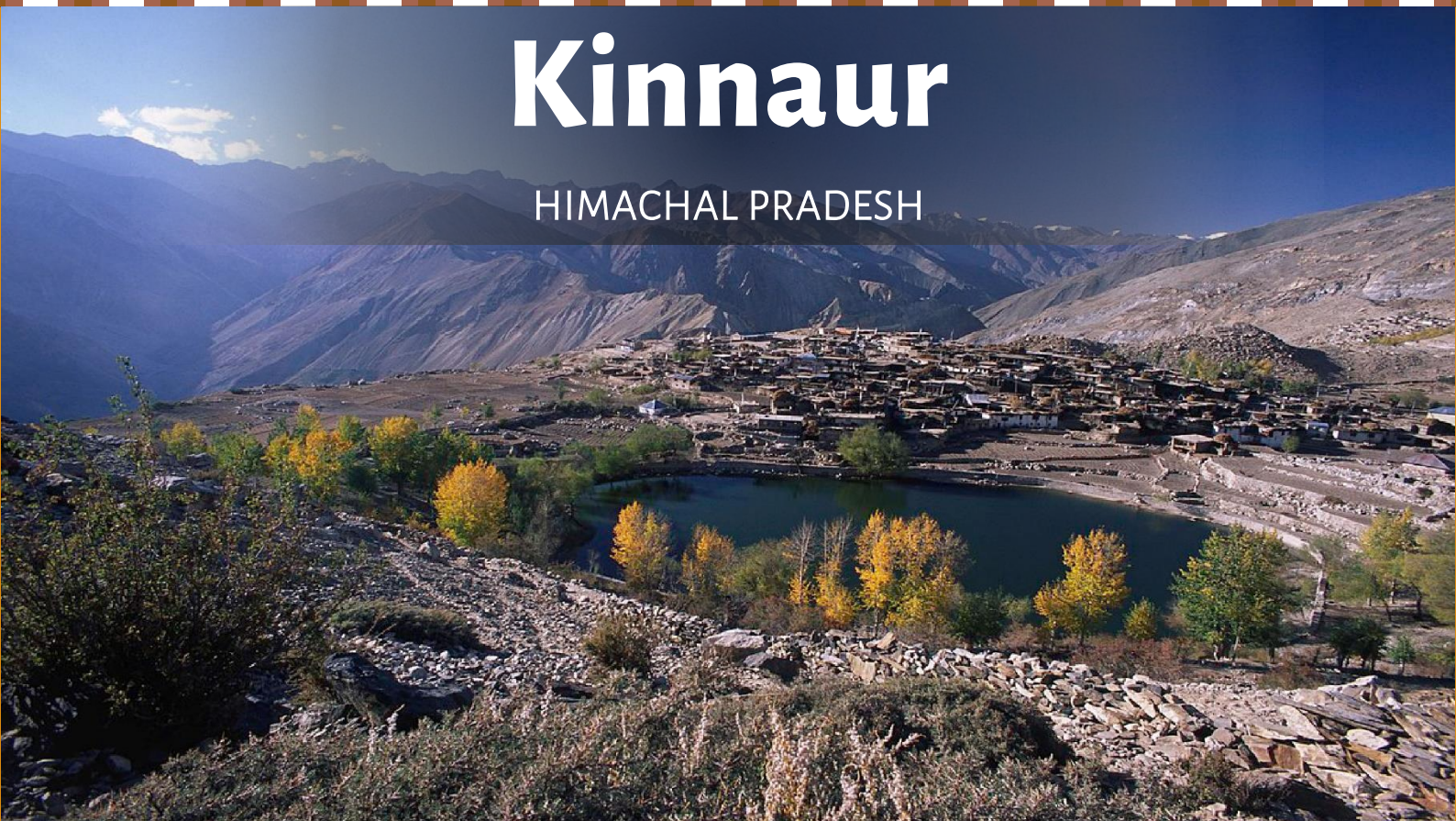




DISTRICT DISASTER MANAGEMENT PLAN

Kinnaur

HIMACHAL PRADESH



Abbreviations:

ARMVs	Accident Relief Medical Vans
BIS	Bureau of Indian Standards
CBOs	Community Based Organizations
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
DOC	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
CCF	National Calamity Contingency Fund
NDEM	National Database for Emergency Management
NDMA	National Disaster Management Authority
NDMF	National Disaster Mitigation Fund
NDRF	National Disaster Response Force
NEC	National Executive Committee
NGOs	Non-Governmental Organizations
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 Search and Rescue

SASE	Snow and Avalanche Study Establishment
SCMC	State Crisis Management Committee
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Force
SEC	State Executive Committee
SOPs	Standard Operating Procedures
UN	United Nations
L0 Disaster	Disaster which can be managed at the District Level.
L1 Disaster	Disaster which can be managed at the State Level.
L2 Disaster	Disaster which is beyond the coping capacity of state and Intervention of National Govt. is required.

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CHAPTER 1

INTRODUCTION

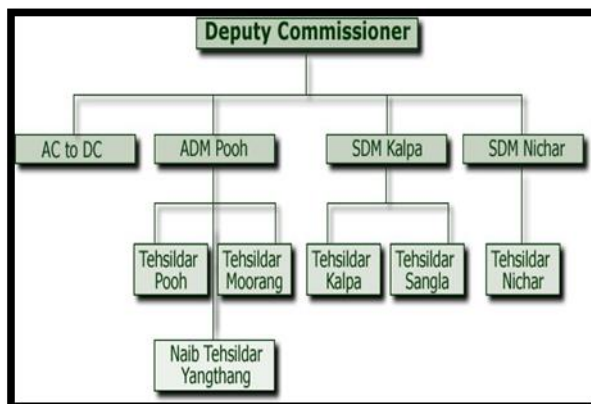
The **Kinnaur** district is one of the twelve administrative districts of Himachal Pradesh. This district is given the special status of tribal district as schedule 5 area under the constitution of India. The district came into existence on 1st May 1960. Earlier it was a part of Mahasu district.

Under the DM Act 2005, it is mandatory on the part of District Disaster Management Authority (DDMA) to adopt a continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary and expedient for prevention as well as mitigation of disasters. These processes are to be incorporated in the developmental plans of the different departments and preparedness to meet the disaster and relief, rescue and rehabilitation thereafter, so as to minimize the loss to be suffered by the communities and are to be documented so that it is handy and accessible to the general public.

Kinnaur district introduced ‘Single Line Administration’ in April 1988 which was practiced till July 1996, and it was reintroduced in September 1998. Under this system, Deputy Commissioner is conferred Powers of Head of Departments in the district.

Kinnaur is bound by Tibet and Uttaranchal on the east, Shimla district in south-west, Kullu and Lahaul-Spiti district in the north-west. The district headquarter is located at Reckong Peo and its 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.



1.1 Aim and Objectives of Plan:

Aim

The overall aim of this plan is to facilitate actions by different stakeholders to prevent / mitigate disaster and climate risk, and enhance preparedness and develop capacities for effective disaster management in the district. It further seeks to identify and clarify the roles and responsibilities of the internal and external stakeholders throughout the entire cycle of disaster management, i.e. pre-disaster, during disaster and post disaster phases.

Objectives of the DDMP:

The specific objectives of the DDMP are:

- To identify and map disaster risk,
- To strengthen institutional arrangements in the district by identifying roles and responsibilities of different stakeholders,
- To facilitate enhanced level of preparedness of different stakeholders and develop their capacities, preparation and implementation of action plan for disaster risk mitigation, strengthen mechanism for early warning, response & relief, guide rehabilitation & recovery and facilitate mechanism for monitoring, evaluation, revision and updation.
- To clarifying Authority, Responsibility and Relationships: - Clarifying as to who is responsible for ensuring that the work gets done, distributing and decision making authority among the team members and the existing organizational units, and establishing formal lines of communication.
- Obtaining Resources: - Obtaining funds, personnel, supplies and equipment necessary for doing the required activities.
- Establishing the Control System: - Determining the nature of information, which is necessary for carrying out activities, identifying sources of such information and setting up reporting systems for Disaster Management
- Monitoring, Evaluation and Updation: - The plan needs to be monitored from time to time and updated.

The District Disaster Management Plan (DDMP) is the guide for achieving the objective related to disaster mitigation, preparedness, response and recovery. This Plan will help in disaster response in a planned way to minimize human, property and environmental loss.

1.2 Authority and Reference:

On 23rd December, 2005, the Government of India took a defining step by enacting the Disaster Management Act, 2005, which envisaged creation of Authorities at all three levels as below:

- National Disaster Management Authority (NDMA),
- State Disaster Management Authorities (SDMA),
- District Disaster Management Authorities (DDMA).

Section 31. (1) mentions that there shall be a plan for disaster management for every district of the State and Section 31. (2) states that the District Disaster Management Plan shall be prepared by the District Authority, after consultation with the local authorities and having regard to the National Plan and the State Plan, and the same will be approved by the State Authority. As per “Section 25” the Constitution of District Disaster Management Authority was done on 01.06.2007. The provisions of the “Section 30, Sub Section 02, (i)” of the act state that the District Authority may prepare a disaster management plan including district response plan for the district and according to (xv) it may prepare, review and update district level response plan and guidelines.

The District Plan shall be reviewed and updated annually. The copies of the District Plan referred to in sub-sections 31(2) and 31(4) shall be made available to the Departments of the Government in the district. The District Authority shall send a copy of the District Plan to the State Authority which shall forward it to the State Government. The District Authority shall, review from time to time, the implementation of the Plan and issue such instructions to different departments of the Government in the district as it may deem necessary for the implementation thereof.

1.2 Evolution of the DDMP in brief:

Preparation of the District Disaster Management Plan is the responsibility of the District Disaster Management Authority of the district. The first draft plan is to be discussed in the DDMA.

The main steps involved in the development of this plan are:

- Data collection from all line departments
- Data analysis
- Discussion with experts
- Reference of national and international literature

- Preparation of action plans for all line departments
- Preparation of draft plan document
- Mock drill to check the viability and feasibility of the implementation methodology
- Wide circulation for public and departmental comments
- Preparation of the final plan document

1.4 Stakeholders and their responsibilities: -

Following is the detailed list of stakeholders involved in Disaster Management in India at various levels:

	Stakeholders	Responsibilities
1.	NDMA	<ul style="list-style-type: none"> • To provide guidance and support for implementation of policies and plans related to disaster management. • To deploy NDRF on request by DDMA • To coordinate and monitor with the state for the implementation of the policies and plans related to Disaster management. • Facilitate mobilization and deployment of specialized resources on request by the DDMA / HPSDMA.
2.	HPSDMA	<ul style="list-style-type: none"> • To approve the DDMP • To provide guidance and direction for preparation, revision, updation and implementation of the DDMP • To issue and provide disaster management guidelines • To support mitigation, response, rehabilitation, and capacity building actions • Monitor and evaluate implementation of the DDMP • To coordinate with NDMA, MHA and other stakeholders for implementation of the DDMP • Coordinating DRR activities and implementation thereof. • Facilitating resources on demands rise by administration.
3.	DDMA Mandi	<ul style="list-style-type: none"> • Annual updation of DDMP • Facilitate and coordinate implementation of DDMP • Building capacity by trainings and awareness • Managing all resources at district level • Coordinate and liaise with stakeholders

		<ul style="list-style-type: none"> • Coordinate with local authorities for implementation of DDMP
4.	DEOC Mandi	<ul style="list-style-type: none"> • System to collect, receive, and report and status of victims and assist family reunification • Enable local authorities to establish contact with the state authorities • Coordinate planning procedures between district, the state and the center • Provide ready formats for all reporting procedures as a standby.
5.	Police Department	<ul style="list-style-type: none"> • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • 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.
6.	Home Guards	<ul style="list-style-type: none"> • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • support the primary agencies in responding during the incident • Establish, maintain and manage search and rescue response system; • Coordinate search and rescue logistics during field operations; • Provide status reports of S&R updates throughout the affected areas.
7.	Health and Family Welfare	<ul style="list-style-type: none"> • To implement action plan for disaster risk mitigation in hospitals and other health infrastructures • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • To coordinate, direct and integrate State level response and activation of medical personnel, supplies and equipment • Provide human services under the Department of health • To prepare, keep and check ready Mobile Hospitals, stocks of equipment and drugs • To network with private health service providers • To provide resources for mass level water decontamination
8.	HPSEB Ltd.	<ul style="list-style-type: none"> • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Provide and coordinate with State and support until the local authorities are prepared to handle all power related problems • Identify requirements of external equipment required such as DG sets, generators etc • Damage Assessment

9.	Irrigation & Public Health	<ul style="list-style-type: none"> • To implement departmental action plan for disaster risk mitigation • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Ensure adequate sanitation and drinking water facilities • Ensure special care to the vulnerable communities
10.	Municipal Council	<ul style="list-style-type: none"> • To prepare and implement DM Plan for Municipal council • To enhance the level of municipal preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Land Usage planning • Solid/ liquid waste treatment and management • Make arrangement for proposal disposal of waste in their respective areas; • Arrange adequate material and manpower to maintain cleanliness and hygiene
11.	H.P PWD	<ul style="list-style-type: none"> • To implement departmental action plan for disaster risk mitigation • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Emergency clearing of debris to enable reconnaissance; Clearing of roads • 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 equipment Cranes etc. • Construct temporary roads; Keep national and other main highways clear from disaster effects such as debris etc. • Coordination with private services providers for supply of earth moving equipment etc.
12.	Rural Development	<ul style="list-style-type: none"> • To implement departmental action plan for disaster risk mitigation • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Make arrangement for proposal disposal of waste in their respective areas; • Arrange adequate material and manpower to maintain cleanliness and hygiene.
13.	BSNL Other Network	<ul style="list-style-type: none"> • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Coordination of national actions to assure the provision of telecommunication support to the state and district; • Coordinate the requirement of temporary telecommunication in the affected areas.
14.		<ul style="list-style-type: none"> • To implement departmental action plan for disaster risk mitigation

	Food and Public Distribution	<ul style="list-style-type: none"> • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Identify 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; • Ensure that all food that is distributed is fit for human consumption.
15.	Transport	<ul style="list-style-type: none"> • To implement departmental action plan for disaster risk mitigation • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Overall coordination of the requirement of transport in implement emergency related response and recovery functions, search and rescue and damage assessment; • Make an inventory of vehicles available for various purposes;
16.	Department of Public Relations	<ul style="list-style-type: none"> • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • To provide and collect reliable information on the status of the disaster and disaster victims for effective coordination. • Coordinate with all TV and radio networks to send news flashes for specific do's, don'ts & needs. • Respect the socio-cultural and emotional state of the disaster victims while collecting information for dissemination.
17.	Department of Animal Husbandry	<ul style="list-style-type: none"> • To implement departmental action plan for disaster risk mitigation • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Treatment of animals (Domestic and Wild); • Provision of vaccination; • Disposal of dead animals;
18.	Forest department	<ul style="list-style-type: none"> • To implement departmental action plan for disaster risk mitigation • To enhance the level of departmental preparedness for emergency response • Ensure action as per assigned responsibilities under emergency support functions assigned as per this plan • Prevent, mitigate risk of forest fires and provide emergency support functions • To keep the department prepared for supporting the DDMP • Removal of fallen trees and Forestation or shifting of trees. • To provide fuel wood for the relief camps and public; • Have adequate storage of fuel wood and make arrangement for distribution thereof;

		<ul style="list-style-type: none"> • To provide fuel wood for cremation.
19.	NDRF, Nurpur Armed Transit Camp at Pandoh	<ul style="list-style-type: none"> • Ensure action as per assigned responsibilities under emergency support functions • Carrying out search and rescue on requisition by District as well as state administration. • Strengthening the response mechanism through trainings and awareness. • Coordinate with administration in response as well as capacity building. • Facilitate administration with the key resources in disaster.
20.	Revenue	<ul style="list-style-type: none"> • Ensure action as per assigned responsibilities under emergency support functions • Training of Patwaris and field kanugo's with reference to disaster. • Gathering damage report from the ground through PRI's and patwaris. • Implementation of VDMP's
21.	Urban Develop- ment and Rural Develop- ment (Sanitation / Sewerage Disposal)	<ul style="list-style-type: none"> • Make arrangement for proposal disposal of waste in their respective areas; • Arrange adequate material and manpower to maintain cleanliness and hygiene.

