426	Yes
13.	Outer Post Thopan, Kalpa			Yes
14.	Outer Post Namjha, Pooh		01785-234220	Yes
15.	Outer Post Chango, Hangrang		01785-252388	Yes

As on 2011 the total strength of police force in the district was 362 and the break-up of the same is given as under:-

- i) ASI and above - 39
- ii) Head Constables - 62
- iii) Constables - 256
- iv) Cook - 3
- v) Other Ministerial staff

Quick Response Teams (QRTs) formation for Disaster Management in the Kinnaur District

Quick Response Teams have been formed in the Kinnaur District by District Administration with Police Department and Himachal Home Guard respectively. These QRTs consists of 20 team mebers each well furnished in Disaster Management so that in case of any disaster ocurrence, these teams can be deployed for prompt response and action.

Table 16: QRT Police Department in Kinnaur District

S. No.	Name of Police Personnel	S. No.	Name of Police Personnel
1.	HC Harish Kumar No. 27	11.	Ct. Parvinder Kumar-165
2.	HC Sanjay Kumar No. 12	12.	Ct. Pankaj Kumar-256
3.	Ct. Manoj Kumar-335	13.	Ct. Ajay Kumar-340
4.	Ct. Rahul Datta-270	14.	Ct. Ajay Jaryal-311
5.	Ct. Chander Mohan-315	15.	Ct. Rakesh Kumar-338
6.	Ct. Ajay Kuamr-329	16.	Ct. Jeevan Singh-120
7.	Ct. Surjeet Singh-333	17.	Ct. Ajay Kumar-127
8.	Ct. Rajeev Kuamr-336	18.	Ct. Ravi-148
9.	Ct. Radha Krishan-137	19.	Ct. Chaman Lal-177
10.	Ct. Jai Chand-339	20.	Ct. Dharam Chand-140

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Table 17: QRT Himachal Home Guard in Kinnaur District

S. No.	Name of Home Guard Personnel	S. No.	Name of Home Guard Personnel
1.	Mr. Somdutt Sharma- Incharge B.T.C.	11.	Mr. Ramu
2.	Mr. Mukesh Chand	12.	Mr. Rajesh Kumar
3.	Mr. Sunat Ram	13.	Mr. Dalip Kumar
4.	Mr. Parsa Ram	14.	Mr. Sanjeev Kumar
5.	Mr. Mukesh	15.	Mr. Jagjeet Singh
6.	Mr. Anil Kumar	16.	Mr. Vidya Ram
7.	Mr. Anand Kumar	17.	Mr. Yogesh Kumar
8.	Mr. Dharam Chand	18.	Mr. Chatar Singh
9.	Mr. Rajman Singh	19.	Mr. Sultan Singh
10.	Mr. Jyoti Lal	20.	Mr. Prem Chand

Medical Facilities and Manpower

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

Table 18: Health Infrastructure in Kinnaur

Year	Medical officer		Nurses/Female health Worker		Mid wife		Dispensaries		
	Allopathic	Ayv. & Homeo	Allopathic	Ayurvedic	Allopathic	Ayurvedic	Allopathic	Ayurvedic	Homoeopathic
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2011	46	21	56	25	14	25	3	5	1
Development Block wise : 2011									
Nichar	10	6	12	10	4	11	1	2	-
Kalpa	20	9	28	5	5	11	2	1	-
Pooh	16	6	16	10	5	3	-	2	-

Army Network and Central Paramilitary Forces

The district has good presence of army and CPMFs (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 sizeable presence of the power projects spread out in all the main river basins. 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 Sutlej river basin having 3 G & D sites located at Titong (Near Khab), Powari (Near Reckong Peo) and Rampur. Also 1 Gauge site on Satluj river is located at Nathpa (Near Bhabanagar) along with 2 Telemetry Based AWL for monitoring of Parechu reservoir located in Chumar and sumdo. See the Figure below for CWC sites location and critical points along Satluj and Spiti Basin respectively from vulnerability point of view.

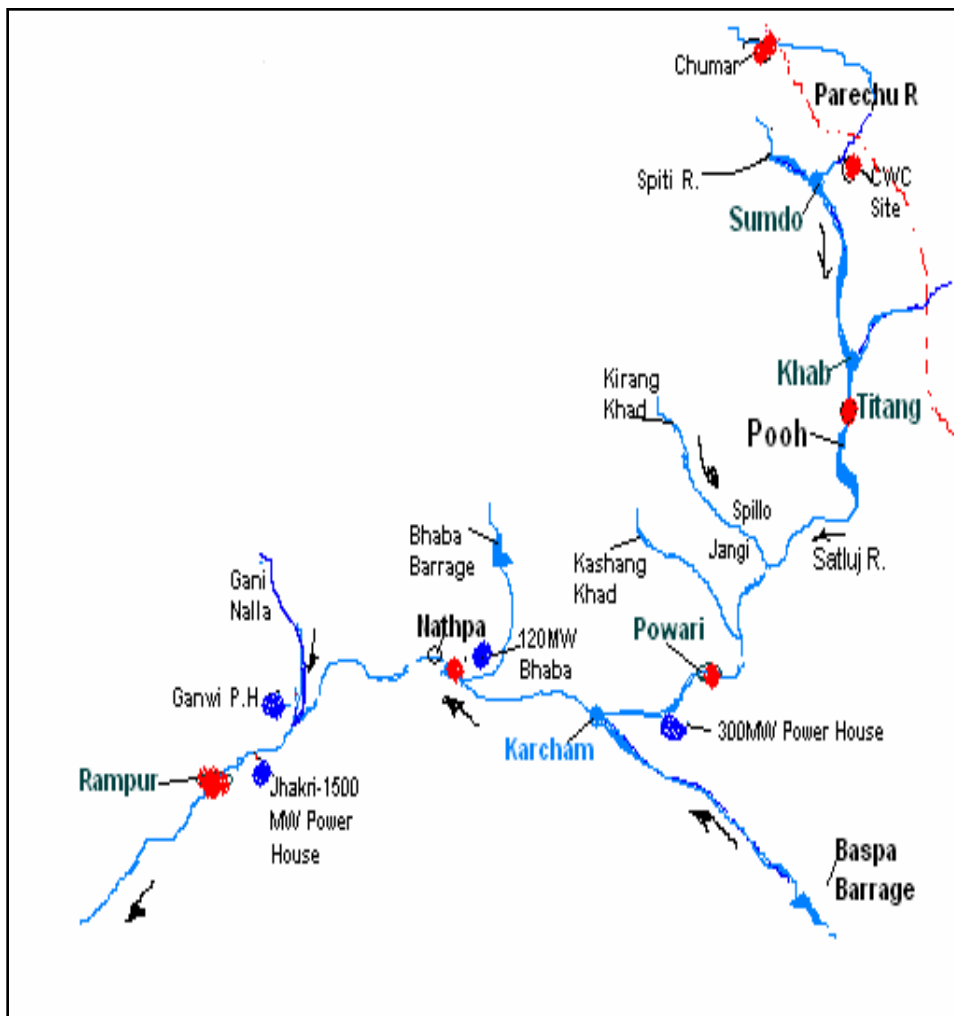


Figure 23: CWC Monitoring Sites in Satluj Basin

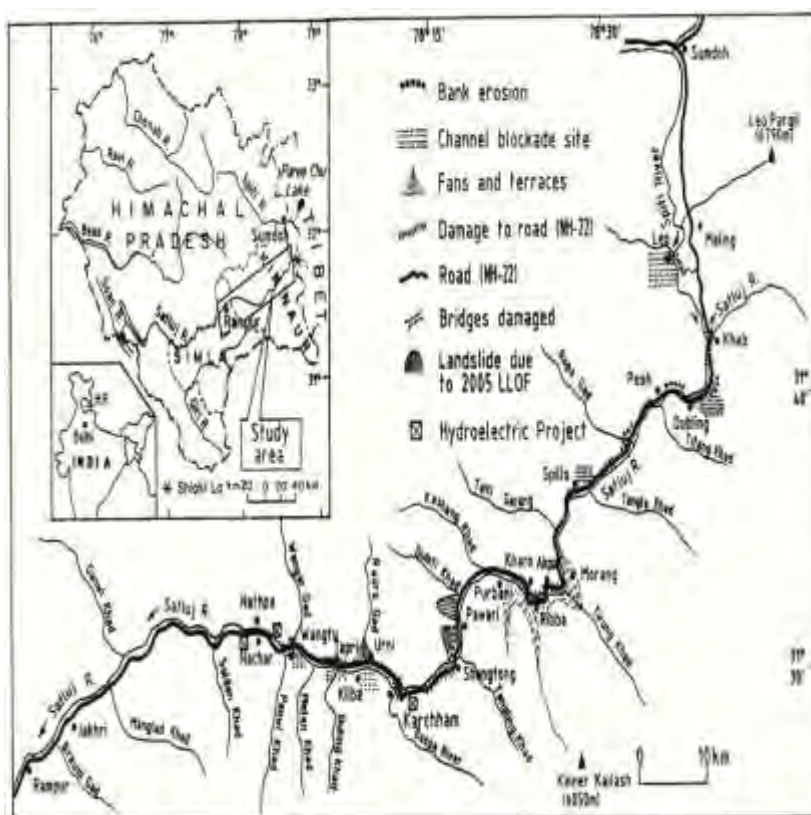


Figure 24: Critical Points along River Satluj & Spiti

The power projects have their own networks too. The IMD department has also installed rain and snow gauges and temperature monitoring equipments. However, the lack of coordination and mechanism of sharing information is a serious impediment in acting timely on the information so received. A very fine network of RADARs is required to detect the likelihood of a cloudburst and this would be prohibitory expansive. Only the areas likely to receive heavy rainfall can be identified on a short range scale. In view of rise in incidents of cloudbursts, flashfloods and avalanches in the Himalayan region, the Snow and Avalanche Study Establishment (SASE) a wing of the Defence Research and

Development Organization, and the Indian Meteorological Department have tied up to set up Dopplers' RADARs at key locations in the Himalayan regions to track the movement of clouds and predict heavy rain in three hours' time.