5 How to use the Plan:

The DDMP framework is to be used as per the organizational structure existing at district, Block, Gram Panchayat, Municipality and community level. The plan outlines the preparedness and mitigation measures for the various organizations and institutions within the district to be followed during the non- emergency period of the disasters as well as to prepare oneself for the crisis that may arise during any emergency. DDMP thus helps in meeting the crisis at the lowest level with least loss of life and damage to property. The annexure of the plan provides the important and necessary contact details of the stakeholders at national, state and district level upto panchayats.

1.6 Approval Mechanism of the plan:

Authority for implementation. As per Section 31(2) of the Disaster Management Act 2005, there shall be a plan for disaster management for every district of the State. The District Plan shall be

prepared by the District Authority, after consultation with the local authorities and having regard to the National Plan and the State Plan, to be approved by the State Authority.

1.7 Plan review and updation:

Periodicity as per Section 31(4) The District Plan shall be reviewed and updated annually. Also, as per Section 31(7) The District Authority shall, review from time to time, the implementation of the Plan and issue such instructions to different departments of the Government in the district as it may deem necessary for the implementation thereof.

1.8 Training:

After developing a plan, it must be disseminated and managers must be required to train their personnel so that they have the knowledge, skills and abilities needed to perform the tasks identified in the plan. Personnel should also be trained on the organization-specific procedures necessary to support those plan tasks.

1.9 Exercise the Plan:

Evaluating the effectiveness of plan involves a combination of training events, exercises and real-world incidents to determine whether the goals, objectives, decisions, actions and timing outlined in the plan led to a successful response. The purpose of an exercise is to promote preparedness by testing polices plans and training personnel.

1.10 Revise and Maintain:

Planning teams should establish a process for reviewing and revising the plan. Reviews should be a recurring activity. Review on an annual basis is considered minimum. It should be mandatory to consider reviewing and updating the plan after the following events:

- i. A major incident.
- ii. A change in operational resources (e.g., policy, personnel, organizational structures, Management processes, facilities, equipment).
- iii. A formal update of planning guidance or standards.
- iv. Each activation.
- v. Major exercises.
- vi. A change in the district 's demographics or hazard or threat profile.

vii. The enactment of new or amended laws or ordinances.

The responsibility for the coordination of the development and revision of the basic plan, annexes, appendices and implementing instructions must be assigned to the appropriate person(s).

CHAPTER 2

HAZARD, VULNERABILITY, CAPACITY AND RISK ASSESSMENT

2.1 District Kinnaur – An Introduction

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 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 namely Lipa-Asrang, Rakchham-Chhitkul and Rupi-Bhaba. Ibex, Yak, Goral, Blue Sheep, leopard, Musk-Deer, Himalayan Black bear etc. are found in these sanctuaries.

2.2 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.

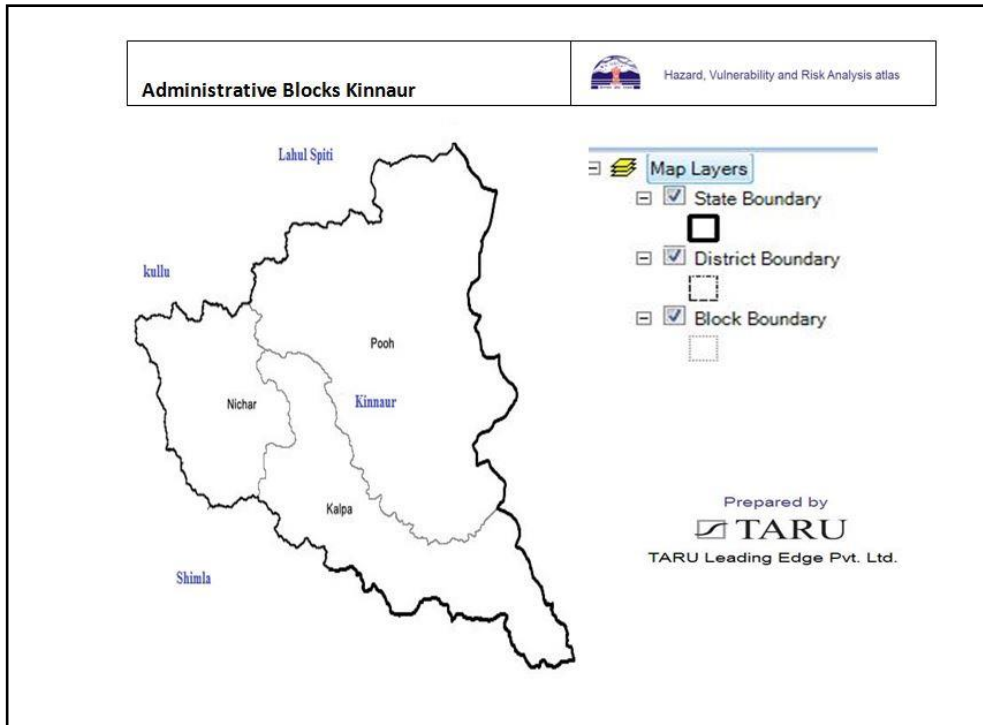


Figure : Administrative Map of Kinnaur District

2.3 Socio economic profile of the district

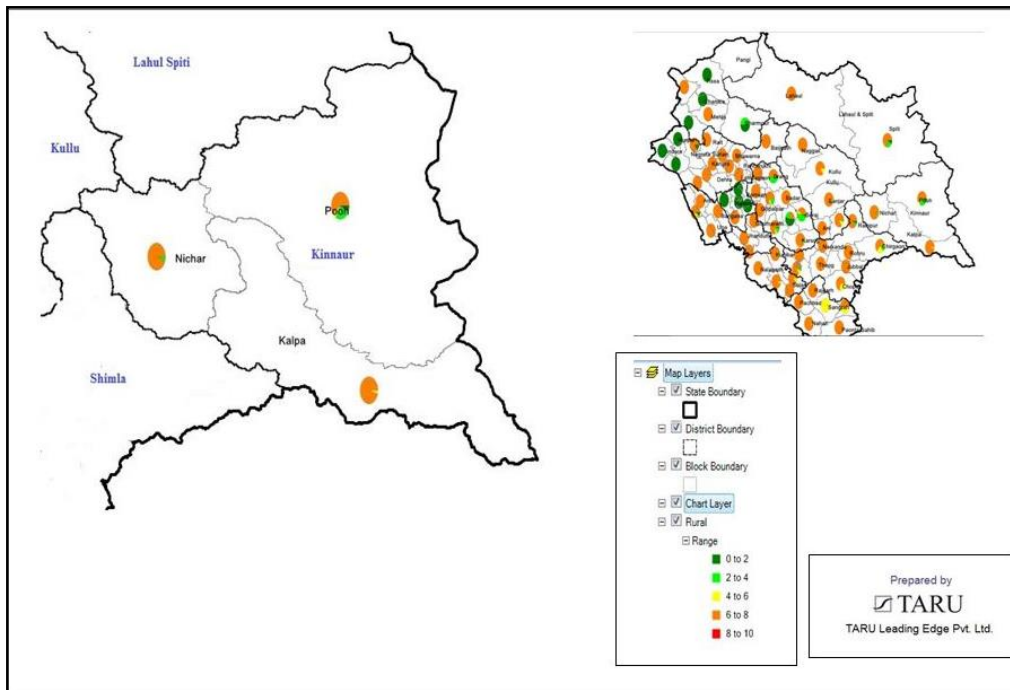


Figure : Representing the Socio Economic Profile of District Kinnaur

Population As per 2011 Census	
Male	46,249
Female	37,872
Rural	84,121
Urban	NIL
Sex Ratio	819 (No. of females per 1000 males)
0-6 population	Total = 7987: Male – 4090; Female – 3897
Density of Population	13 per sq. km.

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

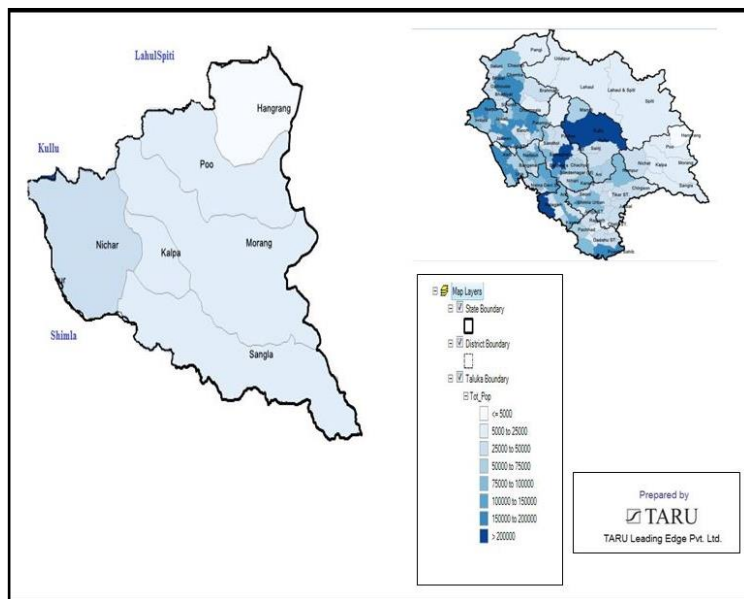


Figure: Population Map

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

Population Tehsil Wise

Tehsil	Male	Female	Total
Hangarang (ST)	2390	2269	4659
Pooh	4681	3628	8309
Moorang	5403	4835	10238
Kalpa	10321	8869	19190
Nichhar	15463	12220	27683
Sangla	7991	6051	14042
	Total		84121

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
Villages (2001)	660 (234 Habited and 426 un-habited); average population = 335/habited village;

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

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.

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

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

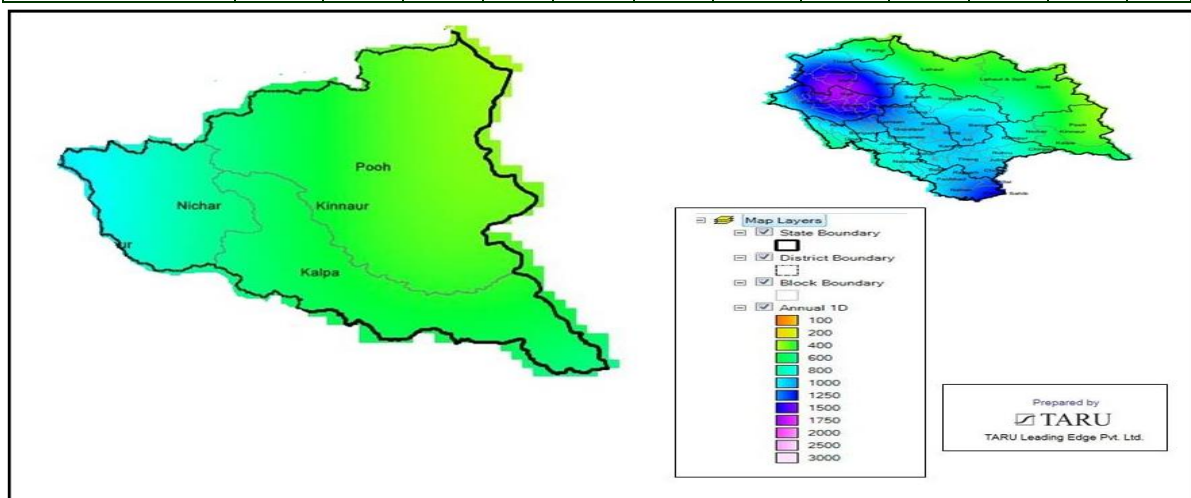


Figure: Annual Rainfall Map

2.4 Hazard, Risk, Vulnerability and Capacity Analysis

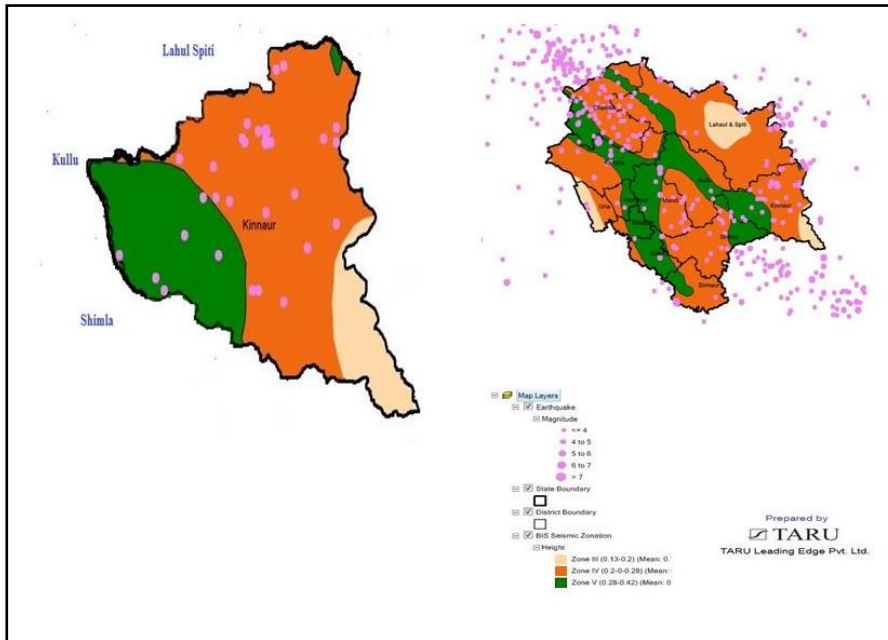
The unique Geo Climatic conditions of the District make it vulnerable to various kinds of natural hazards/disasters which have been compounded by increasing human interventions with the nature. There is need to identify and delineate the Hazard Risk zones of the District (areas vulnerable to various hazards) which will provide the necessary information to work on micro-level and to map the active and dormant processes of the hazards. The disasters, which generally occur in this district and its various areas prone/vulnerable to various kinds of disasters, are as under:

Hazard Type	Name of Sub-Division & Hazard Vulnerability		
	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

District Kinnaur located on the folds of the Himalayas lies in the earthquake Zone IV and is highly prone to earthquakes.