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:

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Sr. No.	Name of NGO	Members	Trained-S&R and First Aid	Contact No.
1.	Mahila Kalyan Parishad Kinnaur at Reckong Peo Email- mkpngo@gmail.com Fax No. 01786-222838	Rattan Mahjari (President)	-do-	01786-222838, 9418103751, 9816178889
		Vangmo Negi	-do-	9459980163
		Foola Negi	-do-	9418620689
		Miss Maldassi	-do-	9418302198
2.	Seva NGO, Jaiswant Building Opposite- Hotel Jeevan Jyoti, Reckong Peo Email- sevango.kinnaur@gmail.com	Chhering Lal Negi (President)	-do-	9418572700
		Tashi Chhering Negi	-do-	9418004775
3.	Swavalamban NGO, Near PNB Bank, Reckong Peo.	Surat Negi (President)	-No-	9418400072, 9816822272
		Saroj	-do-	9418425290
		Susheel Kumari	-do-	9418760457

Table: 19 List of NGOs in Kinnaur District

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	Altitude
1	POOH	SHAILKHAR (PROPOSED)	32°00'26.67" N	78°34'12.24" E		9925 ft.
2	POOH	CHANGO (PROPOSED)	31°58'20.76" N	78°35'52.16" E		10181 ft.
3	POOH	NAKO	31°53'10.16" N	78°37'40.30" E		11811 ft.
4	POOH	POOH (ARMY)	31°45'08.09" N	78°34'19.44" E		8851 ft.
5	POOH	ROPA	31°47'44.78" N	78°25'18.42" E		9906 ft.
6	POOH	GIABUNG	31°46'50.35" N	78°26'33.76" E		9738 ft.
7	POOH	JANGI	31°36'05.24" N	78°26'10.93" E		8058 ft.
8	POOH	KANAM (PROPOSED)	31°40'42.69" N	78°26'24.43" E		9641 ft.
9	KALPA	RECKONG PEO (ITBP)	31°32'20.74" N	78°16'20.61" E		7612 ft.
10	KALPA	RAKCHHAM	31°23'18.53" N	78°21'21.47" E		10199 ft.
11	KALPA	SANGLA	31°25'19.59" N	78°15'56.27" E		8475 ft

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12	KALPA	SANGLA (JP Ind)	31°25'50.70" N	78°14'32.00" E		8318 ft
13	KALPA	KARCHAM (JP INDUSTRIES)	31°30'57.84" N	78°09'07.32" E		5850 ft.
14	KALPA	CHOLLING (Near Karchham Army)	31°31'15.74" N	78°08'26.59" E		5890 ft.
15	KALPA	CHHOLTU (JP INDUSTRIES)	31°30'55.54" N	78°06'22.60" E		5597 ft.
16	KALPA	KALPA (PROPOSED)	31°31'54.12" N	78°15'08.37" E		9049 ft
17	*KINNAUR-SPITI BORDER	SUMDO	32°03'13.99" N	78°36'36.35" E		10371 ft.

Table: 20 List of Exiting and Possible Landing sites in Kinnaur District

Equipment and Machinery – Resource Inventory

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

Important Gaps in Existing Capacity to deal with Disasters

- a) Connectivity and terrain of the district.
- b) Lack of specialised 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 station for the entire district.
- 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.
- o) 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 minimised 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 upgradation 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. Operationalising 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.

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- 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

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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.
- 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.
- 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.

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- 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, biodiversity 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 casualty 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 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 utilised 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 minimise damage. The community participation for DM would be promoted on the motto 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 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, 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 Kinnaur 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

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directory would be made. The directory would be grouped according to the 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.

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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 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.

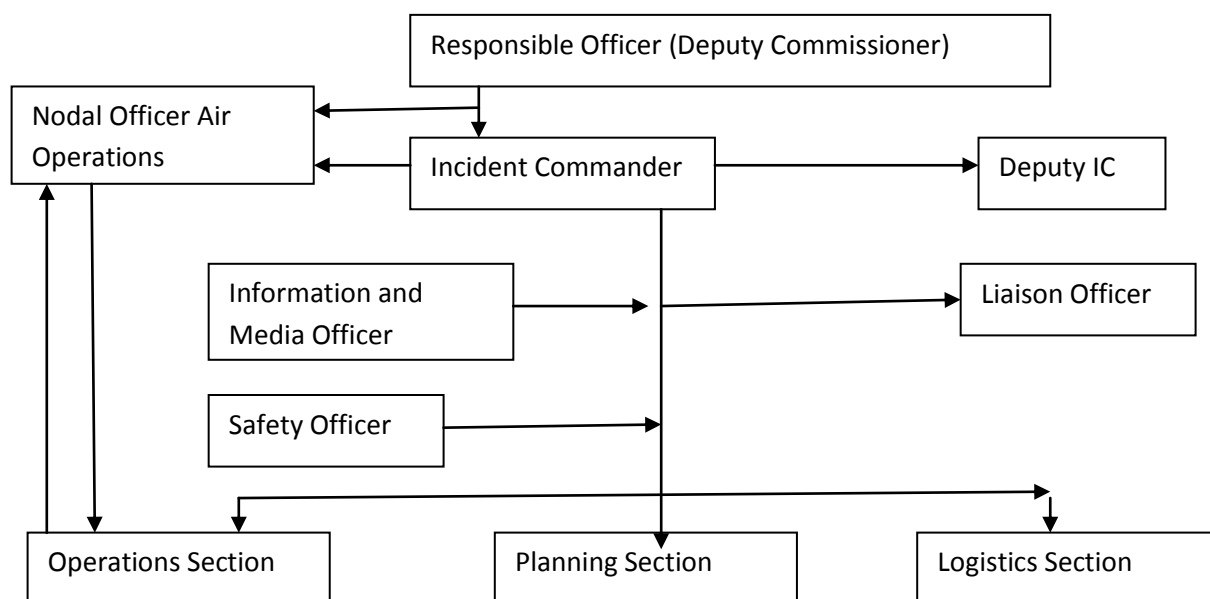


Figure 25: Structure of IRS at District Level

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.

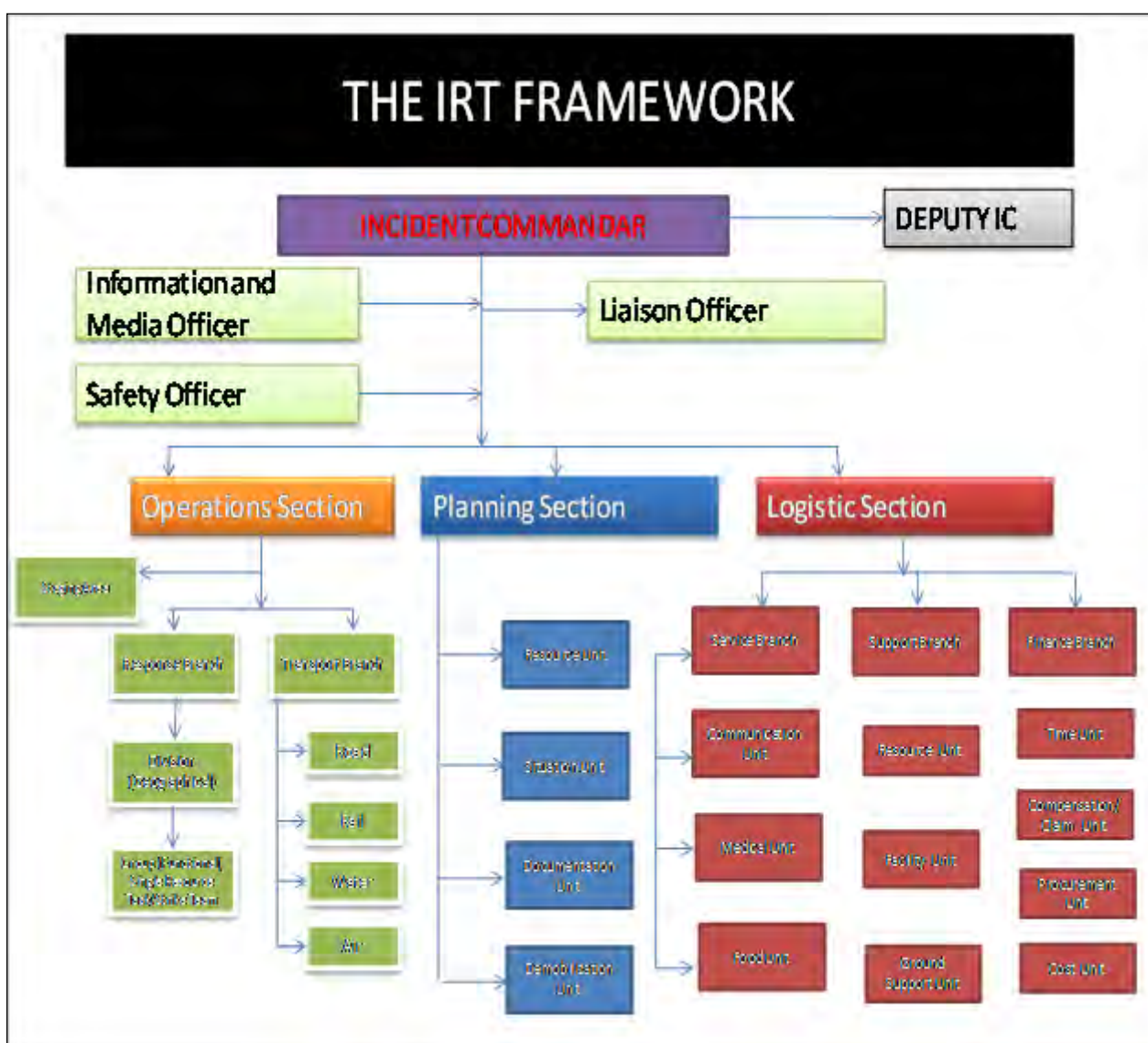


Figure: 26 IRT Framework

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

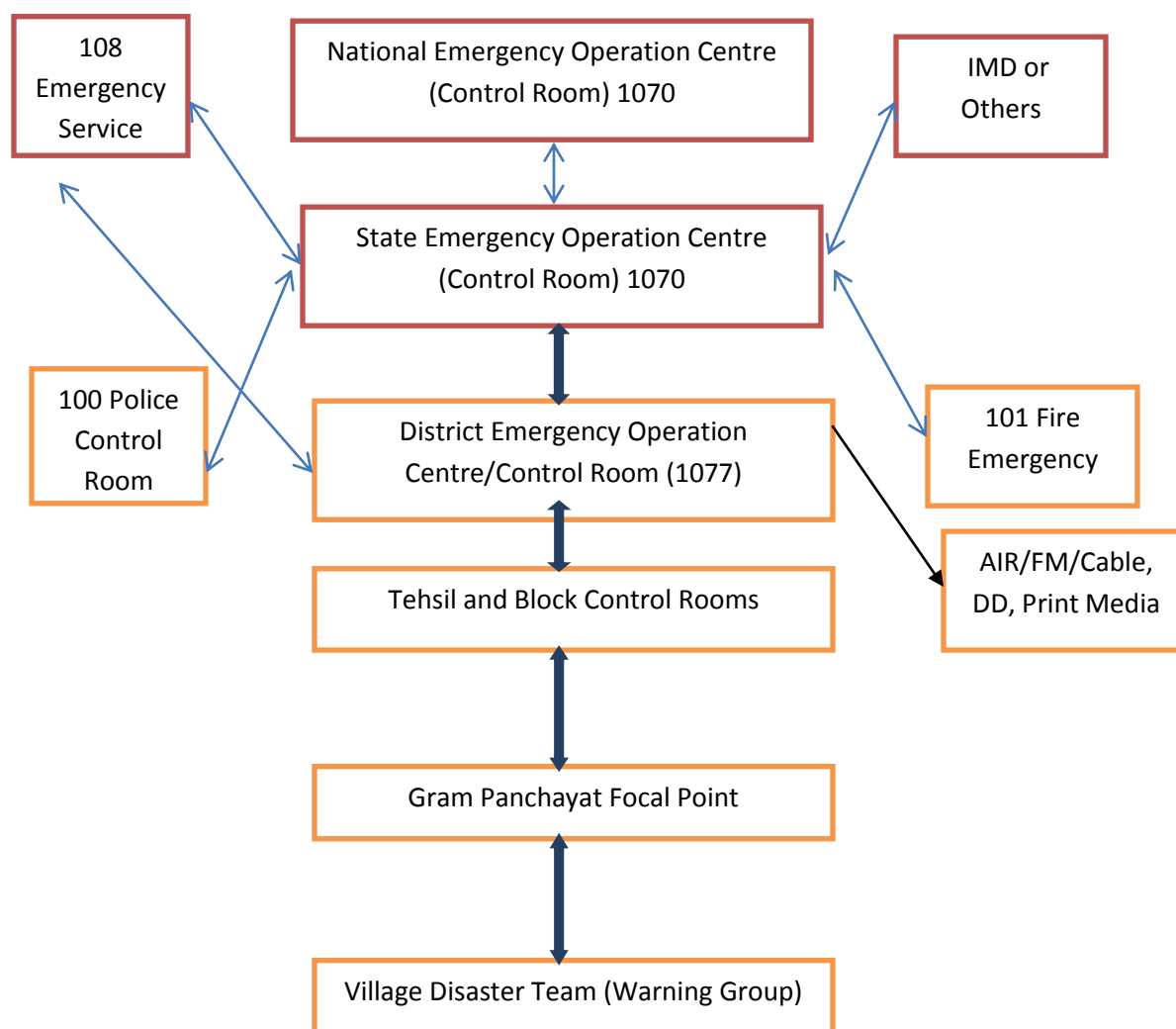


Figure 27: Flow of Early Warning System

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

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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.
- 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.

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- 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.
- 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.

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- 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 deputy 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.
- 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

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- ❖ 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.
- 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.

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- 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 be 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 neighbourhood. The involvement of community in decision making is important. Systems for providing psychosocial support and trauma counselling 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 suitable sanitary facility

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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, upgradation 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?

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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 therefor” 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
- 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.

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- 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 GoI 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's 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

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

- a. Adopting a Sectoral approach and identification of Key sectors for mainstreaming.

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- 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	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	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 to ensure livelihood security in the event of disasters. iv. Works which reduce disaster risk are given priority in plans-such as local mitigation works etc. v. Any other implement able suggestion within the ambit of the scheme.

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3.	Pradhan Mantri Gram Sadak Yojana	PWD	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. 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. iii. The maintenance guidelines are modified to ensure that in case of disasters these roads get provision for restoration to ensure all weather connectivity.
4.	Sarva Siksha Abhiyaan	Education	i. Development of a Policy paper of school safety. ii. Introducing school safety as a part of the guidelines of SSA which is currently focusing on inclusive development. iii. Developing model structurally safe designs for schools. iv. Introducing School Safety in the Teacher's Training Curriculum. v. Training of Rural Engineers appointed under SSA Scheme as well as the SSA State Coordinators. vi. Training of masons in rural areas. vii. Construction of Technology Demonstration Units. viii. Community Awareness.
5.	Jawahar Lal Nehru Urban Renewal Mission	Urban Development	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. ii. Emphasis on disaster risk audit at the stage of preparation of detail project reports. 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). iv. Inclusion of disaster management as a function of the Urban Local Bodies and allocate resources. v. Inclusion of Disaster Resistant features in the houses being constructed under the BSUP component as well as promote development of safe habitat. vi. Inclusion of strategies for disaster management in the City Development Plans. vii. Training and Capacity Building Programmes for municipal officers on disaster risk reduction.
6.	Rajiv Awas Yojana	Urban Development	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. ii. Also the Housing Programmes to be implemented in these selected cities can ensure incorporation of hazard resistant features and safe sitting.
7.	National Rural Health	Health and	i. Ensure that the village Health Plan and the District health plan explicitly address the disaster risk reduction concerns in the vulnerable habitations

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	Mission	family welfare	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. Decentralised 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
- iv) Disaster resistant technologies mandatory in case of all construction using public/corporate funds.

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- 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.
- 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 side section 34 (I). 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 (I) 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 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.
 - International and national funding agencies supporting emergency preparedness and community led risk reduction initiatives for a minimum period of three years.

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- 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 planning	Conduct community centric hazard and vulnerability analysis at all levels, and develop disaster management plans in accordance. (Action: DDMA, NGOs)

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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 to minimum standards through collective and coordinated efforts of all stakeholders (Action: DDMA, NGOs, CBOs)

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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 risk insurance, micro-finance

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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 utilise 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.

ANNEXURES

District Disaster Management Plan 2012, Kinnaur (H. P.)

Annexure – A

IMPORTANT TELEPHONE NUMBERS (DISTRICT ADMINISTRATION)

DISTRICT ADMINISTRATION					
Sr. No.	Designation	Name	Office No.	Residence	Fax No.
1.	Dy. Commissioner	Sh. Rajiv Shankar (IAS)	01786-222252	222251,	01786-223342
2.	A.C.	Sh. D.K. Manta	01786-222227	222327, 98161-24437	
3.	P.O. DRDA	Smt. Savita Mishra	01786-222569	223321, 9418181160	222569
4.	P.O. ITDP	Sh. D.K. Manta	01786-222273	222278, 98161-24437	
5.	S.D.M. Kalpa	Sh. Prashant Deshta	222253	222310, 9418022029	
POLICE DEPARTMENT					
6.	S.P.	Ms. Veena Bharti(IPS)	01786-222270	222288, 9418022344	
7.	D.S.P.	Sh. Kushal Kumar	01786-223055	222316, 94181-71099	
8.	SHO, Reckong Peo	Chet Ram	01786-222210	94180-31047	
9.	Dist. Inspector Police	Sh. D.C. Verma	222294	94180-43823	
PWD DEPARTMENT					
10.	Ex. Engineer, PWD	S.P. Negi	01786-226027	226028, 9418022581	226027
11.	AE	Prakash Negi	222398	941802296	
HPSEBL					
12.	SR. E.E. HPSEBL	Er. Anil Kumar Mahajan	01786-222234	9418009131	222234
13.	AE-ESD, HPSEBL Reckong Peo	Er. M.L. Negi	01786-222286,	9418423700 9816590240	
IPH					
14.	SE, IPH	K.K. Gupta	01786-222579	223574 9418020774	223572
15.	Executive Engineer	J.R. Kaushal	222229	222230, 9418294899	222929
16.	AE	D.G. Negi	222378	222123, 9418433425	
HEALTH & AYURVEDA					
17.	C.M.O.	Dr. Balam Singh Negi	01786-222922	222346, 9418021954	.
18.	Medical Officer		01786-222399		
19.	District Ayurvedic Officer	Dr. Sukhdarshan Singh	01786-222209	9418603046	222209
EDUCATION					