2.5 Risk Analysis of Kinnaur District:

2.5.1 Earthquakes:



District Kinnaur lies in western part of young folded mountains of Himalayas which are still instable. The district falls in seismic zone 4 and 5 High damage risk zone (MSK VIII) and very High damage risk zone (MSK IX or more) respectively. As per the recorded history of earthquakes the district has

Figure: Depicting the seismic zonation and History of Past Earthquakes in district Kinnaur been hit by more than 12 times by earthquakes having magnitude of 4.0 and above.

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

2.5.2 Physical Vulnerability:

As per the housing statistics contained in the table below, 76.7% of the building stock of the district falls in Category A which is highly susceptible to earthquake damage. Majorly the houses constructed in district are wooden which are highly vulnerable to fire hazard resulting due to earthquake shaking.

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	II	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	Rural	32,535	78.5									

Weight Sloping Roof												
R1-Light Weight Sloping Roof	Urban											
Weight Sloping Roof	Total	32,535	78.5		M					H		
R2-Heavy Weight Sloping Roof	Rural	5,099	12.3									
R2-Heavy Weight Sloping Roof	Urban											
Weight Sloping Roof	Total	5,099	12.3		M					L		
R3-Flat Roof	Rural	3,819	9.2									
R3-Flat Roof	Urban											
	Total	3,819	9.2	<i>Damage Risk as per that for the wall supporting it</i>								

TOTAL BUILDINGS 41,453

Probable Maximum Precipitation at a station of the district in 24 hrs is 720mm

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

The community living in this areas is oblivious to the great threat of earthquake in the regions. The community is neither aware nor prepared. Administration is trying to strengthen the preparedness of the community to enable them cope with various disasters. Kinnaur has about 2594 number of people living 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. The SC and ST population comprises of 59% (with SC population of 14750 and ST of population 48746) of the total population and these communities are more vulnerable as a result of marginalised social status. These groups generally get excluded from various programs and become more vulnerable due to their social status. Further children and women are at higher risk during the disasters due to their dependence on others.

Table: Detail of Disabled person in District Kinnaur

Type of disability	Total disabled	Rural	Urban	Rural			Literates	
				Gents	Ladies	Total	Gents	Ladies

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Blind	1,395	1,395	-	769	626	801	522	279
Dump	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

2.5.4 Floods:

a) Flash Floods:

District Kinnaur have been witnessing many developmental activities in recent years and hydroelectric projects is one of them. Accelerated runoff dam failure, have raised the hazard of flash floods. Glacial melting due to global warming is another major cause of flash floods as the major glaciers in the higher hill tops are receding at an alarming rate due to natural anthropogenic reasons. Heavy rains and floods cause damages to cultivated land of the farmers and wash away the bridges, human beings and cattle heads.

Table below explains various flash flood in district Kinnaur and its impact

Date	Impact
29 th Sept. 1988 a flash flood occurred due to cloud burst in Soldang Khad.	<p>Caused heavy loss of life and property in the Soldng village.</p> <ul style="list-style-type: none"> • 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.

	<ul style="list-style-type: none"> • 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	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.
24 Feb 1993	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.
4 th and 5 th September	Another flash flood occurred in two phases along Duling Khad on 4 th and 5 th September causing extensive damage in Tapri, district Kinnaur.
First flash flood occurred on 4 th September 1954 at 2 p.m. After cloudbursts in the upper catchments of Duling. Another flood came at 6 a.m. and 9 a.m. on 5 th Sept. 1995	<ul style="list-style-type: none"> • 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

bursting the lake formed during the previous cloudbursts.	<p>buses.</p> <ul style="list-style-type: none"> • 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 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 and 8 jeep able bridges 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.

b) River Floods: A river flood is also one of the major threats in district Kinnaur. Satluj is the main river flowing in the district which has witnessed flood in the past.

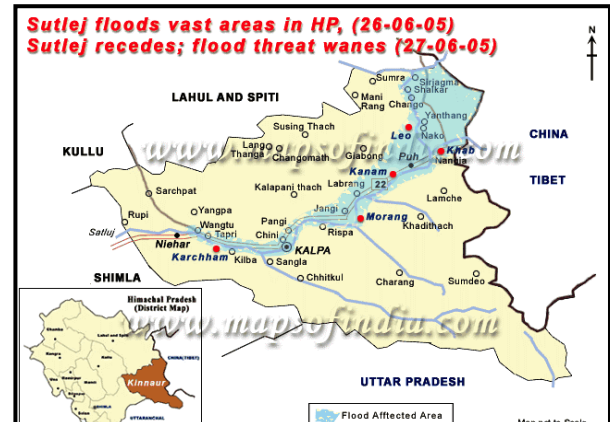


Figure : Critical Infrastructure along the River Course

Factors affecting degree of danger:

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

The river Satluj enters from Tibet at Shiplika into Kinnaur and forms confluence with its tributary River Spiti at Khab Bridge. Sutlej is joined by many of its tributaries namely Parchhu Nalla, Spiti River, Tithang Nalla,

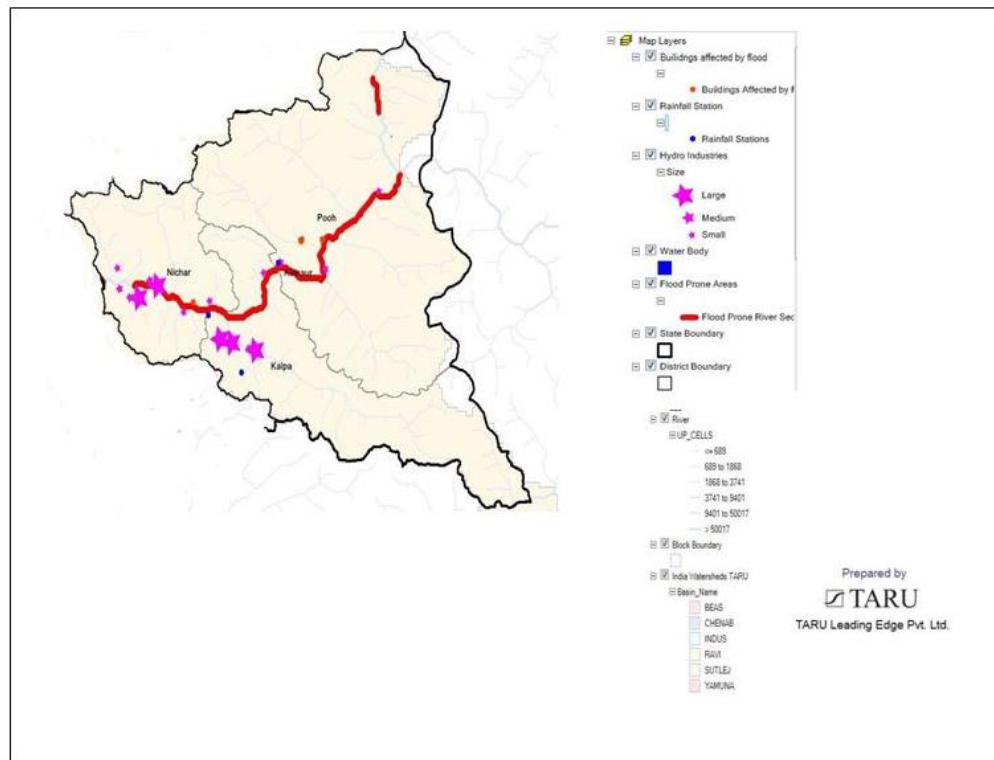
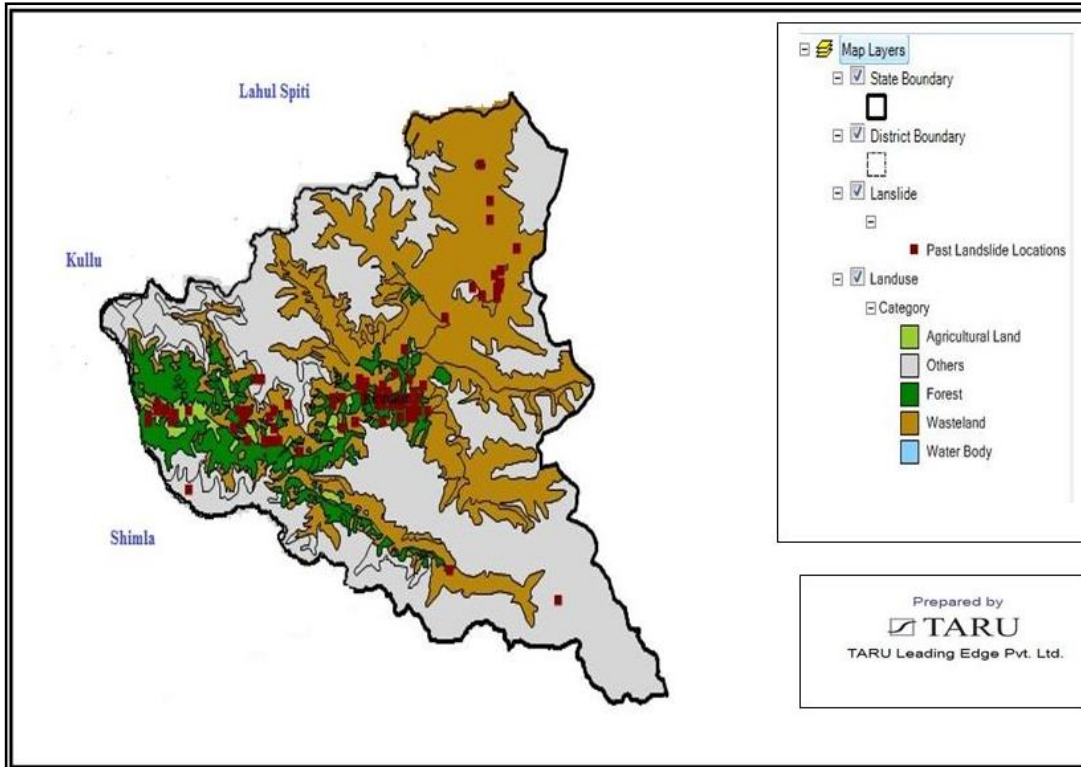


Figure: Flood Map of District Kinnaur

Tinku Nalla. 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.

2.5.5 Landslides: 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 Land sliding, Slumping/Creeping, Rock fall, Shooting Stones, etc. Landslides are the



downslide movement of soil, debris or rocks, resulting from natural cause, vibrations, overburden of rock material, removal of lateral supports, and

change in **Figure: Landslide Map of District Kinnaur**

the water content of rock or soil bodies, blocked drainages

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 Hindustan-Tibet Road and other link roads connecting the villages

of the district. Few major landslides which occurred in the district are *Malling landslide, Dubling landslide, Spillow landslide, Khadra Dhaank landslide, Lippa landslide, Pangi Nala landslide, Powari landslide, Sapni landslide, Brua landslide, Kuppa landslide, Urni landslides, Sholding landslide, Nathpa 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.

2.5.6 Landslide Hazard of the District:

The geographical nature of Kinnaur is very steep. Table below gives description of important landslides in the State and it contains landslide of Kinnaur too. Landslides are the downslide movement of soil, debris or rocks, resulting from natural cause, vibrations, overburden of rock material, removal of lateral supports, and change in the water content of rock or soil bodies, blocked drainages etc.

Sr. No.	Landslide Area	History of Damage
1	Maling (1968).	This slide damaged 1 Km NH-22 and is still active.
2	Sholding (Dec.1982)	This occurred at Sholding nala collapsing 3 bridges and 1.5 of road was vanished.
3.	Urni	Damage to NH-05

2.5.7 Snow Avalanches:

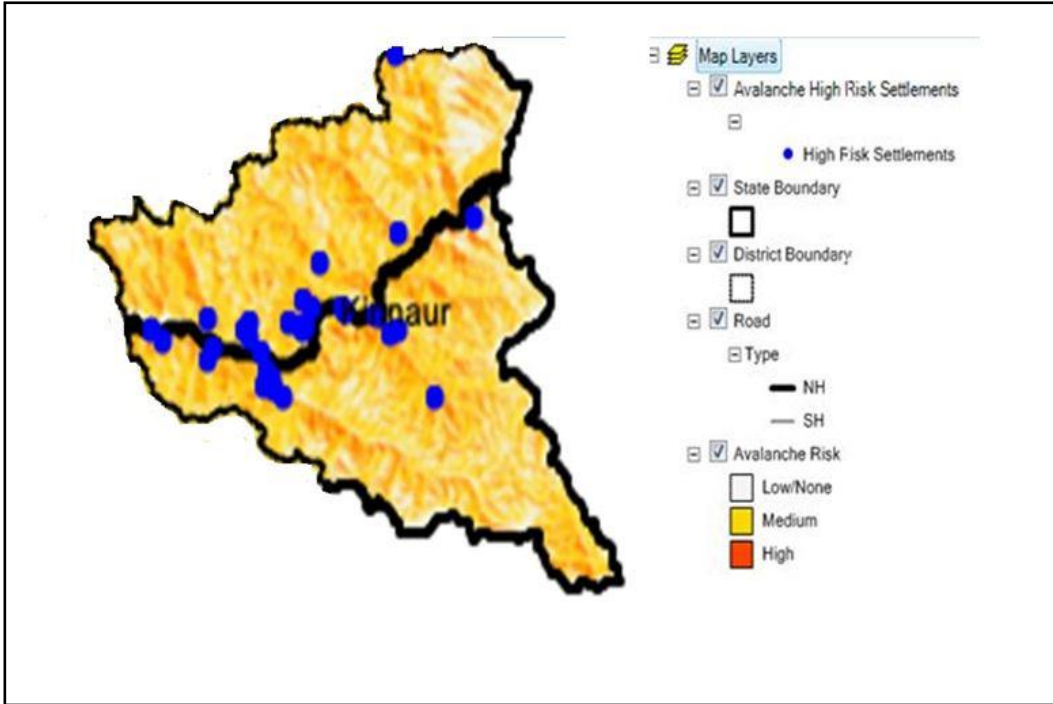


Figure: Showing Avalanche Risk map of Kinnaur and High Risk Settlements

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. As per the report prepared by Taru the major flash points of avalanches are: ***Bhagat Nalla, Tinku Nalla, Pyala Nalla (Jangi) and Ralli on the National Highway-22.*** The types and scale of avalanches can differ depending on the combination of the various factors and their scale. They are common in elevations of more than 3500 m on slopes of 30o-45°.Convex slope covered with grass are more prone to avalanches causing great damage to life and property. The villages at high altitudes and army and para-military camps are frequently hit by this form of natural calamity.