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20.	Dy. Director, Higher Edu.	Karam Das Verma	01786-222221	222863, 9418646794	
21.	Dy. Director, Elementary Education		01786-222938		
22.	Principal Degree College	S.B. Negi	222591	9418647866	222591
23.	Principal I T I R/Peo	Sh. D.S. Negi	222215	94183-09802	
24.	Principal DIET	Laxmi Ram Negi	223040,222938	9418579200	
AGRICULTURE/HORT DEPARTMENT					
25.	Dy. Director, Hort	Sh. D.P. Bhangaria	222362,	222407, 94598-80855	
26.	Dist. Hort Officer	Dr. S.S. Mehta	222237	8894995811	
27.	Dist. Agri. Officer	P.C. Thakur	222364	9418785895	
OTHER OFFICERS					
28.	District Try Officer	Ramesh Chand	01786-223380	223969, 9817035564	
29.	Commandant Home Guards		01786-222311	203292, 9816884864	
30.	DFO	Sh. S.P. Singh	01786-222195	223481, 94184-92488	
31.	Regional Manager, HRTC	D.K. Narang	01786-222162	222174, 9418000553	
32.	Dy. Director Animal Health	Sh. A.K. Puri	01786-222570	94184-72322 94180-80439	
33.	D.P.R.O.	R.S. Negi	01786-222263	222571, 94189-63311	
34.	District F&S Controller	Jai Singh Verma	01786-222207	9816012016	
35.	DPO ICDS Kinnaur	Sh. T.R. Acharya	01786-223436		
36.	P O Himurja	Sh. Vineet Sood	223030	94184-56377	
37.	68R C C Greef	Sh Lal Mani Singh	222330		
38.	Sub Fire Officer			9418002523, 9816052220	
39.	Sub Divisional Soil Conservation Officer	Sh.Devi Singh Negi	94180-87990		
40.	District Information Officer	Sarvjeet	222379	9418083698	
41.	Distt. Statistical Officer R/Peo	SH. Pankaj Sharma	0177-2626205		
42.	Distt. Welfare officer	Sh. M.S. Negi	222049	223036 9418110947	
43.	Distt. Panchayat Officer	Sh. Vijay Bragta	222290	203063, 98164-96252	222530
44.	D. F O. Wild Life Sarahan Distt. Shimla	Sh. Satish Negi	01782-274232	9418067585	

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45.	68R C C Gref	Sh Lal Mani Singh	222330		
1. ITBP					
46.	Commandant ITBP	Pawan Negi	222530	222363	
47.	Adjutant, 17 th BN ITBP		222247	9418007352	
2. KALPA BLOCK					
48.	S.D.M. Kalpa	Sh. Prashant Deshta	222253	222227, 94180-22029	
49.	BDO	Prakash Chand	222225	222850, 9418529565	
50.	Tehsildar, Kalpa	Santu Lal Negi	01786-226021	226021, 94183-75035	
51.	CDPO	Onkar thakur	222049	223936 9418157796	
52.	Tehsildar, Sangla	V.D. Negi	01786-242278	242278 9418286895	
53	SHO Sangla		01785-242617		
3. POOH BLOCK					
54.	A.D.M. Pooh	Sanjay Sharma	01785-232222	232223, 9418086486	
55.	Tehsildar, Pooh	Mohan Singh Negi	01785-232315	9418813140	
56.	BDO	Sh. Nwang Chhopel	232311	232322 9418812638	
57.	Tehsildar, Moorang	Chet Singh Chauhan	01785-252222	252222, 9418005122	
58.	Naib Tehsildar, Hungrang	Roshan Lal Negi	226181	9418004812	
59.	AE, PWD		232310		
60.	AE, Elect	Er. Tara Chand Negi	232312	232314, 9418422614	
61.	CDPO	R.S. Negi	232246		
62.	SHO, Pooh		01785-232420		
4. NICHAR AT BHAWANAGAR BLOCK					
63.	S.D.M., Bhawanagar	Bhupinder Attri	01786-263201	263202, 8894676210	263201
64.	Tehsildar, Bhawanagar	Devi Singh Negi	01786-263512	263512, 9418475267	
65.	BDO	Vivek Chauhan	263284	263284, 9418400876	
66.	Executive Engineer, PWD	N.L. Verma	263303	8894676210	263303
67.	AE, PWD		252234		
68.	AE, IPH		260554	9418036140	
69.	AE, Elect	Mehar Singh	261217	9418300083	
70.	CDPO		253647		
71.	SHO, Bhawanagar		01786-253455		
72.	Police Post Nichar		252355		
73.	Police Post Tapri		261230		

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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	011-26712851 011-26161442	011-26105912.	09818916161	dg-ndrf@nic.in

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		Force (NDRF) 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	Inspector	Directorate	011-	011-	08010072169	

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Parkash	Control Room	General , National Disaster Response Force (NDRF) Sector-1 R K Puram, New Delhi - 66	26107953	26105912.		
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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. Lakhanpal, 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	Group Captain and	Tel No. 01331 244919-	AF Stn, Sarsawa

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Johri	Station Incharge	207 Fax No. 01331 - 244822	Saharanpur (UP), PIN - 247232
Mr. Vineet Sharma	Wing Commander, Chief Operations Officer	As Above Cell No. + 91 7599342240	As Above

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

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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, TARADEVI, 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@yaoo.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

District Disaster Management Plan 2012, Kinnaur (H. P.)

ANNEXURE – C

TELEPHONE NUMBERS OF PUBLIC REPRESENTATIVES

KALPA BLOCK -LIST OF GRAM PANCHAYAT PRADHANS

Sr. No.	Name of Panchayat	Name of Pradhan	Contact No.	Name of up Pradhan	Contact No
1	Chhitkul	Sh. Mahoj Kumar	94180-57803	Sh. Kahan Singh	244274
2	Rakchham	Km. Neelam Kumari	244238 94183-58853	Sh. Sushil Kumar	94182-09205 244205
3	Batseri	Sh. Anil Kumar	242380 94181-09193	Sh. Dharamender Singh	94181-34011
4	Themgrang	SH. Roshal Lal	94184-02911	Sh. Virender Kumar	(4181-02808
5	Sangla	Sh. Bisham Singh	94184-02834	Smt. Prem Bhagti	98166-79143
6	Kamroo	SH Pitamber Dass	94181-04686	Shi Rajender Prashad	94182-67230 242230
7	Chansu	Sh Ishwer Singh	94184-02755 282504	Sh. Anil Kumar	94182-07218 242482
8	Shong	Sh. Bharat Bushan	94184-	Sh Gulab Chand	94181-33162
9	Brua	Smt Shubhag Devi	98051-20245 98167-20325 282225	Sh Deva Singh	98164-02262
10	Kilba	Sh. Kuldeep Singh	94182-44555 272555	Sh. Rakesh Kumar	94183-41457 272240
11	Meber	Sh. Jagat Pal	94183-33428	Sh. Pratap Singh	94181-55028 282236
12	Barang	Smt. Vinay Devi	94181-72318	Sh Raj Chand	94181-55028
13	Powari	Sh Shiv Ram	98163-45476 227225	Smt Laxman Bhagti	227242
14	Purbani	Sh. Shyam Sunder	228008	Sh. Raj Singh	94182-35207
15	Khawangi	Smt. Rishi Ram	94184-48187	Sh. Jasbir Chand	9418109007
16	Telengi	Smt. Amir Patti	222947	Sh. Bhadur Lal	223789
17	Pangi	Sh. Gurdeep Singh	228623 94180-41353	Sh. Mukesh Kumar	94182-09688 228688
18	Kothi	Sh, Raj Nand	94183-33021 94181-42085	Sh. Krishan Lal	-
19	Duni	Smt. Pratima Devi	94180-36048	Sh. Jai Krishan	94181-09888
20	Shudarang	Smt.Subhadra Kumari	94184-39382 222648	Sh. Harish Kumar	94181-42115
21	Kalpa	Smt. Santosh Kumari	94180-08002 226067	Sh. Jitender Negi	94181-71667 226313
22	Roghi	Smt. Shanti Devi	94185-56057	Sh. Padam Chand	94182-08525
23	Sapni	Smt Pushpa Devi	98167-08463	Sh. Pachhi Lal	98164-67157

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KALPA BLOCK-LIST OF PANCHAYAT SAMITI MEMBERS

Sr. No	Name of Panchayat	Name of Panchayat Samiti Member	Contact
1	Sangla	Sh. Bishuk Sain (BDC Chairman)	98053-81005 242305
2	Kalpa	Smt Surma Devi(Voice Chairman)	226482
3	Themgrang	Sh. Padam Bushan	94184-02825 242314
4	Sapni	Smt. Raj Krishna	232319
5	Rakchham	Smt. Shyam Devi	01786-244252
6	Kamroo	Sh. Raghu bir Singh	94181-63579
7	Shong	Narender Singh	94181-06871 222271
8	Brua	Sh. Bhagwan Singh	94181-07999
9	Kilba	Sh. Daulat Ram	94184-39321 271521
10	Brang	Km..Shanta Devi	94183-07603 227218
11	Powari	Sh.Kundan Gaichho	94182-33696
12	Khawangi	Sh. Anil Kumar	223003
13	Pangi	Sh. Balkar Singh	94181-34426 228607
14	Kothi	Sh.Bhim Sain NEgi	94186-47929
15	Roghi	Smt. Sandya Devi	94181-41336 226140

KALPA BLOCK-LIST OF ZILA PARISHAD MEMBERS

SR. NO	Name of Panchayat	Name of Panchayat Samiti Member	Contact No
1	Sapni	Smt. Chander Mani (Chairman Z.P.)Kinnaur	94183-27387 01786-222530(O)
2	Sangla	Smt. Dev Sanki	94183-09052
3	Kalpa	Smt. Meena Kumari	94183-95719
4	Khawangi	Sh. Preetam Singh Mehta	01786-223948

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NICHAR BLOCK- LIST OF GRAM PANCHAYAT PRADHANS

Sr. No	Name of Panchayat	Name of Pradhan	Contact No.	Name of Up Pradhan	Contact No.
1	Chhota Kamab	Sh. Bhagat Chand	94183-23313	Sh. Satar Singh	94184-38868
2	Nathpa	Sh. Jai Ram	94181-55452	Sh. Jag Dev Singh	94182-73471
3	Bari	Sh. Vinod Kumar	94180-59406	Sh. Sher Singh	94185-38571
4	Ramni	Smt. Krishan Negi	94184-38395	Smt. Kedari Devi	94185-00559
5	Tranda	Smt. Tara Moyan	94183-40301	Sh. Atam Prakash	94181-69597
6	Poonag	Sh. Ajay Kumar	94182-76590	Sh. Raj Mala	94183-08538
7	Chagaon	Smt. Anjana Negi	94181-41310	Sh. Tejender Singh	94182-32611
8	Urni	Sh. Diwan Singh	98051-83123	Sh. Satish Kumar	94184-24777
9	Meeru	Sh. Chering Narbu	94183-49337	Sh. Gokal Singh	94183-83053
10	Rupi	Sh. Hukam Chand	94182-44555 01786 255260	Smt. Sunder Devi	94181-82432
11	Panvi	Sh. Sunder Lal	94182-44345	Sh. Dewa Gialdan	94185-05164
12	Nichar	Smt. Kamla Devi	94183-07878	Sh. Verender Kumar	94183-07892
13	Ponda	sSh. Subhash chand	94180-11485	Sh. Ashok Kumar	94183-45329
14	Kafnoo	Smt. Rajeshwari Negi	94182-34740	Sh. Digvejay Singh	94185-72258
15	Yangpa	Sh. Raj kumar	94181-13267	-	
16	Yulla	Sh. Devender Singh	94183-27966	Sh. Pratap Chand	94182-34635
17	Sungra	Smt. Savitri Devi	94185-38560	Sh. Balwant Singh	94182-87507
18	Katgaon	Smt. Charni Devi	94183-08675	Smt. Ringchen	94182-08601

NICHAR BLOCK -LIST OF PANCHAYAT SAMITI MEMBERS

Sr. No.	Name of Panchayat	Name of Panchayat Samiti Member	Contact No.s
1	Kafnoo	Smt. Kiran Devi (BDC Chairman)	94189-4009
2	Ramni	Sh Raj Kumar Negi	94187-57358
3	Bari	Sh. Pawan Kumar	94182-07030
4	Chota Kamba	Sh. Anand Singh	94181-31575
5	Tranda	Smt. Anita Devi	94183-43443
6	Chagaon	Sh. Budh Rattan	94182-34624
7	Urni	Sh. Manohar Singh	94186-24476
8	Meeru	Sh. Diwan Singh Negi	-
9	Rupi	Sh. Birbal Singh	98054-56201
10	Panvi	Smt. Sarjan Bhagti	94182-10184
11	Nichar	Sh. Shalig Ram	-
12	Ponda	Sh. Gopal Chand	94181-72224
13	Yagpa	Sh. Arjun Singh	94183-42613
14	Sungra	Smt. Ram Bhagti	94590-40705
15	Katgaon	Smt. Sunita Kumari	94181-70401

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NICHAR BLOCK - LIST OF ZILA PARISHAD MEMBERS

Sr.No.	Name of Panchayat	Name of Panchayat Samiti Member	Contact No.
1	Tranda	Sh. Baldev Singh Negi	94185-70420
2	Sungra	Sh. Jagdish Chand	94180-50403
3	Chagaon	Sh. Padam Negi	-

POOH BLOCK - LIST GRAM PANCHAYAT PRADHANS

Sr. No.	Name of the Panchayat	Name of Pradhan	Contact No.	Name of UP-Pradhan	Contact No.
1	Sumra	Sh. Angchuk	94184-05870	Sh. Lal Singh	01785237273
2	Chango	Smt. Tanzin Zangmo	01785-237273	Sh. Ram Lal	01785-23237305
3	Shailkhar	Smt Ringzin Angmo	01785-237273	Sh. Thuktan	01785-237305
4	Nako	Smt. Chheting Chooden	01785-236312	Sh.Meema Murub	01785-236068
5	Leo	Sh. Chhater Singh	01785-236067	Sh.. Karam Singh	01785-2326032
6	Hango	Sh. Sunder Singh	94185-05609	Sh. Balwant Singh	
7	Namgia	Sh. Baldev Singh	01785-234207	Sh Guru Neema	01785234251
8	Pooh	Smt. Suman Sana	94186-44013	Sh. Shushil Sana	94183-07674
9	Sunnam	Sh. Padam Sagar	01785-241548	Sh. Pratap Singh	94188-42852
10	Giabong	Sh. Sita Ram	01785-241241	SH Padam Lal	01785-241235
11	Ropa	Smt. Bimla Kumari	01785-241322	Sh. Bhagwan Singh	01785-241342
12	Nesang	Smt. Anita Negi	98058-89725 94180-26928	Sh. Hirpal Singh	98058-41333
13	Kanam	Sh. Kavar Singh	94187-02397	SH. Tanzin Funchik	94183-93084
14	Labrang	SH. Rajender Singh	9805816479	Sh. Virender Singh	94183-58401
15	Spillo	Sh Ravinder Pratap	98168-82342	Sh. Amar Chand	98058-41898
16	Lippa	Sh shayam Lal	01785-239276	Sh . Amar chand	

District Disaster Management Plan 2012, Kinnaur (H. P.)

17	Asrang	Sh . Yashwant Singh		Sh Arun Kumar	
18	Jangi	Sh. Deva Sukh	-	Smt. Sanyogita	-
19	Moorang	Sh. Prem Kumar	94182-73897	Sh. Rajeshwar	9418401507
20	Thangi	Smt Mahesh Kumari	98058-41626	Sh. Raj Narayan	98058-41533
21	Charang	Sh. Sevak Ram	94184-02299 98169-41338	Sh Bhagat Singh	94188-62849
22	Rispa	Sh. Chander Gopal	94188-86607	Sh. Naveen Kumar	98052-78104
23	Rarang	Smt. Raj Laxmmi	94187-61028 01785-225185	Sh. Shiv Chand	98058-41997 01785-225197
24	Ribba	Smt. Dhan Mala	98160-40941		

POOH BLOCK- LIST OF PANCHAYAT SAMITI MEMBERS

Sr. No.	Name of Panchayat	Name of Panchayat Samiti Member	Contact No.
1	Spillo	Sh. Naresh Kumar	98168-85919
2	Shailkhar	Sh. Sanjay Kumar	01785-237271
3	Chango	Km. Kalpana Negi	01785-236363
4	Nako	Sh, Chewang Dorje	01785-236036
5	Leo	Sh. Ramesh Kumar	01785-236142
6	Pooh	Smt Devi Dolma	94183-59555, 94187-60447
7	Sunnam	Sh, Muni Sashan	01785-241294
8	Giabong	SH, Inder Lal	94189-63192
9	Kanam	Sh. Bhim Sain	91181-42108
10	Lippa	Sh. Subhash Chander	94188-17459
11	Jangi	SH, Soraj Kumari Negi	98057-09513
12	Moorang	Sh. Maheshwer Singh(Chairman)	94183-58700, 98166-58700
13	Thangi	Smt. Kiran Bala Negi	98053-44485
14	Ribba	SH, Lalit Mohan	94183-43056
15	Rarang	Smt. Uma Bhagti	94186-94254

POOH BLOCK- LIST OF ZILA PARISHAD MEMBERS

Sr. No.	Name of Panchayat	Name of panchayat Samiti Member	Contact. No.
1	Moorang	Sh. Chander Kirti	94181-52029
2	Ribba	Km. Rattan Manjari	94181-03751
3	Pooh	Smt Leela devi	01785-237335

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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.	Maya Devi	Mahila Mandal	Vill- Kothi, Kalpa, Kinnaur	9459271394
2.	Sandhya Devi	Mahila Mandal	Vill- Kothi, Kalpa, Kinnaur	9418002571
3.	Madhu Devi	Mahila Mandal	Vill- Khawangi, Reckong Peo	9418817364
4.	Deepak Negi	Yuvak Mandal	Vill- Khawangi, Reckong Peo	9805555600
5.	Anita Kumari	SHG, Khawangi	Vill- Khawangi, Reckong Peo	9459214001
6.	Yang Chen Dolma	Nirmal SHG	Vill- Kothi, Kalpa, Kinnaur	9806267111
7.	Neelam Kumari	Nirmal SHG	Vill- Kothi, Kalpa, Kinnaur	9805653696
8.	Urvashi	SHG	Vill- Barang, Kalpa	9418505691
9.	Krishan Bhakti	Laxmi SHG	Vill- Kothi, Kalpa, Kinnaur	
10.	Chitra Rekha	Laxmi SHG	Vill- Kothi, Kalpa, Kinnaur	9418578304
11.	Surendra Singh Negi	Social & Educational Vikash Association	Jaisant Building Reckong Peo	8894466076