2.5.8 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

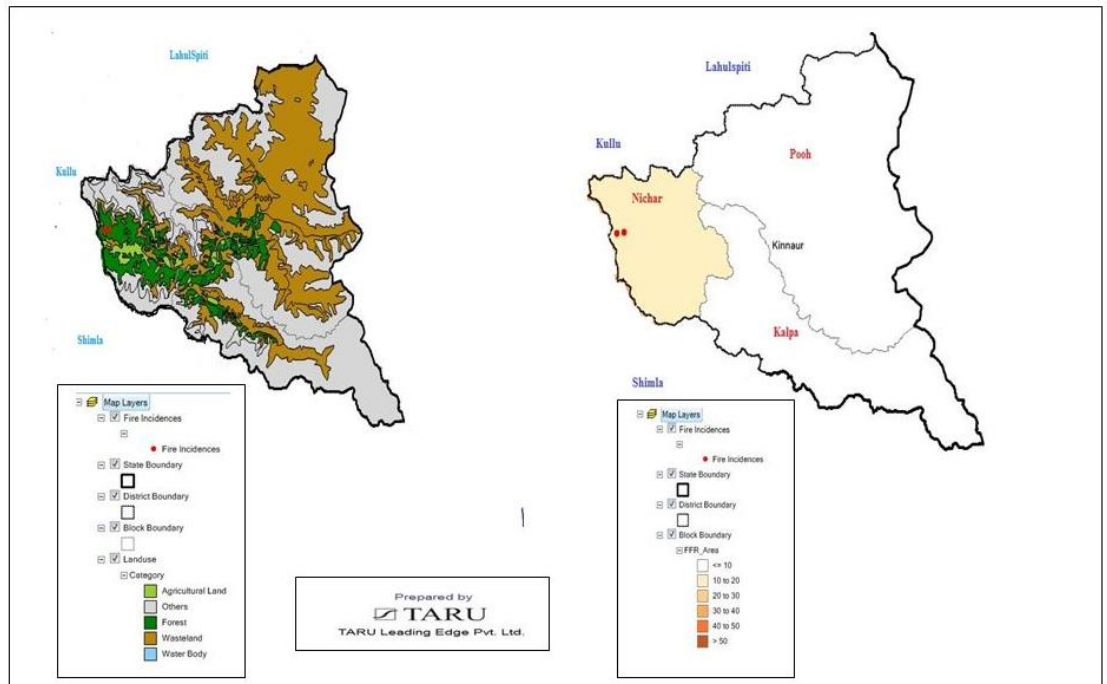


Figure: Fire Map of the district

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. In year 2016 District witnessed major forest in Dhar Wadang, Ribba, and Purbani area. Home Guard, Local volunteers and forest guard were deployed to control forest fire.

a) 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 sloppy 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 of 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 sloppy 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 table below depicts the two major fire incidence in District Kinnaur.

Table: Past Fire Incidents in Kinnaur

Sr . No	Village	Date	Impact
1.	Rakchham	18th November, 2002	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.
2.	Buar	4th April 2009	40 wooden houses were totally burnt along with the belongings in the fire accident. An estimated loss of Rs. 3 crores was reported in the incident.

2.5.9 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 fires 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: - Incidents related to Fire Disaster in Kinnaur

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
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

2.5.10 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 recurving 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.

2.5.11 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.

2.5.12 Road Accidents:

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.

2.5.13 Retreat of Glaciers in the Himalayas and threat of GLOFs

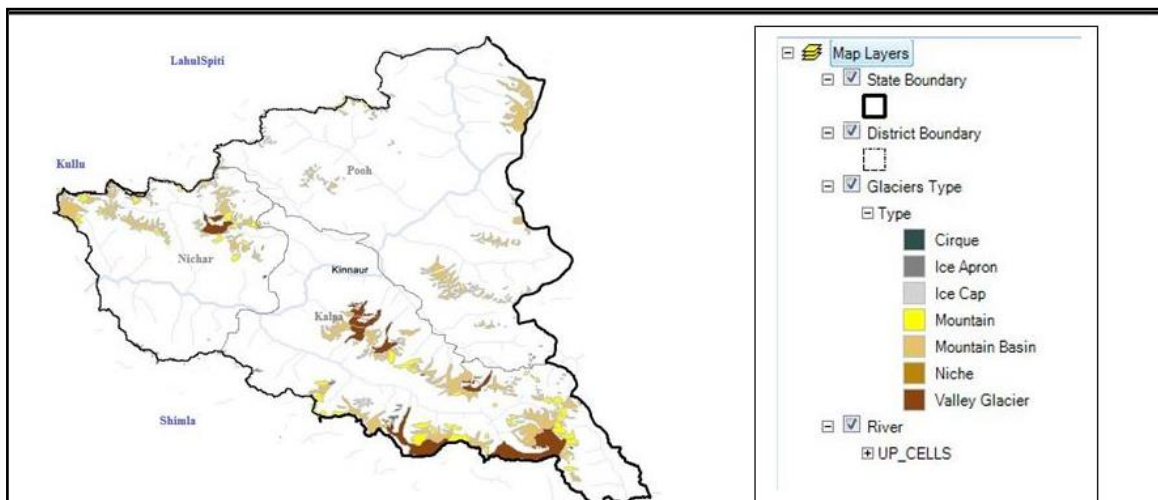
There are almost 3,300 glaciers in the Nepalese Himalayas and 2,300 of them contain glacial lakes. These lakes are quietly growing because of rising temperatures, which is a major threat to the district. The retreating glaciers would also disturb the water cycle of the Himalayas and cause

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 as per the details given in table below :-

Table: 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

Figure Glacier type maps of Kinnaur



District

Prepared by
TARU
 TARU Leading Edge Pvt. Ltd.

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.

2.5.14 Drought

The slowest of all hazards and that can be reverted with various measures. Moisture retention and drought proofing to mitigate, preparing contingency plans and operationalization are some measures against droughts. It can lead to shortage of water, loss to agriculture, and horticulture crops, power generation. Recently due to lack of rainfall within District Kinnaur a drought like condition was created in 2016 and water was provided for irrigation and drinking through tankers.

2.5.15 Industrial/Structural Vulnerability:

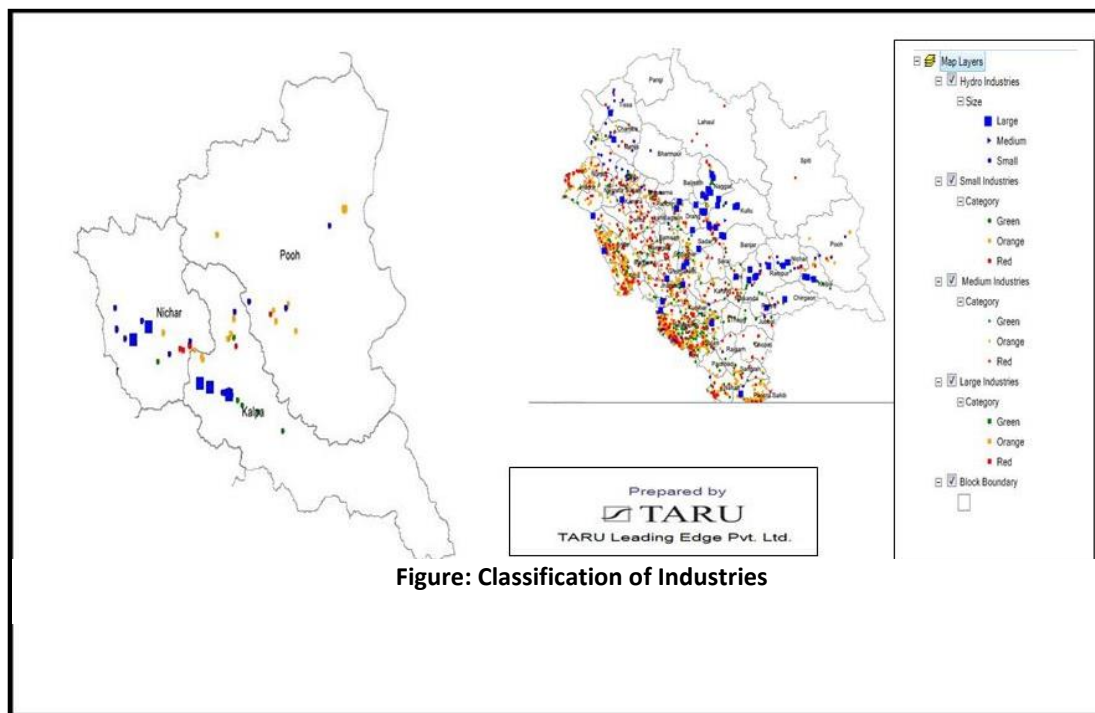


Figure: Classification of Industries

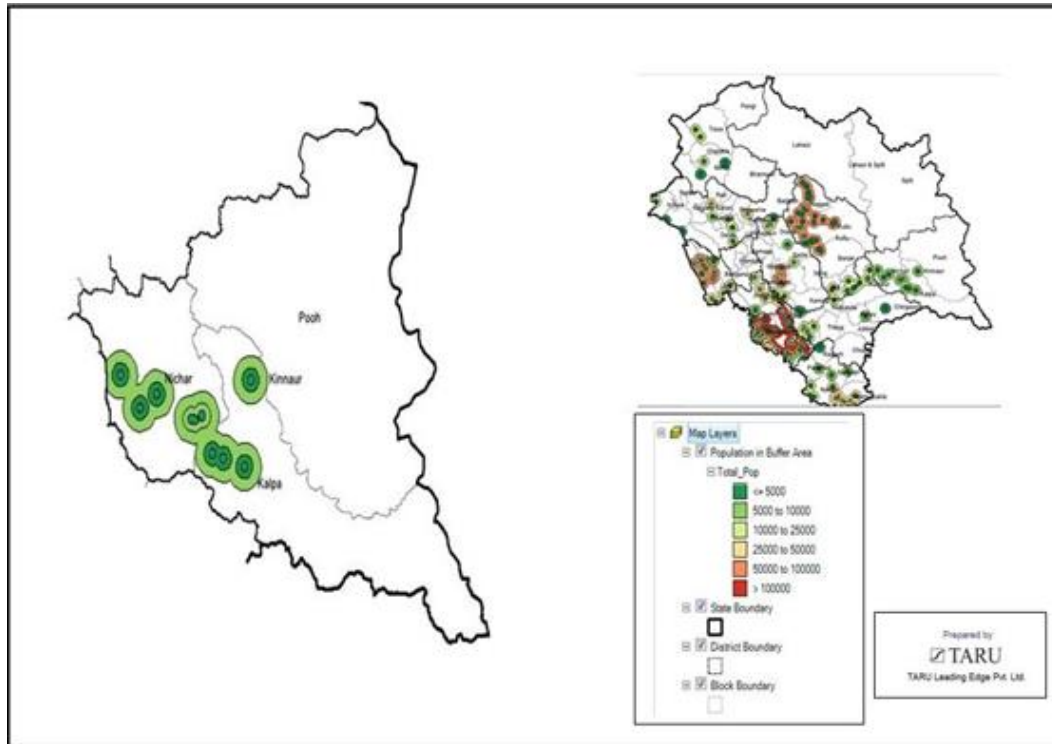


Figure: Population effected due to industries

Due to rapid urbanization, the buildings, constructions, and other infrastructures have been developed rapidly without taking into consideration the disaster vulnerability of the district. The map above also shows that the major industries in Kinnaur are Hydro Power and people mostly effected due to industries are in Nichar and Kalpa teshil of Kinnaur. Most of the constructions are not disaster resilient or earthquake safe which increases the vulnerability of the population to various hazards. This is a major concern in the district. The hydropower projects in Kinnaur are mostly run of the river projects. The river water is diverted through an underground headrace tunnel which provides the head for the water to fall through. The fall is used to extract energy by means of turbines located in underground powerhouses deep inside the hills. The blasting of the hills required to lay the steeply falling head race tunnel and the construction of underground power houses and the reservoir at the head, greatly disturb the fragile ecological balance in the mountainous regions of Himachal Pradesh. The river dries up as its water is diverted over long stretches and landslides are caused as the hill is blasted damaging forests, roads, houses, water sources and farmland in the villages. On Nov 18, 2015, a burst in the penstock pipe of 100 MW

Sorang hydropower project in Kinnaur district washed away homes, cattle shade and farms in Burang and surrounding villages leaving at least 3 people dead, 4 missing, several injured and hundreds of livestock washed away. Several saved their lives by clinging to pillars. Six homes were destroyed fully. The main bridge of the village was blown away & disconnected the villages with rest of the state. The accident cost losses of crores to Burang villagers & the Himachal Pradesh state.

2.6 SUB-DIVISION WISE HAZARD PROFILE & EVALUATION

Sr. No	Division	Hazard profile & Evaluation:	History of Disasters:
1.	Kalpa	<p>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. The kalpa sub-division is prone to following hazards especially:</p> <ul style="list-style-type: none"> ➤ Flood /land slides ➤ Drought ➤ Cloud burst ➤ Earthquake ➤ Road Accident 	<ul style="list-style-type: none"> ➤ 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, Kharo, 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. ➤ 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

			<p>condition occurred in the district in year 2001.</p> <ul style="list-style-type: none"> ➤ 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.
2.	Nichar	<p>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:</p> <p>Hazard Evaluation:</p> <ul style="list-style-type: none"> ➤ Food/land slides ➤ Drought ➤ Cloud burst 	<p>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, Kharo, 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.</p> <p>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.</p>

		<ul style="list-style-type: none"> ➤ Earthquake ➤ Road Accident 	
3.	Pooh	<p>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. This sub-division is prone to the hazard especially.</p> <p>Hazard Evaluation:</p> <ul style="list-style-type: none"> ➤ Flood/land slides ➤ Drought ➤ Cloud burst ➤ Earthquake ➤ Road Accident 	<p>Earthquake in Kaurik village located near the boundary of pooh sub-division in January 1997 of 6.7 Magnitude.</p> <p>Earthquake in Chango village in July 1975 of 5.1 Magnitude.</p> <p>Earthquake in Kanam village in July 1975 of 5.5 Magnitude.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Landslide in Maling Naala (1968) damaging NH-22 and is still active.</p>

2.7 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.

2.8 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. 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.

2.9 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 kilometers 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.

2.10 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: 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				
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

2.11 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 members each well furnished in Disaster Management so that in case of any disaster occurrence, these teams can be deployed for prompt response and action.

Table: 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

Table: QRT Himachal Home Guard in Kinnaur District

S. No.	Name of Home Guard Personnel	S. No.	Name of Home Guard Personnel
1.	Mr. Paras Ram	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

2.12 Medical Facilities and Manpower:

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

Table: Health Infrastructure in Kinnaur

Year	Medical officer	Nurses/Female health Worker	Mid wife	Dispensaries

	Allopat hic	Ayv. & Homeo.	Allopat hic	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	-

2.13 Army Network and Central Paramilitary Forces :

The district has good presence of army and CPMFs (ITBP) in the district. The ITBP located a 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.

2.14 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:

It is clear from the above discussion that the district has limited capacities in the event of a disaster and hence will need to depend on the external support.

Table: List of NGOs in Kinnaur District

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

2.15 List of Equipments

Equipments	Contact Person	Telephone No.
Bolt Cutter	SFO	222311 222219(101)
Breathing Apparatus Self contained	SFO	222219(101)
Gloves Rubber, Tested up to 25000 Volt	BSO A R	22311 222219(101)
Electrical Generator (10KV)	SFO	222219(101)
Extensions Ladder	SFO	222311 222219(101)
Fire Station	S F O	222219(101)
First Aid Kits	B.S.O	222311
Foam Tender	SFO	222219(101)
Foam Type	SFO	222311 222219(101)
Light Ambulance Van	CMO Kinnaur	

Medium Ambulance Van	CMO Kinnaur	
Mobile O.T. Unit	Satish Kumar	-
Portable Oxygen Cylinders	RH Peo CHC Sangla	
Pump High Pressure Portable	H. S. Negi	222219(101)
Search Light	SFO	222311 222219(101)
Stretcher normal	SF O	222311 222219(101)
Suit-Fire Proximity	SFO	222219(101)
Tipper Heavy duty	o/o A. E. PWD Sangla O/o Xen PWD	9418343413
Rope	S.F.O.	22311 222219(101)
Shovel		
Pick Axe	SFO	9459087988 222311 222219(101)
Axe Large	SFO	9459087988 222311222219(101)
Siren /Hooter	SFo	9459087988 222219(101)
Life Jackets	SFO	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)

Equipments	Quantity in Nos	Contact Person	Telephone No.
Bolt Cutter	-	-	-
Road Roller	2	XEN Karchham	01786-253330
Bulldozers Wheeled/Chain	12	JSW.Company XEN Karchham	01786-25330
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	JSW, CMO KInnaur.	
Gas Cutter operator	32	JSW	
Heavy Truck	4	--Do-	
Jack with (five ton lift)	5	--Do-	
Light Ambulance Van	1	--Do- ---Tapri -- Kafnoo	
Sledge Hammer	30+13	R.O Wild Life Rupi N /Sari	J.SW =30
Stretcher harness (set)	10	--Do--	
Stretcher normal	10	--DO-	
Tipper Heavy Duty	27	JSW Hydro	261253
Pick Up Van	1	Asstt. Eng. Karchham	
Tractor	2	--d0--	--do
Bullero Camper	1	Asstt. Eng. Sangla	01786-242317
Bullero Lx	1	Xen Eng. Karcham	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	JSW Hydro, CHoltu	

2.16 Review of Risk Potentialities in District

2.4.5 Type of Disaster	Major Impact	Damage Prone Areas-Wards
Domestic Fire	Loss of life and infrastructure, Houses and Property	Kalpa and Nichhar Block
Forest Fire	Flora and Fauna, environmental degradation	Urni, Ribba Nichhar and Sangla
Land Subsidence	Human Life and infrastructure, Impact on Economy, Houses and Property	Pooh and Kalpa Block
Earthquake	Loss of life and infrastructure	Entire district
Flood	Loss of crop, human and animals, and infrastructure also loss of forest area.	Mainly the Nichhar Block
Cold Waves	Loss of life (man and animal)	Entire district
Avalanche	Human loss and damage of property	Pooh Block
Road Accident	Human life loss, Increase in Disability	Entire district
Drought	Loss to crops	Mainly Pooh Block
Dam Outburst	Loss of crop, human and animals, and infrastructure also loss of forest area.	The lower belt of the district mainly Nichhar Block

Risk matrix:

Following is a risk matrix developed based on the historical information, consultations with the district level officials and secondary data / information. Probability of damage and loss is categorised in to very, High, Moderate and Low, without specifying any particular quantitative values for each of these categories. The categorization is very broad representation of likely damages and loss, rather than a highly scientific micro-level risk assessment. The matrix is prepared to serve the purpose of DRR decision making.

Table : 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	Very	High	Moderate	Low	Moderate	Low	Very High	Low	High

Sector	High		ate						
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

CHAPTER 3

INSTITUTIONAL ARRANGEMENTS FOR DM

The Disaster Management Act 2005 provides for an effective institutional mechanism for drawing up and monitoring implementation of disaster management plan for prevention and mitigating effects of disasters and for taking a holistic, coordinated and prompt response to any disaster situation. Under Section 78 of the DM Act 2005, powers are conferred to the State Government for making rules to carry out the provisions of this Act and notify such rules in the official gazette. The vulnerability of the district to various hazards is medium. 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. The institutional mechanism at national and state level has been created as per criteria laid down in Disaster Management Act, 2005.

3.1 DM organizational structure at the national level :

The NDMA, as the apex body at national level for disaster management, is headed by the Prime Minister. The Act also provides for the National Executive (NEC) at the National level. The NEC comprises the Union Home Secretary as Chairperson, and the Secretaries to the GOI in the Ministries/Departments of Agriculture, Atomic Energy, Defense, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science & Technology, Space, Telecommunications, Urban Development, Water Resources and the Chief of the Integrated Defense Staff of the Chief so for Staff Committee as members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways, and the Secretary, NDMA will be special invitees to the meetings of the NEC. The NEC is the executive committee of the NDMA, and is mandated to assist the NDMA in the NDMA in the discharge of its functions and also ensure compliance of the directions issued by the Central Government.

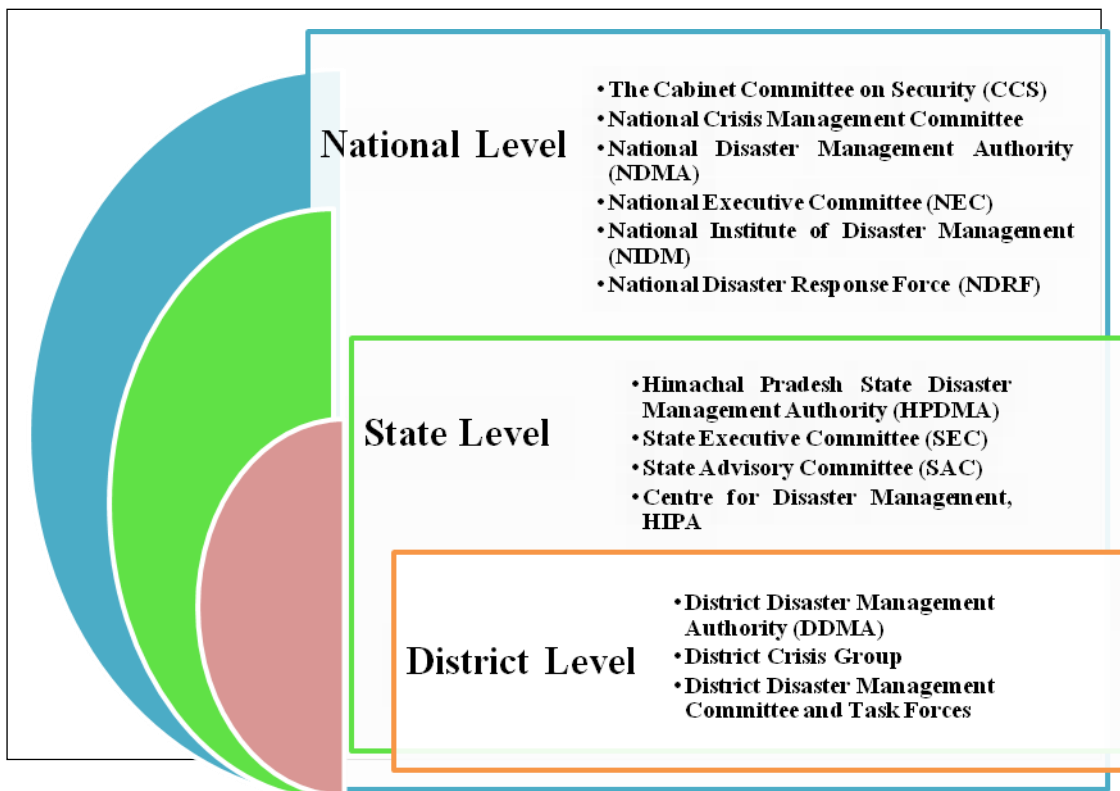
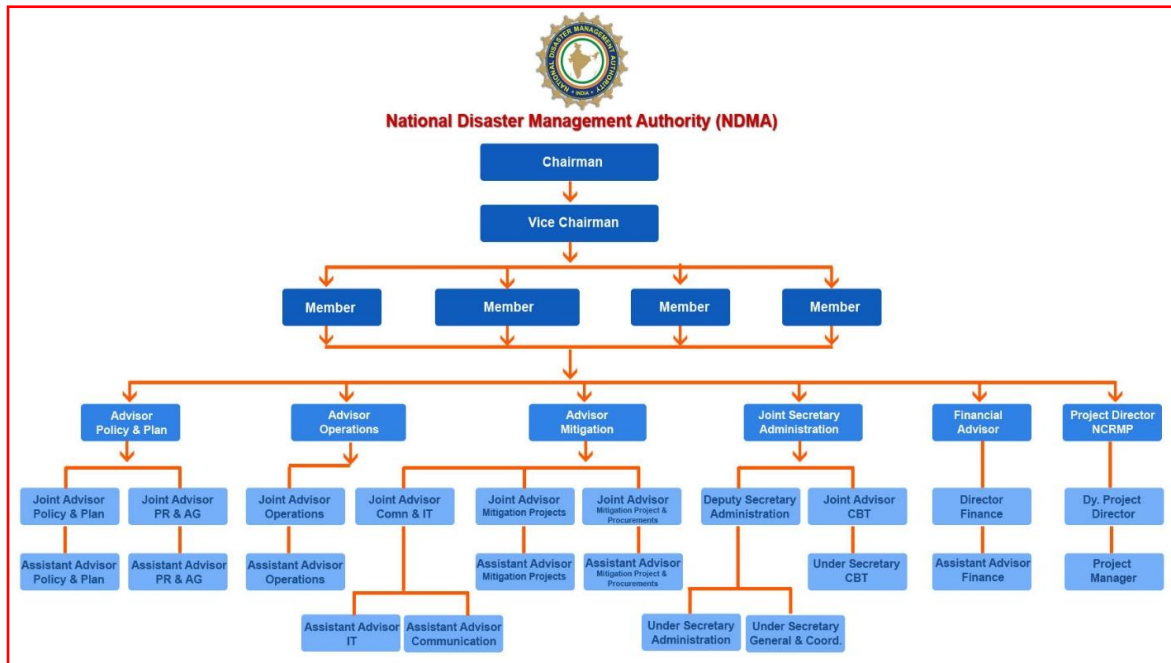


Table 3.2: Nodal ministry/department for disaster management

Following are the Nodal agencies in the Government of India and in the state mandated for early warning of different natural hazards prevailing in the state of Himachal Pradesh:

Sr. No.	Hazard/Disaster	Nodal Agency with online web page address	Contact Details
1.	Floods	Central Water Commission of the Ministry of Water Resources, Shimla Zone http://india-water.gov.in/ffs/ http://www.india-water.gov.in/eSWIS-MapView/	0183-236105 0177-2624036, 0177-2624224 , dirmashimlacwc@ nic.in
2.	Landslides	Geological Survey of India http://www.portal.gsi.gov.in/	0172-2622529 Fax; 0172-2621945; Mob: 09417371954. Joginder.singh@gsi.gov.in gsichd@sancharnet.in 1077
3.	Earthquake	N- India Meteorological Department, http://www.imd.gov.in/pages/earthquake_prelim.php	N- 011-24619943 / 24624588 /Dehradun 0135-2525458,
4.	Hydro-meteorological	http://www.imd.gov.in/pages/main.php	S- 0177-2626211/ 0177-2629724/ 0177-2624976; 9816127668
5.	Droughts	http://bhuvan-noeda.nrsc.gov.in/disaster/disaster/disaster.php	
6.	High Wind, Hailstorm, Heat Wave, Cold Wave and High Rainfall	S- SDMA/SEOC D- DDMA/ DEOC	mm_sandhu@yahoo.co.in D-1077
7.	Forest Fire	Forest Survey of India, Dehradun http://www.weathershimla.gov.in/# http://fsi.nic.in/ http://bhuvan-noeda.nrsc.gov.in/disaster/disaster/disaster.php?id=fire	(Fire) 01905-222900 101
8.	Epidemics	Health and Family Welfare Department	CMO OFFICE: 01905 -222177

			102 & 108 NAS
9.	Human Induced Hazards Road accidents	Himachal Pradesh Police GVK-EMRI	100 8894918180
10.	Dam / Reservoir Burst	D- Hydro power project,	01905-223282 1077, 01902-223282

3.3 State Disaster Management Authority :

Section 3 the Disaster Management Act 2005 lays down the establishment of State Disaster Management Authority at the State Government levels. Accordingly for the State, the SDMA was notified vide notification No. Rev. D(F) 4-2/2000-V dated 1-06-2007. **The constitution of the SDMA** is as under:-

i)	Hon'ble Chief Minister	Chairman
ii)	Sh. Kaul Singh Thakur (Hon'ble Revenue Minister)	Co-Chairman
iii)	Sh. Rajinder Rana(Ex- MLA)	Vice Chairman
iv)	Chief Secretary	Member
v)	Additional Chief Secretary(Home)	Member
vi)	Additional Chief Secretary (PWD)	Member
vii)	Additional Chief Secretary (Health)	Member
viii)	Director General of Police	Member
ix)	Additional Chief Secretary (Revenue)	Member Secretary

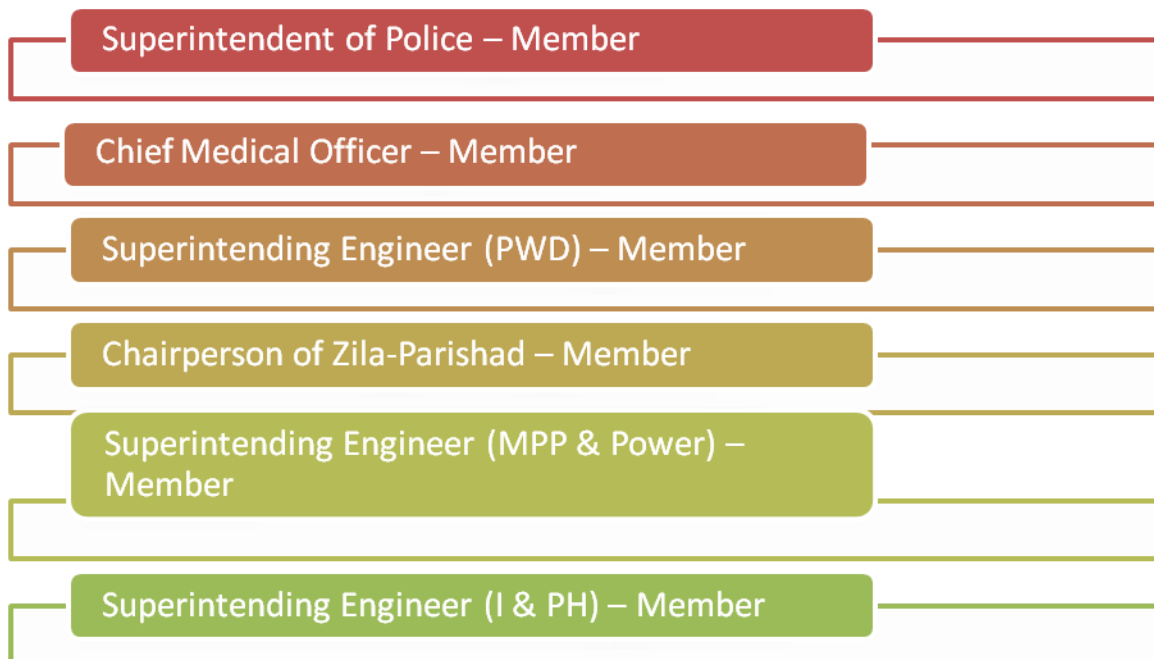
3.4 DISTRICT DISASTER MANAGEMENT AUTHORITY (DDMA):

Section 25 of DM Act 2005 & National Policy on DM 2009 – mandates establishment of DDMA for every district and provides its composition. DDMA will be headed by the respective District Magistrate/District Collector (DC)/Deputy Commissioner as the case may be, with the elected representative of the Local Authority as the Co-Chairperson ex officio. DDMA will act as the planning, coordinating and implementing body for DM at District level and take all necessary measures for the purposes of DM in accordance with the Guidelines laid down by the NDMA and SDMA. It will, inter alia, prepare the District DM plan for the District and monitor the implementation of the National Policy, the State Policy, the National Plan and the State Plan concerning its District.