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ANNEXURE – E

VOLUNTEERS LIST OF NEHRU YUVA KENDRA

Sr. No.	Name	Designation	Address	Contact No.
1.	Kalyan Negi	ACT	V.P.O.- Rispa, Kinnaur	8894423165
2.	Devi Singh Negi	GD	V.P.O.- Bari, Kinnaur	9459748062
3.	Sikender Negi	NYC	V.P.O.- Urni, Kinnaur	9816906375
4.	Rajeev Kumar	-do-	V.P.O.- Kangos,	9418570144
5.	Dev Raj	-do-	V.P.O.- Kachha	9459228773
6.	Urmila	-do-	V.P.O.- Tranda	9459088628
7.	Sarita	-do-	V.P.O.- Kalpa	9816548737
8.	Sooraj	-do-	V.P.O.- Sangla	8894138768
9.	Ragubir	-do-	V.P.O.- Skiba	9418133882
10.	Sangeeta	-do-	V.O.P.- Kothi	9418345993
11.	Rohit	-do-	V.P.O.- Rarang	9418981652
12.	Prem Kumari	-do-	V.P.O.- Kothi	9816228627
13.	Raj Kumar	-do-	V.P.O.- Urni	9418572362
14.	Kalzung Negi	-do-	V.P.O.- Thangi	9418895486
15.	Runjeet	-do-	V.P.O.- Ribba	9459088763

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ANNEXURE - F

CONTACT NO. OF NCC/NSS

LIST OF NCC & NSS

Sr. No.	Name of School	Name of Principal	NO. of Student		Contact No. of Principal	Teacher Name	Teacher Contact No.
			NCC	NSS			
1.	GSSS, Kalpa	Randeep Kumar	50	81	9418568301	Shiv Kumar(NCC)	9359160491
2.	GSSS Reckong Peo	Padam Chand	50	110	9418119762	Ganesh Kumar(NCC) Vidya Singh(NSS)	88938432
3.	GSSS Kilba	Ranjeet Singh	-	55	9805165915	Sanjay Kumar(NSS)	9418378613
4.	GSSS Sangla	Ganga Kumar	93	111	01786-242945	Rajman(NCC) Vinod Kumar(NSS)	9418402849
5.	GSSS Rakchham	Deepak Pandit	-	36	9459012908	Kewal Ram	9816040753
6.	GSSS Urni	Pitamber Singh	-	50	9816275440	Bhajan Singh	9459214401
7.	GSSS Katgon	Shiv Lal	-	95	9816909402	Yash Pal Rajat	9816674624
8.	GSSS Pooh	C.R. Negi	-	59	9418065992	Black Ram	9418472892
9.	GSSS Nichar	Bharma Nand	-	106	9459081159	Roshan Lal	9418384211
10.	PSSS B/nagar	Raj Kumar Sharma	-	110	9418948899	Hira Singh	9816674345
11.	GSSS Moorang	Narindra Kumar	-	48	9418729339	Kishan Chand	8894134890

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Annexure - G

List of Nodal Officers for Disaster Management

Sr. No.	Name of Nodal Officer	Designation	Contact No.	Alternate Nodal Officer	Contact No.
1.	Dr. Ashwani Kumar	SDAMO, Pooh block at Ribba	9816012955	Dr. Krishan Chand, SDAMO, Nichar	9459872150
2.		Dy. Director Elementary Education	01786-222938		
3.	Dr. S.S. Mehta	District Horticulture Officer	8894995811		
4.	Suresh Chauhan	Supdt. Dy. Director Higher Education	01786-222221, 9816170804	Rigzin Negi	9418136891
5.	Pankaj Sharma	Dy. Supdt. Of Police	01786-223055, 222316 9418588014		
6.	Mohan Singh	Food & Supply Officer	01786-222207 9418037244	Vinod Kumar, Pooh	9459037839
7.	Dr. Munish Batta	Sub Divisional Veterinary Officer, R/Peo	01786-222729		
8.	Dr. P.C. Thakur	District Agriculture Officer			
9.	Sandeep Chauhan	AGM, NSL Tidong Power Generation (P) Ltd.			
10.	Bijay Prasad	Dy. G.M., Satluj Jal Vidyut Ngam Ltd.	0182-275461, 9418070265		
11.	Er. R.S. Katwal	Sr. Manager (R&R), HPPCL	01786-222801 9418067902		
12.	O.P. Tomar	G.M.(Retd), JP Power Venture Ltd.	9816605820		
13.	S.P. Singh	DFO, Kinnaur	01786-223358 9418492488	Amit Sharma	9418040081
14.	Er. M.L. Negi	AE-ESD, HPSEBL Reckong Peo	01786-222286, 9418423700, 9816590240	Er. S.L. Negi	01786-222234, 9418359328, 9816885228
15.	M. Srinivasa Reddy	SDO, BSNL Telecom, Reckong Peo	01786-222600, 9418073388	R. Chatanya	01786-222442

District Disaster Management Plan 2012, Kinnaur (H. P.)

ANNEUXRE - H

RESOURCE INVENTORY

KALPA

Equipment /Machinery

Blankets	Contact Person	Telephone No.
Bolt Cutter	CC Bhim Bhagat BSO A. R. Sharma SFO H. S. Negi	9459087988 222311 222219(101)
Breathing Apparatus Self contained	SFO H. S. Negi	222219(101)
Gloves Rubber, Tested up to 25000 Volt	CC Bhim Bhagat BSO A R Sharma SFO H S Negi	9459087988 22311 222219(101)
Electrical Generator (10KV)	SFO H S Negi	222219(101)
Extensions Ladder	CC Bhim Bhagat BSO A .R .Sharma SFO H. S. Negi	9459087988 222311 222219(101)
Fire Station	S F O H. S. Negi	222219(101)
First Aid Kits	CC Bhim Bhagat B.S.O A.R. Sharma	9459087988 222311
Foam Tender	SFO H. S. Negi	222219(101)
Foam Type	BSO A. R Sharma SFO H. S. Negi	222311 222219(101)
Light Ambulance Van	Sujan Singh R/Peo Ganga Lal R/Peo	9418190231 9418287356
Medium Ambulance Van	Rajender Singh Inder Mohan	94184-02587 9459039131
Mobile O.T. Unit	Satish Kumar	-
Portable Oxygen Cylinders	RH Peo CHC Sangla	
Pump High Pressure Portable	H. S. Negi	222219(101)
Search Light	C C Bhim Bhagat BSO AR Sharma SFO H S Negi	9459087988 222311 222219(101)
Stretcher normal	CC Bhim Bhagat BSO A...R. Sharma SF O H. S Negi	9459087988 222311 222219(101)

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Suit-Fire Proximity	SFO H. S. Negi	222219(101)
Tipper Heavy duty	Sher Singh o/o A. E. PWD Sangla O/o Xen PWD	9418343413
Rope	BSO A.R. Sharma S.F.O. H.S. Negi	22311 222219(101)
Shovel	CC Bhim Bhagat BSO A.R. Sharma SFO H.S. Negi	9459087988 222311 222219(101)
Pick Axe	CC Bhim Bhagat BSO A.R. Sharma SFO H.S. Negi	9459087988 222311 222219(101)
Axe Large	CC Bhim Bhagat BSO A.r.Sharma SFO H.S. Negi	9459087988 222311222219(101)
Siren /Hooter	CC Bhim Bhagat SFO H.S. Negi	9459087988 222219(101)
Life Jackets	BSO A.R. Sharma SFO H.S. Negi	222311 222219(101)
Fire Tenders	SFO H.S. Negi	222219(101)
Transport Vehicle	Rai Singh	9418209561
Tarpaulins	CC Bhim Bhagat BSO A.R.Sharma SFO H.S. Negi	9459087988 222311 222219(101)
Tents	CC Bhim Bhagat SFO H.S.Negi	9459087988 222219(101)
Beldar	A.E PWD Sangla O/O XEN PWD Kalpa	242317 226027 9418022581
Black Smith	A.E PWD Sangla O/OXEN Kalpa	242317 226027 9418022581
Car Printer	O/O XEN PWD Kalpa	226027 9418022581
Chowkidar/Sweeper/Helper	A.E.PWD Sangla O/O XEN Kalpa	242317 226027 9418022581
Crane operator	-	-
Driver/operator	A.E.PWD Sangla O/O XEN Kalpa	242317 226027 9418022581
Earth mover operator	A.E.PWD Sangla	242317

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	O/O XEN Kalpa	226027 9418022581
Engineer	O/O XEN. PWD Kalpa	226027 9418022581
Mason	A.E. PWD Sangla O/O XEN. Klapa	242317 226027 9418022581
Mate /Mason	A.E. PWD Sangla O/O XEN Kalpa	242317 226027 9418022581
Pipe Fitter	O/o Xen PWD Kalpa	226027 9418022581
Surveyor	Ramesh Kumar Gulshan Kumar Sangla	242317



Search and Rescue

Name	Location	Contract Number	Distance
Army	Shongthong	223320	7Km form Peo
Fire Brigade	R/Peo	222219	0
Home Guards	R/Peo	222311	0
Police Station	R/Peo	222210	0`
Sniffer Dogs	ITBP,R/Peo	222247	0



Command Control and coordination

Control Room	Address	Contact No.	Incharge
1	ADM Pooh	01785-232222	
2	SDM Kalpa	01786-222253	
3	SDM Nichar	01786-253201	
4	A C to D C	01786-222227	
5	PO, ITDP,KNR	01786-222273	



Health Deptt.