The DDMA will also ensure that the Guidelines for prevention, mitigation, preparedness and response measures laid down by NDMA and SDMA are followed by all Departments of the State Government, at the District level and the Local Authorities in the District.

As per notification No. Rev. D(F) 4-2/2000 V dated 1/06/2007 via Additional Chief Secretary cum F.C.- Revenue, Govt. of HP, District Disaster Management Authority has been formed according to sub-section (1) of section 25 of Disaster Management Act, 2005 with following members:

The District Disaster Management Authority formed in District Kinnaur is chaired by the Deputy Commissioner (ex officio) and has following members:



3.4 State Executive Committee :

The crisis management group at State and districts level have been constituted for the State. The State Crisis Management Group (SCMG) is headed by the Chief Secretary. The SCMG shall normally handle all crisis situation and advice and guide the District Crisis Management Group (DCMG) also. The team will consist of

SEC Structure

i	Chief Secretary	Chairperson
ii	Additional Chief Secretary(Revenue)	Member Secretary
iii	Additional Chief Secretary(Home)	Member
iv	Additional Chief Secretary(Health)	Member
v	Additional Chief Secretary (PWD)	Member

3.5 Advisory Committee of SDMA :

In Exercise of the powers conferred by Sub Section (1) of section 17 of the Disaster Management Act 2005, the chairperson of Himachal Pradesh State Disaster Management Authority is pleased to

nominate the following official/non official experts as members of the Advisory Committee to assist the Authority and to make recommendations of different aspects of Disaster Management. The team will consist of

3.6 Centre for Disaster Management (HIPA):

Disaster Management Centre at HIPA was established by the State Government as per the guidelines of the Central Government under the Ministry of Home Affairs. After the issuance of the Notification of Disaster Management Act-2005, the Disaster Management Centre, HIPA is organizing trainings on Disaster Management to different stakeholders. The Disaster Management Centre, HIPA has organized a total 132 training programs for the Government employees as well as to the representatives of Panchayati Raj Institutions, Urban Local Bodies, Government Agencies, NGOs, Mahila Yuvak Mandals and other public/private agencies etc.

3.3.3.2 District Disaster Management Committee and Task Forces.

This district level Committee will function under DDMA and assist it in implementing various tasks of DDMA. It will ensure effective and concerted response by Government people participation at district level. The main objectives of this team are to:

- Provide a forum for communication, information exchange and developing consensus.
- Co-ordinate, eliminate duplication and reduce gaps in services.
- Mobilize and provide timely assistance and material support to disaster affected community.

3.7 Sub-division Level Disaster Management Committee

Sub Division Level Disaster Management Committee headed by Sub Divisional Magistrate of the respective Sub Division have been established in all Sub Divisions of the District. The constitution of Sub Division Level Committees is as under:

INSTITUTIONAL MECHANISM AND THEIR FUNCTIONS

DM Mechanism	Institutions/ Department	Nodal Functions
-----------------	-----------------------------	--------------------

National Level Mechanism	National Disaster Management Authority (NDMA)	For better coordination of disaster management at national level, National Disaster Management Authority (NDMA) is constituted. This is a multi disciplinary body with nodal officers from all concerned departments/ministries/ organizations.
State Level Mechanism	HP State Disaster Management Authority (HPSDMA)	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
District Level Mechanism	District Disaster Management Authority, District	District Disaster Management Authority (DDMA) is constituted under the chairmanship of Deputy Commissioner of District.

3.2 State Emergency Control Room :

There is a State Emergency Control Room in the **HP Secretariat, Chota Shimla, Shimla, and Himachal Pradesh 171001** to provide Secretarial support to the Himachal Pradesh State Disaster Management Authority and also facilitate the functioning of the Authority. **1070** is the Helpline Line No. of State Emergency Control room which is operational 24 x 7. This Control Room will receive the information from various sources. It shall be in constant contact with the District Disaster Control Rooms, Police Control Rooms. The State Emergency Control Room will receive the information, record it properly and put up to the State Disaster Management Authority

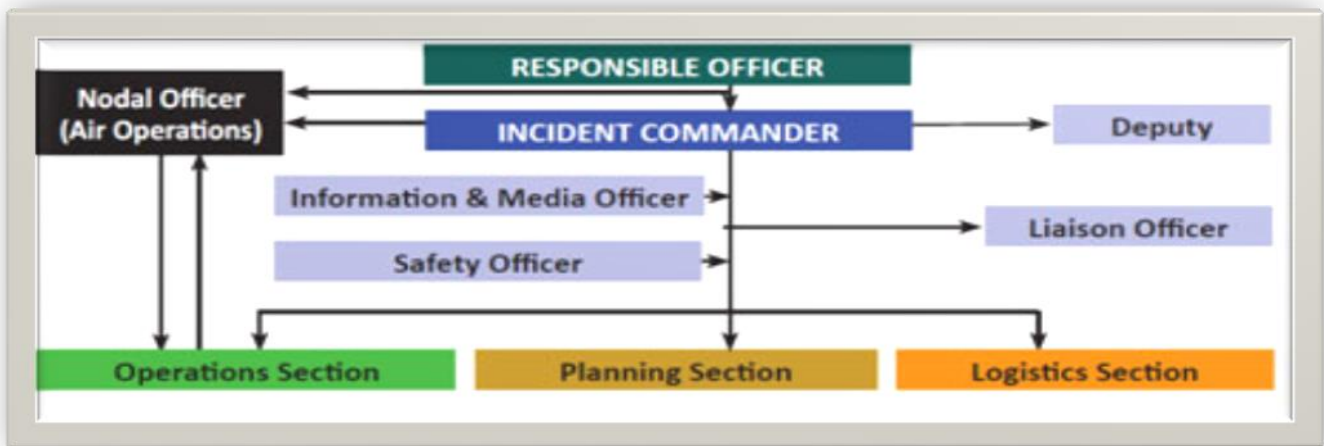
instantly. Similarly the instructions passed by the State Authority shall be conveyed to the addressees and a record maintained to that effect.

3.8 IRS in the District :

Incident Response System Position (IRS)

The IRS organisation functions through Incident Response Teams (IRTs) in the field. In line with our administrative structure and DM Act 2005, Responsible Officers (ROs) have been designated at the State and District level as overall in charge of the incident response management. The RO may however delegate responsibilities to the Incident Commander (IC), who in turn will manage the incident through IRTs. The IRTs will be pre-designated at all levels; State, District, Sub-Division and Tehsil/Block. On receipt of Early Warning, the RO will activate them. In case a disaster occurs without any warning, the local IRT will respond and contact RO for further support, if required. A Nodal Officer (NO) has to be designated for proper coordination between the District, State and National level in activating air support for response.

Apart from the RO and Nodal Officer (NO), the IRS has two main components; a) Command Staff



and b) General Staff. The state is yet to notify and implemented IRS.

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

- a. Give directions for the release and use of resources available with any Department of

the Government and the local authority in the district.

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

3.10 DISTRICT EMERGENCY OPERATIONS CENTRE (DEOC):

The DEOC will be the hub of activity in a disaster situation in the district. This is, however, not to underestimate its normal time activities. The EOC have the flexibility to expand when demand increases and contract when the situation comes to normal. The DEOC is connected with State EOC in the upstream (which further connects to National EOC) and other EOC(s) in the downstream including other field offices during emergencies. District Emergency Operation Centre plays a vital role in Emergency Operation activation in the district and have following roles and objectives during occurrence of any disaster and normal time, This center is intended to coordinate all disaster related activities in the district starting from preparedness to

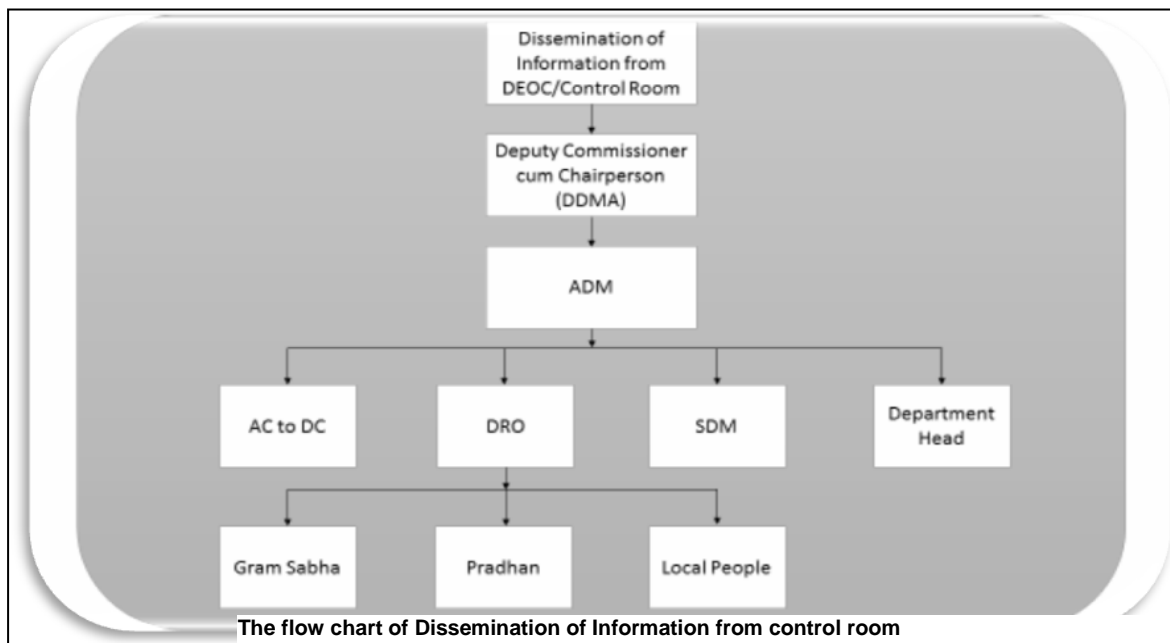
rehabilitation and reconstruction. During Emergency, DEOC will coordinate with Nodal Officer of Emergency Support Functions and they shall be provided with sufficient telephone connections for effective coordination during crisis. On the basis of the message received from the forecasting agencies, warning has to be issued by DEOC for the general public and the departments, which play a vital role during emergencies. Issuing correct and timely warning would be one of the prime responsibilities of DEOC. For effective dissemination of warning DEOC should have a well-planned line of communication.

The EOC in District Kinnaur is established in Room No. 208 of Deputy Commissioner office at Reckong Peo. The EOC was functional from 29th Sept, 2016. The EOC has following functions

- It act as a control room that would be the nerve centre for the fatal incident and disaster management in the district.
- To monitor, coordinate and implement the actions for disaster risk management within the district.
- Activate the Emergency Support Function (ESF) in the event of a disaster and coordinate the actions of various line departments/ agencies.
- Encourage each line and stakeholder department within the districts to prepare their area-specific plans in terms of their vulnerability and proneness to specific disasters and receive reports on preparedness from their side. Based on these, the DEOC will submit a summary report to the SDMA and higher authority.
- Serve as a data bank to all line departments and the planning department with respect to risks and vulnerabilities and ensure that due consideration is given to mitigation strategies in the planning process.
- Maintain a web-based inventory of all resources available with all concerned department in the district and update it through the India Disaster Resource Network (IDRN).
- Receive appropriate proposals on preparedness, risk reduction and mitigation measures from various departments/agencies and place the same for consideration of the Chief Secretary through Deputy Commissioner's approval.
- Monitor preparedness measures undertaken at the district levels including simulation

exercises undertaken by various departments.

- Ensure from each line departments that all warning, communication systems and instruments are in working conditions. Upgrade the Disaster Management Action according to the changing scenario.
- Providing information at district level, local level and to disaster prone areas through appropriate media. Brief the media of the situations and prepare day to day reports during the disasters and report the actual scenario and the action taken by the District Administration.
- Maintain a data base of trained personnel and volunteers.



3.11 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.

3.12 Public and Private Partnership :

With change in time and augmentation of disaster incident it has become vital to engage both with proper role and responsibilities within the disaster management system. They may be approached to adopt a Block or Gram Panchayat for the implementation of the programme and activities in their own way and with their inputs so that examples in better implementation in PPP mode be set as an example for the system to emulate.

3.13 Nodal Agencies for Early Warning :

Following are the Nodal agencies mandated for early warning of different natural hazards in the state of Himachal Pradesh:

Sr. No.	Type of Disaster	Nodal Department	Supporting Agencies/Departments
1	Earthquakes	Deptt. Of Environment Science and Tech HP	IMD, Ministry of Earth Sciences/GSI of India
2	Landslides	PWD	IMD, Ministry of Earth Sciences, GSI, Urban Development
3	Floods/Flash Floods/Cloud Burst	IPH	IMD, CWC
4	Fire	Fire Department	IPH, Health, Administration & Home
5	Forest Fires	Forest Department	Fire Department
6	Drought	Agriculture	IMD, Revenue, DRDA, Horticulture
7	Wind Storm Hazard	Revenue	Agriculture & Horticulture
8	Road Accidents	Concerned DA	Transport, PWD, Home, Police
9	Dam / Reservoir Burst	MPP & Power, HPSEBL	IPH, Environment, CWC

10	Snow Storm	Revenue	IMD, IPH and Admn
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3.14 The national level institutional arrangement for disaster management with their roles and responsibilities is explained below:

Agency/ Department	Head/ Chairperson	Roles and Responsibilities
Cabinet Committee on Security (CCS)	Prime Minister, Minister of Defence, Minister of Finance, Minister of Home Affairs, and Minister of External Affairs	<ul style="list-style-type: none"> • Evaluation from a national security perspective, if an incident has potentially security implications. • Oversee all aspects of preparedness, mitigation and management of Chemical, Biological, Radiological and Nuclear (CBRN) emergencies and of disasters with national security implications
National Crisis Management Committee	Cabinet Secretary/Chairperson /Secretaries of Ministries	<ul style="list-style-type: none"> • Oversee the Command, Control and Coordination of the disaster response. • Give direction for specific actions to face crisis situations
National Disaster Management Authority (NDMA)	Prime Minister (Chairperson)- Members (not exceeding nine, nominated by the Chairperson)	<ul style="list-style-type: none"> • Lay down policies, plans and guidelines for disaster management • Coordinate enforcement and implementation throughout the country • Approve the NDMP and the DM plans of the respective Ministries and Departments of Government of India • Lay down guidelines for disaster management to be followed by the different Central Ministries/Departments and the State Governments
National Executive Committee	Union Home Secretary (Chairperson) Secretaries to the GoI in Ministries/Departments of	To assist the NDMA in the discharge of its functions: <ul style="list-style-type: none"> • Direct any department or agency of the Govt. to make available information to NDMA or SDMA's such resource

(NEC)	<p>Agriculture, Atomic Energy, Defence, Drinking Water and sanitation, Environment, Forests and Climate Change, Finance (Expenditure), health and Family Welfare, Power, Rural Development, Science and Technology, Space, Telecommunications,</p> <p>Urban Development, Water Resources, River development and Ganga Rejuvenation.</p> <p>The Chief of the Integrated Defence Staff of the Chiefs of Staff Committee, ex Officio as members.</p> <p>Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport and Highways and Secretary, NDMA are special invitees to the Meetings of the NEC.</p>	<p>available for the purpose of emergency response, rescue and relief</p> <ul style="list-style-type: none"> • Ensure compliance of the directions issued by the Central Government, Coordinate response in the event of any emergency situation • Coordinate with relevant Central Ministries/ Departments / Agencies which are expected to provide assistance to the affected State as per Standard Operating Procedures (SOPs). • Coordinate with the Armed Forces, Central Armed Police Forces (CAPF) and other uniformed services which comprise the GoI's Response to aid the State authorities • Coordinate with India Meteorological Department (IMD) and other specialised scientific institutions for early warning and monitoring • Coordinate with Civil Defence volunteers, home guards and fire services
National Disaster Response Force	Specially trained force headed by a Director-general for rapid deployment	<ul style="list-style-type: none"> • Provide assistance to the relevant State Government/District Administration in the event of an imminent hazard event or in its aftermath
National Institute of Disaster Management (NIDM)	Union Home Minister, Vice Chairman, NDMA, Members including Secretaries of various nodal Ministries and Departments of Government of India and State Governments and heads of national levels scientific, research and technical organizations,	<ul style="list-style-type: none"> • Human resource development and capacity building for disaster management within the broad policies and guidelines laid down by the NDMA • Design, develop and implement training programmes and undertake research. Formulate and implement a comprehensive human resource development plan • Provide assistance in national policy formulation, assist other research and

	besides eminent scholars, scientists and practitioners.	training institutes, state governments and other organizations <ul style="list-style-type: none"> • Develop educational materials for dissemination • Awareness generation
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3.15 The National Disaster Management Plan 2015 provides hazard-specific nodal ministries to function as the lead agency in managing particular types of disasters

Disaster	Nodal Ministry/ Department
Biological	Min. of Health and Family Welfare (MoHFW)
Chemical and Industrial	Min. of Environment, Forest and Climate Change (MoEFCC)
Civil Aviation Accidents	Min. of Civil Aviation (MoCA)
Cyclone/Tornado	Min. of Earth Sciences (MoES)
Tsunami	Min. of Earth Sciences (MoES)
Drought/Hailstorm/Cold Wave and Frost/Pest Attack	Min. of Agriculture and Farmers Welfare (MoAFW)
Earthquake	Min. of Earth Sciences (MoES)
Flood	Min. of Water Resources (MoWR)
Forest Fire	Min. of Environment, Forest and Climate Change (MoEFCC)
Landslides	Min. of Mines (MoM)
Avalanche	Min. of Defence (MoD)
Nuclear and Radiological Emergencies	Dept. of Atomic Energy (DAE)

Rail Accidents	Rail Accidents Min. of Railways (MoR)
Road Accidents	Min. of Road Transport and Highways (MoRTH)
Urban Floods	Min. of Urban Development (MoUD)

CHAPTER 4

PREVENTION AND MITIGATION MEASURES

4.1 Prevention consists of actions that reduce risk from natural or manmade disaster incidents. It is required to list and elaborate all types of measures (**like - building codes, floodplain management, storm water management, coastal area zoning and management plan, etc.**) – planned and implemented by the districts as a part of prevention measures.

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:

4.2 Mitigation, with its focus on the impact of a hazard, encompasses the structural and non-structural approaches taken to eliminate or limit a hazard's exposure; impact on people, property and the environment. Besides flood proofing, river desiltation, change in land use pattern and shelter belt plantation, examples of mitigation activities also include:

The Disaster Management Act mandated 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.

4.3 Disaster and Development:

Natural disaster risk is intimately connected to processes of human development and Disasters put development at risk. At the same time, the development choices made by individuals, communities

and nations can generate new disaster risk. Disasters and development are closely linked. Disasters can both destroy development initiatives and create development opportunities. Development schemes can both increase and decrease vulnerability. In the traditional approach to disasters, the attitude was that the disasters, especially natural ones, were an act of god and as such were beyond human control; accepting death and damage to property was part of the costs. With such an attitude, most development plans were designed without consideration for the effect disasters would have on community plans and vice versa. When a disaster did occur, the response was directed at meeting emergency needs and cleaning up. In the current approach, it has been realized that much more can and need to be done to reduce the severity of hazards and disasters. 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 and can also aggravate other financial, political, health and environmental shocks. The relationship between the disaster and development can not be ignored. Developmental Projects should be designed such to include disaster recovery programmes and with long term development needs in mind. Disasters can significantly impede the effectiveness of development resource allocation.

4.4 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 urbanization 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 globalizing economy, which at present rewards productive specialization and intensification over diversity and sustainability.

4.5 Can development planning incorporate disaster risk?

The frequency with which our country and state experience natural disaster should certainly place disaster risk at the forefront of development planners' minds. This agenda differentiates from two types of disaster risk management. *Prospective disaster risk management* should be integrated into sustainable development planning. Development programmes and projects need to be reviewed for their potential to reduce or aggravate vulnerability and hazard. *Compensatory disaster risk management* (such as disaster preparedness and response) stands alongside development planning and is focused 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.

4.6 Mainstreaming DRR into Development:

- 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.
- 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.

4.7 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.
- 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.

4.8 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

4.9 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 management: ‘**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. In the chapter three of the plan we have identified earthquakes, flash floods, cloud burst, forest fire, domestic fire, landslides, avalanche and draught as possible hazards in regard to this district. In the following we will discuss the mitigation measures for the mentioned hazards and responsible department for the same.

This chapter enlists the actions which are meant to be taken during non-disaster time for prevention and mitigation as well as disaster resilient development planning in the district.

Hazard Specific	Mitigation measures		Nodal Department
	Structural	Non- Structural	
Earthquake	<ul style="list-style-type: none"> • All buildings especially public buildings must have earthquake resilient features • Structural safety audit and retrofitting of critical lifeline structures • Building bye laws applicable for Zone IV and Zone V region should 	<ul style="list-style-type: none"> • Awareness on Building bye laws applicable for Zone IV and V region should be followed • Development of Rapid Visual Screening procedures and Detailed Vulnerability Assessment 	Dept. of Environmental Science and Tech HP

	<p>be followed</p> <ul style="list-style-type: none"> • Retrofitting of weak buildings, rural unsafe house and public building • Licensing and certification of professionals • Compliance review by professionals of PRIs and ULBs • Medical preparedness • Registration of trained and certified mason • Regular Mock-drills • Strict enforcement of guideline pertaining to seismic safety for government rural housing, urban development structure 	<ul style="list-style-type: none"> • Public Awareness Campaigns • Techno-legal regime for ensuring compliance of earthquake-resistant 	
Landslides	<ul style="list-style-type: none"> • Retaining wall to be constructed Covering the slope surface with geo- fabrics made of natural as well as synthetic material • Plantation at the vulnerable areas • Proper drainage system along the roads. • Retaining structures at the land sliding area. 	<ul style="list-style-type: none"> • Drainage system to be checked. Control of surface water and groundwater drainage is the most widely used and • Generally the most successful slope-stabilization method • Assessing the status of risk and vulnerability of the existing built environment. • Identification of hot spots 	PWD
Floods/Flash Floods/Cloud Burst	Covering the slope surface with geo-fabrics made of natural as well as synthetic material	<ul style="list-style-type: none"> • Capacity building of volunteers and technicians • Awareness generation on health hazards due to flooding 	IPH

Fire	<ul style="list-style-type: none"> • Establishment of Fire stations as per Fire Safety Bye-laws • All fire tenders should be equipped with wireless sets / Mobile phones. 	<ul style="list-style-type: none"> • Implementation of Fire safety measures and enforcement • Updating basic infrastructure and adopting modern technologies • Improving outreach of fire services. • Provincialisation and formation of state level fire services • Making the fire services a multi-hazard response unit • Training of community members in fire-fighting techniques • Putting in place audit system • Compulsory fire hazard evaluation of all types of buildings old and new 	Fire Department
Forest Fire	Establishment of Fire stations as per Fire Safety Bye-laws	<ul style="list-style-type: none"> • Implementation of Fire safety measures and enforcement • Training of communities on forest fire management • IEC Material development 	Forest Department
Drought	<ul style="list-style-type: none"> • Water management including water harvesting and conservation • Cloud seeding in drought prone areas Micro-irrigation including drip and sprinkler irrigation. • Afforestation with bio-diesel 	<ul style="list-style-type: none"> • Drought-prone area delineation at block level based on rainfall, cropping pattern, available supplement irrigation, satellite derived indicators, soil map, 	Agriculture

	<p>species through the National Afforestation Programme</p> <ul style="list-style-type: none"> • Development of Pasture land in common property, seed farms and trust land • Rain Water Harvesting storage tanks at household level and public buildings • Structures for water harvesting and recharging like wells, ponds, check dams, farm ponds, etc • Development of fodder plots/banks <p>Repair and maintenance, de-silting of water sources, check dams, hand pumps etc.</p>	<p>groundwater availability map, cattle population and fodder demand and socio-economic data</p> <ul style="list-style-type: none"> • Gradation of drought-prone areas based on the frequency of occurrence of droughts, sensitivity to rainfall variation and vulnerability of community • Monitoring of drought based on rainfall and other parameters, crop health, available ground water and migration and impact on community • Insuring of crops • Farmer education to practice drought resistant crops and efficient water use. • Set up control mechanism for regulated water use (ponds, small dams, check dams) on the early onset. 	
Road Accidents	<ul style="list-style-type: none"> • Maintenance of roads • Installation of reflection mirrors at blind curves 	<ul style="list-style-type: none"> • Enforcement of traffic rules • Awareness generation 	Concerned DA
Industrial	<ul style="list-style-type: none"> • Creation of appropriate infrastructure as mentioned in Off-site and On-site plans including Public Address system 	<ul style="list-style-type: none"> • Enforcement of code of practices, procedures and standards • Audits of On-site & Off-site Emergency plans at regular intervals 	Department of Industry

		<ul style="list-style-type: none"> • Statutory inspection, safety audit and testing of emergency plans • Safety Auditing • Hotline telephone connection with nearby emergency services • Awareness generation among community • Training of specialized Medical First Aid Responders 	
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Mainstreaming Disaster Mitigation into the Existing Schemes/Projects in the Kinnaur District.

There are a number of on-going schemes and projects in the district which will help out the widowed/destitute/handicapped people in a post-disaster scenario in order to generate livelihood options for them. There are also a few schemes which are for the health protective measures. These schemes can be used even in normal times in order to generate employment as well as development of the population. The projects indicate the ongoing works which will help in the prevention and mitigation process. Following is the list of the projects and the schemes which help in the prevention and the mitigation measures.

Name of the Programme	Implementing Agency	Nature of Mitigation measures to be integrated	Implementing Department
Pradhan Mantri Awas Yojna	DRDA	<ul style="list-style-type: none"> • Use of Hazard resistant design prescribed for Zone IV and V regions • Use of model designs developed under PMAY for 	Rural Development

		<p>Zone IV and V</p> <ul style="list-style-type: none"> • Capacity Building of Rural masons on safe construction. • Capacity Building of PRIs. • Community Awareness. • Capacity Building Programmes for DRDA officials on Disaster Risk Reduction issues. 	
Mahatma Gandhi National Employment Guarantee scheme	DRDA	<ul style="list-style-type: none"> • 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. • Giving priority to those works which reduce the vulnerability of area over the works which enhances the vulnerability of the area to natural hazards • 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. 	Rural Development

		<ul style="list-style-type: none"> • Works which reduce disaster risk are given priority in plans- such as local mitigation works etc. • Any other implementable suggestion within the ambit of the scheme. 	
Pradhan Mantri Gram Sadak Yojana	PWD	<ul style="list-style-type: none"> • 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. • 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 	PWD

		<p>to be upgraded on a priority basis.</p> <ul style="list-style-type: none"> • The maintenance guidelines are modified to ensure that in case of disasters these roads get provision for restoration to ensure all weather connectivity. 	
Sarva Siksha Abhiyaan	Education	<ul style="list-style-type: none"> • 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. • Emphasis on disaster risk audit at the stage of preparation of detail project reports • Inclusion of strategies for disaster management in the City Development Plans. • Inclusion of disaster management as a function of the Urban Local Bodies and allocate resources. • Training and Capacity Building Programmes for 	<ul style="list-style-type: none"> • Education

		municipal officers on disaster risk reduction	
National Rural Health Mission	Medical	<ul style="list-style-type: none"> • Ensure that the village Health Plan and the District health plan explicitly address the disaster risk reduction concerns in the vulnerable habitations and the vulnerable districts and the disaster management plan as per DM Act 2005 takes links itself to the District and village Health plans • Provide training to the ASHA workers on disaster health preparedness and response • Strengthening of Disease Health Surveillance System in rural areas. • Ensuring structural safety of the CHC/PHC and other health care service delivery centers in rural areas • Training of doctors and hospital staffs on mass casualty management and 	Health and family welfare

		<p>emergency medicine.</p> <ul style="list-style-type: none"> • Community awareness on disaster management 	
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4.10 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:-

SI. No.	Name of The Programme	Department/ Sector	Proposed Strategies for DRR Integration into the Flagship Programmes
1	Pradhan Mantri Awas Yojana (PMAY)	Rural Development	<ol style="list-style-type: none"> Inclusion of such measures like application of Hazard resistant design in construction of PMAY houses, appropriate sitting of PMAY housing in guideline of PMAY Development of model design for PMAY houses which could be easily referred to by DRDAs at district level and used for community awareness depending on the geographical location. Capacity Building of Rural masons on safe construction. Capacity Building of PRIs. Community Awareness. Capacity Building Programmes for DRDA officials on Disaster Risk Reduction issues.
2.	Mahatma Gandhi National Employment	Rural Development	<ol style="list-style-type: none"> 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.

	Guarantee scheme		<ul style="list-style-type: none"> 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.
3.	Pradhan Mantri Gram Sadak Yojana	PWD	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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.

			<ul style="list-style-type: none"> 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.	National Rural Health Mission	Health and family welfare	<ul style="list-style-type: none"> i. Ensure that the village Health Plan and the District health plan explicitly address the disaster risk reduction concerns in the vulnerable habitations and the vulnerable districts and the disaster management plan as per DM Act 2005 takes links itself to the District and village Health plans. ii. Provide training to the ASHA workers on disaster health preparedness and response. iii. Strengthening of Disease Health Surveillance System in rural areas. iv. Ensuring structural safety of the CHC/PHC and other health care service delivery centers in rural areas. v. Training of doctors and hospital staffs on mass casualty management and emergency medicine. vi. Community awareness on disaster management.
6.	Atal Mission for Rejuvenation and Urban Transformation (AMRUT)	RD/MC	<ul style="list-style-type: none"> i. Ensure that water supply lines and sewerage system are disaster resilient ii. Open spaces / parks should be designated as assemble points for the communities in the event of a disaster

7.	National Bal Swachhta Mission	WCD	To provide hygienic and clean environment, food, drinking water, toilets, schools and other surroundings to the children. The Bal Swachhta Mission is a part of the nationwide sanitation initiative of 'Swachh Bharat Mission' launched by the Prime Minister on 2nd October, 2014.
9.	Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY)	Ministry of mines	Ensure protection of environment while exploiting natural resources To put in place health safeguard measures

CHAPTER 5

PREPAREDNESS MEASURES

5.1 Preparedness refers to a very concrete research based set of actions that are taken as precautionary measures in the face of potential disasters. These actions can include both physical preparations (such as emergency supplies depots, adapting buildings to survive earthquakes and so on) and trainings for emergency action. Preparedness is an important quality in achieving goals and in avoiding and mitigating negative outcomes. Disaster preparedness, as already stated, is a broad concept that describes a set of measures that minimises the adverse effects of a hazard including loss of life and property and disruption of livelihoods. Disaster preparedness is achieved partially through readiness measures that expedite emergency response, rehabilitation and recovery and result in rapid, timely and targeted assistance. It is also achieved through community-based approaches and activities that build the capacities of people and communities to cope with and minimise the effects of a disaster on their lives. District administration Kinnaur (H.P.), has prepared a comprehensive plan. The plan basically detailed out preparedness strategy under which communities and district authorities would be prepared so that level of destruction and unnecessarily delay in relief and response can be reduced. The preparedness measures that is going to include in this chapter include discuss and setting up disaster relief machinery, formulation of community preparedness plans, training to the specific groups and earmarking funds for relief operations.