Control Room	Address	Contract No.	Incharge
1	RH R/Peo	01786-222319	MOI/C RH Peo

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2.	CHC Sangla	94185-41722	BMO CHC Sangla

Evacuation, Rescore & Relief

Evacuation	Location	Address	Contact no
	Tehsildar Kalpa	Tehsildar Kalpa	01786-226021
	Tehsildar Sangla	Tehsildar Sangla	01786-242278
First aid and Post First and Medical Attention		CMO, Kinnaur at R/Peo	
Transportation		Incharge:HRTC R/Peo	
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 Kalpa	10 Kmtrs.	9418182888	-	
2	PHC Tangling	6 Kmtrs	98161-89236	-	
3	PHC Sapni	20Kmtrs	98160-52975	-	
4	PHC Rakchham	55 Kmtrs	9418608554	-	
5	PHC Kilba	17Kmtrs	9816532007	-	
6	CHC Sangla	40KM	9418140282	-	

Sub divisional hospital: Nil

Private Hospital: Nil

District Disaster Management Plan 2012, Kinnaur (H. P.)

SUB DIVISION NICHAR

Equipment /Machinery

Blankets	Quantity in Nos	Contact Person	Telephone No.
Bolt Cutter	-	-	-
Road Roller	2	XEN Karchham	01786-253330
Bulldozers Wheeled/Chain	12	Brig. O.P. Tommar J.P.Company XEN Karchham	01786-253330
Buses	4	--Do	
CO2 Type	14	--Do	
Air Copressure	18`	Xen Karchham	01786-253303
J.C.B	3	Xen Karchham	01786-25330
Earth Movers	9	-- Do --	
Electric Drill	5	--Do--	
Electrical Generator(Kv)	5No.	--Do--	
Extensions Ladder	4	--Do--	
Fire Station	1	--Do-	
First Aid Kits	13	HPSEB,J.P.	
Gas Cutter operator	32	J.P	
Heavy Truck	4	--Do-	
Jack with (five to tur lift)	5	--Do-	
Light Ambulance Van	1	--Do- Rajesh Kumar ---Tapri	94180475079 9418047758

District Disaster Management Plan 2012, Kinnaur (H. P.)

		-- Kafnoo	8418010097
Sledge Hammer	30+13	R.O Wild Life Rupi N /Sari	J.P =30
Stretcher harness(set)	10	--Do--	
Stretcher normal `	10	--DO-	
Tipper Heavy Duty	27	S.K Uppal J.P.	261253
Pick Up Van	1	Asstt. Eng. Karchham	9418319468
Tractor	2	--d0--	--do
Bullero Camper	1	Asstt. Eng. Sangla	01786-242317
Bullero Lx	1	Xen Eng. Karchham	253303
Truck			
Stone Crusher	1	Xen Karchham	01786-252303
Truck	4 1	Xen Karchham	01786-253303
Tipper	2	Xen Karchham	01786-253303
Hot Mix Plant	1	--do--	
Shovel 200+	10 12 10	IPH Nichar S. D. O. NH-22 10-IPH Nichar	
PickAxe 170+	10+10	Nigulsari	
Axe	20+3	At Sholding	
Hacksaw	12+15	IPH Nichar	
Siren/Hotter	3	S.K Uppal J.P	

District Disaster Management Plan 2012, Kinnaur (H. P.)

SUB DIVISION POOH

❖ EMERGENCY RESOURCES INVENTORY

Equipment/Machinery

Blankets	Quantity In Nos.	Contact Person	Telephone No.
Bulldozers Wheeled/Chain	2-Chain	A.E.PWD Pooh	232310
Gloves Rubber, Tested up to 25000 Volt	5-Pair	J.T.Negi J.E. HPSEB	
Extensions Ladder	5-Pruning	HDO Pooh J.E. HPSEB	9418402498 9418402265
Sledge hammer	4 No	RO Pooh	
Rope	50 M	J.E.HPSEB	-
Shovel	10 M	R.O Pooh	
Shovel	60 No. 20 No.	AE PWD Pooh RO Pooh	232310
Pick Axe	4 No 80 No.	J.E. HPSEB A.E.PWD Pooh	232310
Axe	1 No.	R.O. Pooh	
Hacksaw	10 No	A.E.PWD Pooh	232310
Portable Public Add. system	3 No.	E.E.IPH Pooh	232250
Tarpaulins	2 No.	ADO Pooh	94183-33549
Plastic Sheets			
Tents		Sh. Dhan Kumar	252222
Car	1	ADM Pooh	232222
Technicians/Skilled labours			
Welder	118 4 152 2	E.E.IPH Pooh HPSEB PWD Pooh ADO Pooh	232280 94184-02565 232310 94183-33549
Black Smith	-	-	-
Car Painter	1	PWD Pooh	232310

District Disaster Management Plan 2012, Kinnaur (H. P.)

Chowkidar/Sweeper/Helper	34 7 12	IPH Pooh PWD Pooh DFO Kinnaur	232250 232210 223358
Carne Operator			
Driller			
Driver/Operator	1 2 2 1	IPH Pooh PWD Pooh ADM Pooh SHO Pooh	232250 232310 232222 232420
Engineer	12 1 6	IPHPooh BDO Pooh PWD Pooh	232250 232311 232310
Pipe Filter	2 1	IPH Pooh PWD Pooh	232250 232310
Surveyor	1 1	IPH Pooh PWD Pooh	232250 232310`
Communication/Network			
Wireless Police/Forest	PS Pooh PS Moorang	SHO In incharge	232420 252524
Wireless HPSEB	4	J.E.	9418402565
Otjer Deptt.	5 IPH Pooh	IPH Pooh	232280

Command Control and Coordination

Control Room	Address	Contact No.	Incharge
1.	ADM Pooh	01758-232222	Sh. Hirdaya Ram
2.	Tehsildar Pooh	01785-232315	
3.	SHO Pooh	232420	Sh. Payar Chang
4.	Tehsildar Moortang	252222	Sh. Chet Singh
5.	NT Hangrang	236181	Sh. Vijay Kumar

❖ Health deptt.

Control Room	Address	Contact No.	Incharge
1.	CHC Pooh	232338	Padam Singh Negi

❖ Evacuation, Rescue & Relief

District Disaster Management Plan 2012, Kinnaur (H. P.)

Evacuation	Location	Address	Contact No.
	Tehsildar Pooh	Tehsildar Kalpa	01786-226021
	Tehsildar Moorang	Tehsildar Sangla	01786-242278
	NAib Tehsildar Yangthang	Naib Tehsildar Yangthang	
First aid and post attention:	First and Medical	CMO,Kinnaur at R/Peo	
Transportation	Incharge:HRTC R/Peo		
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	CHC Pooh		9418462503	Yes	No
2	PHC Chango		-	Yes	No
3	PHC Moorang		9418441371	-	No
4	PHC Kanam		9418700008	-	No
5	PHC Spillo		9418129867	Yes	No
6	PHC Ribba		9418327337	Yes	No
7	PHC Lippa		9418392625		No
8	PHC Giabung		-	Yes	No
9	PHC Jangi		-	-	No
10	PHC Rarang		9805841455	-	No
11	PHC Leo		-	-	No
12	PHC Hango		-	-	No

District Disaster Management Plan 2012, Kinnaur (H. P.)

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 No. 22, has sufficient paraphernalia from Sumdo To Tapri to meet any such eventuality. The BRO have 6 dozers at Wangtu and Pooh sector, five such dozers at pooh Kaurik Sector, TWO at Namgia and Chuppan. In addition to this, they have four excavators cum loaders with rock breaker, 28 Tippers, three water trucks , three generators and other equipment, which can be handy in relief and rescue operation.

Equipment/Machinery With (Army)

The Army has a task force which includes the Engr Recce Party and two Rescue teams being commanded by JCO including a team Havaladar, Radio operator etc. to meet any such disaster the team have HX Motorola and INMARAST radio sets including three 2.5 ton vehicles and one jeep for rescue operation.

In addition to this, they have blankets, first aid boxes, carabiner, life jackets, and tents for accommodating the sufferers of disaster, the army has played a main role in the previous flash floods in rescue and relief operation from Sumdo to Tapri and Bhavanagar and assured to stand by the shoulder if such catastrophe occurs.

Equipment/ Machinery with (Police)

The Himachal Pradesh Police also have infallible communication network of their own a total of four hooters have been provided to by district administration to the police department and are established by the police at Yangthang, Akpa, Baltrang, and Tapri. In case of any such disaster or flood in Sutlej, they will alarm the general public well in time. A demand for satellite phone has been sent to the Pradesh Government, as they would prove beneficial in case the telecommunication network goes down.

The police have get up two control rooms at the district headquarters, and in addition to this, one control room is set up at Bhavanagar and the other at Pooh. Very High frequency wireless sets are also being utilized for the same, In case of the sudden rise in waters of spiti due to parechu river the high frequency set up stations would inform to Yangthang station who further would convey the same to shalkhar and chango through VHF sets, A Mobile hooter vehicle will also the people of any such calamity staying along the river banks.

District Disaster Management Plan 2012, Kinnaur (H. P.)

Equipment/Machinery with (ITBP)

The Indo-Tibet border police of 19th and 17th battalion who have their posts along the river banks from Sumdo to choling are always there to provide a helping hand and rescue and relief operations in case such a disaster occurs.

They ITBP have their full paraphernalia ready including Tents, ration, vehicles, medical aid and their strong communication network. If parechu makes in, (though there are no such indication so far) the ITBP posts at Sumdo would in close liaison with the police and army and will provide first hand information to all the control rooms in the district

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 searchlights , extension ladders, first aid boxes, crowbars, blankets 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.

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 Defence, 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.

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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 - J

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

- 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.

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- 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.

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

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

District Disaster Management Plan 2012, Kinnaur (H. P.)

				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 (SE/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	Assemble casual labour; Provide a work team carrying emergency tool kits, depending on the nature of disaster, essential equipment such as • Towing vehicles • Earth moving equipments • Cranes etc. Construct temporary roads; Keep national and other main highways clear from disaster effects such as debris etc.; Networking with private services providers for supply of earth moving equipments etc.	Connecting locations of transit/relief camps; Adequate road signs should be installed to guide and assist the relief work; Clearing the roads connecting helipads and airports; Restoring the helipads and making them functional; Rope in the services of private service providers and secondary services if the department is unable to bear the load of work.	functional state.
8.	Information and Communication	District Collectorate (AC/ADM)	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)	report and status of victims and assist family reunification; Apply GIS to speed other facilities of relief and search and rescue; Enable local authorities to establish contact with the state authorities; Coordinate planning procedures between district, the state and the centre; Provide ready formats for all reporting procedures as a standby.	Situation reports to be prepared and completed every 3-4 hours.	the primary agency in performing the assigned task.
9.	Relief Supplies	Collectorate (AC/ADM)	Department of Food and Civil Supplies (DFSC, AM CSC)	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; Coordinate activities involved with the	Support to Local Administration; Allocate and specify type of requirements depending on need; Organize donation (material) for easy distribution before entering disaster site.	To assist the primary agency in arranging and supplying relief supplies; To assist the primary agency in running the relief camps.

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

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

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

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

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

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.

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- Establish communications with District control room and your departmental offices within the division.
- Appoint one officer as “NODAL OFFICER – Forest” 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 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 replantation
- 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.

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- 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.
- Ensure availability of fuel and fodder for disaster effected people.

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

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- State Emergency Operations Center
 - District control room
 - 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.

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- Help identify the seriously injured people, and assist the community in organizing emergency transport of seriously injured to medical treatment centers.
- 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.

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- Coordinate with military service personnel in the area.

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”.

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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.
- Stock emergency medical equipment which may be required after a disaster.
- 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.

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- 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:
 - 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 detoxication 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.

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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
 - Private hospitals
 - Blood banks
 - General hospitals and
 - Health services established at transit camps, relief camps and affected villages.
- Maintain checkposts 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.

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- 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.

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)
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

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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.
 - 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.

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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.

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
- Mirror

Suggested Rodent Surveillance Equipment and Supplies

- Teaching aids
- Transfer bags
- Plastic bags
- Vials
- Plastic cups
- Alcohol
- Rubber bands

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- 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
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

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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
Dusters (hand-operated, plunger type)	50
Dusters (power-operated)	2
Space sprayer	1

Adequate supply of accessories and spare parts for the above equipment

○ Insecticides:

DDT, technical powder	0.5 tons
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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

a Quantity depends on availability and on distribution points*

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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

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- Monitor flood situation
- 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, rockfalls, etc.

Relief and Rehabilitation

- 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.

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- 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.
- 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.

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- 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 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.

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- 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 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.
- 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

- 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:
 1. Hydrogen-ion concentration. The optimum pH value for coagulation is the value that the best floc 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

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 DDMA 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 DDMA should be communicated to the community to prevent extensive loss of livestock.

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Action Plan Objective in a Disaster Situation

- Treatment of injured cattle.
- 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.

District Disaster Management Plan 2012, Kinnaur (H. P.)

- Establish work schedules to ensure adequate staff are available round the clock.
- Set up teams for visiting disaster site.

Relief and Rehabilitation

- 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.

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- 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.
- 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.

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

Operating procedure guidelines for PWD 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 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 DDMA 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 DDMA

- 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.

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- 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.
- 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.

District Disaster Management Plan 2012, Kinnaur (H. P.)

- 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**.
- 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.

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- 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

District Disaster Management Plan 2012, Kinnaur (H. P.)

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
 - 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.

District Disaster Management Plan 2012, Kinnaur (H. P.)

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

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- Review the total extent of the damage to power supply installations by reconnaissance flight, if possible.

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.

District Disaster Management Plan 2012, Kinnaur (H. P.)

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 DDMA 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 DDMA

- 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.

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- Appoint one officer as “NODAL OFFICER – Agriculture” 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 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

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- Ensure that the adequate conditions through cleaning operations are maintained to avoid water-logging and salinity in the 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 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.

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

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	Number

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- Elderly (above 60) - Disabled (b) Death/Reports of starvation (c) Orphans (d) Injured (e) Missing (f) Homeless - Number of people - Number of families (g) Displaced/Migrated (h) Evacuated (i) Destitute (j) Need of counseling for traumatized population	Yes/No
11. Building (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 - Gravity of the damages (e) Number of hospitals and Health Centers affected - Gravity of the damages (f) Number of Government buildings affected - Gravity of the damages (g) Any other building affected - Gravity of the damages	Number Scale 1 to 5 where 1 is no damages and 5 is completely destroyed
12. Infrastructure (a) Road Damaged/destroyed - Scale of the damage - Location - Km (b) Railways damaged - Location - Km - Is the railway still working (c) Bridges damaged/collapsed - Locality - Villages isolated (d) Damages to the Communication Network (e) Damages to the Electricity Network (f) Damages to the Telecommunication Network	Scale 1 to 5 where 1 is normal and 5 is completely destroyed/washed away Yes/No Yes/No Yes/No and scale of the damages Scale 1 to 5 where 1 is no damages and 5 is completely destroyed
13. Health Facilities	Number Scale 1 to 5 where 1 is no damages and 5 is

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(a) Infrastructure damaged - Hospitals - Health Centers - Vaccination Centers (b) Availability of Doctors - In the area - In the district (c) Availability of Paramedical staff - In the area - In the district (d) Local Staff affected - Doctors - Paramedical Staff (e) Conditions of equipments Specify which equipments (f) Availability of medicines/drugs - Typology (g) Availability of Vaccinations - Typology (h) Any immunization campaign was undertaken before the disaster (i) Possibility of diseases outbreak (j) Other health problems	completely destroyed Number Number Number Scale 1 to 5 where 1 is no damages and 5 is completely destroyed Yes/No Yes/No Yes/No Yes/No List
14. Water Sanitation (a) Availability of safe drinking water (b) Availability of sanitation facilities (c) Availability of Disinfectant - 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	Yes/No Yes/No Yes/No Scale 1 to 5 where 1 is no damages and 5 is completely destroyed Yes/No List
15. Crops/Agriculture Damage (a) Crop Damaged - 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	Mm Number Yes/No

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(d) Availability of Health services for livestock (e) Cattle feed/folder availability (f) Damage to agriculture infrastructure	Number Tonnes Scale 1 to 5 where 1 is no damages and 5 is completely destroyed
16. Food/Nutrition (a) Availability of food/stocks (1) Family (2) Relief (3) PDS (4) Community Kitchen (b) Expected duration of the food stock (c) Most affected groups - Infant - Children - Pregnant and lactating mothers - Elderly (d) Where are the different groups located? (e) Levels of malnutrition? (f) Type of food required (g) Total quantity/ration levels required (h) How is the food supply and nutrition situation likely to evolve in coming weeks/months?	Yes/No Kg Tonnes Tonnes Kg Days To be ticked Days To be ticked
1. 15.Secondary Threats (a) Potentially hazardous sites (b) Existence of epidemics (c) Scarcity of Food (d) Scarcity of Water (e) Scarcity of Shelter (f) Scarcity of Clothes (g) Any other problem	List
16. Response (a) <u>Local:</u> Govt./NGOs/CSOs/Individuals Type of assistance (b) <u>National:</u> Govt./NGOs/CSOs Type of assistance (c) <u>International:</u> Govt./NGOs/CSOs Type of assistance	To be ticked Description To be ticked Description To be ticked Description

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(g) Disinfestations of water body (h) Manpower for carcass disposal 1.2 Health: (a) Medical staff (b) Medicines(specify) (c) IV fluid (d) ORS (e) Vitamin A (f) Vaccines (g) Mobile units(quantity to be specified) (h) Cold chain system 1.3 Education: (a) Infrastructure temporary / permanent (b) Teachers (c) Teachers kits (d) Reading materials (e) Availability of mid-day meal Crop/Agriculture (a) Need of seeds (b) Fertilizer , Pesticide (c) Type of Seed required (d) Availability of local variety (e) Availability of resources Infrastructure: (a) Repair of roads (b) Repair of railways and bridges (c) Power Supply (d) Telecommunication (e) Equipments required for restoration (f) Manpower required	List Yes/No and specify location Yes/No and specify location List Number of Man days
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- **Observation:**
- **Source of information:**
- **Site Visit:**
- **Interaction with affected population:**
- **Assessment Carried By:**

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
house 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 (NATURAL 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