5.2 General Preparedness Checklist for the District Kinnaur (H.P.)

1. Deputy Commissioner, Kinnaur (H.P.) shall ensure that preparedness checklist is duly followed by each front line department and status of the same is discussed in monthly meetings.
2. Head of department of each frontline department shall ensure that the departments are prepared to meet the challenges of any emergency/ disaster by duly following the preparedness checklists.
3. Nodal officers of each of the frontline departments shall ensure quarterly updation of District Disaster Management Resource Inventory and submission of the same to District Revenue Officer, Kinnaur (H.P.) by:

- a) Adding to it any changes in the human resources of their department along with their updated contact numbers, if any.
 - b) Adding to the equipment list, relevant resources for response activities from both the government and private sector.
4. DRO shall ensure that the same has been updated and uploaded on website of District Administration on quarterly basis with the help of District Information Officer (DIO).
 5. Nodal officers of each of the frontline departments shall also report to Head of Department and/or Deputy Commissioner, Kinnaur (H.P.) about requisition of any relevant resource/equipment, not available with the Government and/or private sector, for disaster management activity.
 6. District Disaster Management Authority (DDMA), Kinnaur (H.P.) shall ensure the establishment of Emergency Operation Centre, Kinnaur (H.P.) with the following:
 - a. Proper space for EOC staff and officials
 - b. Adequate communication equipments including landline telephones, mobile phones, satellite phones, walkie-talkie, ham radio, computer/ laptop with printer facility, email facility, fax machine, television, etc.
 - c. Power backup facilities along with availability of generator set.
 - d. Space for meeting, conference, media briefing along with LCD, computer and video conferencing facilities.
 - e. District Disaster Management Resource Inventory, Kinnaur (H.P.) and also of the neighboring districts (Shimla, Kullu, Lahaul & Spiti), Disaster Management Resource Inventory of the state and also of critical national resources.
 - f. Hazard and Risk Maps of Kinnaur (H.P.) district.
 - g. District Disaster Management Plan, Kinnaur (H.P.).

5.3 Community and local level preparedness:

The plan recognizes the fact that in the event of disaster communities are the first responders and hence there is no better alternative to community and local level capacities for disaster

response. In order to enhance communities' capacity to take action to help themselves in the absence of necessary outside response for days the plan envisages creating necessary awareness about hazards, risks and response. Areas which would be specifically addressed for community preparedness are-

- i) Evacuation
- ii) Medical first aid
- iii) Light search and rescue
- iv) Search and rescue extrication from damaged buildings
- v) Debris clearance
- vi) Support fire fighting

Plan also envisages equipping community at Panchayat level by ensuring the provision of medical supply, communication such as radio, TVs, extrication equipment. Panchayat will be encouraged to establish local early warning systems in higher vulnerable areas and for holding community level disaster response drills. Development of response capacity at Panchayat level for first response would help in avoiding desperate situation. Creation of Sub-division level stock pile for relief and warehouses would be ensured.

5.4 Early Warning System :

Early Warning Systems (EWS) are well recognized as a critical life-saving tool and the purpose of early warning system is to detect, forecast and when necessary, issue alerts related to impending hazard events. That the same time it needs to be supported by information about the actual and potential risks that a hazard poses, as well as measures people can take to prepare for and mitigate its adverse impacts. Early warning information should be able to facilitate decision-making and timely action of response organizations and vulnerable groups.

District Emergency Operations Centre has the responsibility of disseminating warning of any sort with regard to any likely exigency received from the agencies responsible for generating these; IMD, CWC and GSI. Key Responsibilities with regard to this include: The systems of

DEOC shall be designed in such a way that information can be promptly accessed and spread to concerned frontline departments.

5.4.1 Early Warning Teams

Hazard	Area	Responsible Officer of the Team	Linkage/Coordination with	System
Flood Earthquake Landslide	Kalpa Sub Division	SDM	DEOC/SEOC/IMD/Police /Health / Neighboring Sub-Division , National Weather Forecasting Centre, Delhi	Siren/Drum beating/miking/mass SMS/Electronics Media
-do-	Pooh Sub Division	ADM Pooh	-do-	-do-
-do-	Nichhar Sub Division	SDM Nichhar	-do-	-do-

5.5 Search & Rescue Teams :

After any disaster, main activity is search and rescue. By effectively performing this activity loss due to disasters can be minimized. It has become a highly specialized function; the first responder agencies are not sufficiently trained or equipped for undertaking these operations. Search and Rescue activities include, but are not limited to, locating, extricating, and providing immediate medical assistance to victims trapped in exigency situation. People who are trapped under destroyed buildings or are isolated due to any disaster need immediate assistance. The District Commissioner, in conjunction with local authorities will be responsible for the search and rescue operations in an affected region. The following preparedness measures will undertaken by DDMA Kinnaur:

1. Constitution of task forces
2. Training of task forces for search and rescue
3. Procuring required basic equipment
4. Holding regular mock drills

5.6 Damage and Loss Assessment Teams :

Damage Assessment Teams will be multi-disciplinary teams, whose having knowledge of disaster affected area, physical characteristic of the region, language etc. These officials should share a common interest and commitment, to be set up immediately after disaster. There should be a clear allocation of responsibilities among team members. It should include Z.P. members, agricultural officer to assess the crop damage, executive engineer of PWD to assess the damaged houses, S.P to maintain the law and order situation, NGOs and volunteer organizations, Tehsildar, etc. This team may immediately assess the damage undergone due to disaster and report it to the concerned department to get the immediate relief material from the government. Damage assessment procedures are required to avoid litigations and delays in gratuitous relief and compensation, including insurance. The following preparedness measures will undertaken by DDMA Kinnaur:

1. Constitution of damage and needs assessment teams
 2. Develop formats and templates for damage and needs assessment
 3. Training of the identified teams
-

5.7 NGO Participation :

Sections 35 and 38 of the Disaster Management Act *inter alia* specifically emphasize the coordination of actions with NGOs. The National Policy on Disaster Management (NPDM) also states the national vision for community mobilization 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 utilizing 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.

5.8 Community Based Disaster Preparedness:

Communities are not only the first to be affected in disasters but also the first responders. Community participation ensures local ownership, addresses local needs, and promotes volunteerism and mutual help to prevent and minimize damage. The community participation for DM would be promoted on the motto of “self-help”, “help thy neighbor” 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 organization 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 counseling, distribution of relief and accessing support from government/agencies etc. Community plans will be dovetailed into the Panchayat, Block and District plans. Preparedness to face disasters is required at all levels right from the Household to the state Government to minimize the impact of Disasters. The district administration cannot provide relief and commences rescue operation immediately at the time of disaster. Therefore, the first responder of any disaster can develop some traditional coping mechanisms by the local community which reduce their vulnerabilities. The involvement of the community is the key

factor in any disaster preparedness. The participation of the community is vital to sustain the activities of rebuilding the shattered community life.

Community Based Disaster Preparedness is:

- A response mechanism to save life, livelihood, livestock and assets with available resources within the community.
- Leads to multi pronged development interventions to address the root cause of vulnerability.
- Leads to a self-reliant disaster proof community.

In order to generate the preparedness and response within the people, Community Based Disaster Preparedness Plans (CBDP) can also be developed in all the vulnerable areas. District Disaster Management Authority, Kinnaur has to take initiative for community based disaster preparedness and develop ownership for sustainability of the process, effort is to be made to ensure maximum participation of all sections of the community irrespective of class, caste, sex and occupation.

5.9 Mobilizing Stakeholders' Participation:

The DDMA will coordinate with Home Guards, NCC, NYKS, NSS, sports and youth clubs, women based organizations, faith based organizations and local Non-Governmental Organizations (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.

5.10 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 formalize 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.

5.11 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 utilized. 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.

5.12 Indian Disaster Resource Network:

IDRN is a nation-wide electronic inventory of resources that enlists equipment and human resources, collated from districts, states and national level line departments and agencies. It is a web based platform, for managing the inventory of equipment, skilled human resources and critical supplies for emergency response. Primary focus of IDRN portal is to enable the decision makers to find answers on availability of equipment and human resources required to combat any emergency situation. This database will also enable them to assess the level of preparedness for specific disasters. All resource related information pertaining to Kinnaur district is uploaded on the website.

5.13 Protocol for seeking help from other agencies :

Disaster management is a multi stakeholder function. Other agencies at various levels proactively support whenever required. With the increasing incidence of more intense storms and other natural hazards, public and private stakeholders are actively seeking opportunities to respond to needs. But

often, people do not always know where to begin, where assistance is most critical, who else is responding, and how actions are sustained in an effective manner.

Therefore, DDMA will put in place a mechanism for seeking assistance from different stakeholders, such as Private Sector, NGO & CBOs, UN agencies, Faith based organisations, Trade organisations, Public Sector undertakings, and other government agencies present in the district.

Mechanisms for checking and certification of logistics, equipments and stores

Operational readiness of the equipment required for disaster is very critical. Each department will constitute a committee for the following purpose:

1. Identify the equipment to be used during disaster response
2. Carry out verification and certification of worthiness at least once on a year
3. The committee could also make recommendation for repair, replacement or for additional procurement of equipment
4. DDMA will review these reports annually and establish need for additional resources

Operational check-up of Warning Systems

Working with departments identified for early warning generation and dissemination, the DDMA will establish a mechanism for checking operational readiness of the early warning equipment and dissemination system. The early warning generation and dissemination will be tested at least once in a year through mock drill. Table top exercises will be carried out to keep latest contact information of agencies and department which play roles in providing and receiving early warning.

Protocol and arrangements for VIP visits

During the disaster VIP's visit affected areas to take first hand account of situation and to oversee relief operations. It has been seen that the Ministers, members of Parliament and State legislatures, local councilors, leaders of various political parties, etc. visit the scene of a disaster to mark public concern. While organising VIP visit the following consideration needs to be taken in to account:

- a. it should not interrupt or affected rescue, relief, and life saving work
- b. Appropriate time for visit need to be finalised based on the ground situation
- c. Local police, Revenue officials, Military, Health Department, Media and other relevant holders should coordinate appropriately
- d. DDMA should prepare latest situation update and greater details about the location of visit
- e. Minute to minute programme should be prepared
- f. Appropriate protocols need to followed depending on the VIP who is visiting
- g. Adequate security and traffic management plan should be prepared

5.14 Private Sector Participation :

District Authorities will ensure participation of corporate sector in activities related to three phases of disaster management. The corporate sector is expected to provide resources to the government under CSR. All national and international non- government agencies

while rendering emergency support functions on the ground will function under the overall command of the State Government through the Incident Commander. Private sector is expected to undertake the following preparedness measures:

- i. Ensure business continuity plans are in place
- ii. Maintain and safeguard equipment which is useful for disaster response
- iii. Prepare list of equipment that they could share with the administration in the event of a disaster
- iv. Participate in the government planning exercises and mock drills
- v. DDMA should prepare a list of major private business entities in the district and list possible equipment that could be drawn from these entities

5.15 Identification of Stakeholders involved in Disaster response

Preparation for the disasters is a joint venture of various departments and agencies within the district. The major stakeholders for the pre and post disaster management are as below:

Table: List of Stakeholders and their responsibilities

SN	Stakeholders	Task and responsibilities
1.	DDMA	<ul style="list-style-type: none"> • Prepare, Coordinate and monitor overall district response • Review readiness to respond to any disaster or threatening disastrous situation • Advise, assist and coordinate the activities of the other Departments • Establish stockpiles of relief and rescue materials • Ensure communication systems are in order • Mock drills are carried out periodically • Ensure prepared and response plans are in place for all Departments of the Government
2.	DEOC	<ul style="list-style-type: none"> • Ensure proper functioning of the DEOC including hunting line 1077 • Prepare and maintain inventory of maps, information and contact details • Prepare and maintain contract agreements for procuring different goods and services • Identify, list and maintain vendors of critical goods and services • Ensure functioning of Satellite phones • Track stock piling of multi-hazard emergency equipment and maintenance

3.	HPSDMA	<ul style="list-style-type: none"> • Facilitating resources on demands raised by administration • Maintain state level inventory of critical resources • Constitute and train disaster management teams which could be deployed in the event of a disaster • To check the readiness conduct mock drills • Track and mobilize resources during disasters • Update IDRN • Ensure functioning of Satellite phones
4.	Police Department (Law and order)	<ul style="list-style-type: none"> • Assess preparedness level for maintaining law and order; • Ensure Police station level preparedness plan for disaster response • To ensure upkeep and maintenance of the equipment required for disaster response • Prepare SOP for disaster response functions • Prepare to ensure safety and security of relief workers and material • Prepare a plan for the protection of weaker and vulnerable sections of the Society. • Prepare a plan for safety and security at relief camps and temporary shelters
5.	Department of Health and Family Welfare	<ul style="list-style-type: none"> • Prepare and implement hospital preparedness plan. • Mobilization of health service providers for emergency response for medical care, evaluation and treatment. • To coordinate, direct and Integrate State level response; • Direct activation of medical personnel, supplies and equipment; • Coordinate the evacuation of patients; • Provide human services under the Dept. of health; • Prepare , Keep and check ready Mobile Hospitals and stock; • To network with private health service providers; • To provide for mass decontamination; • Check stocks of equipment and drugs.
6.	Fire and Emergency Services and Home Guards (Search and Rescue)	<ul style="list-style-type: none"> • To establish, maintain and manage district search and rescue response system; • To coordinate search and rescue logistics during field operations; • To provide status reports of SAR updates throughout the affected areas • To discharge all ambulatory patients for the first aid which has the least danger to health and others transported to safer areas.

		<ul style="list-style-type: none"> • To make arrangements for the transportation and Post mortem of the dead
7.	SDRF, Armed and Para military forces	<ul style="list-style-type: none"> • Armed and Para military forces to provide assistance to civil authorities on demand • Coordinate with administration in response as well as capacity building. • Facilitate administration with the key resources in disaster.
8.	Public Works Department/ National Highways Authority/ BRO	<ul style="list-style-type: none"> • Establish a priority list of roads which will be opened first; • Constructing major temporary shelters; • 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 and 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. • Depending on the nature of disaster, essential equipment such as Towing vehicles, Earth moving equipment's, Cranes etc. to be provided to work team carrying emergency • 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 equipment's etc.
9.	Irrigation and Public Health department (Water / Sanitation / Sewerage Disposal)	<ul style="list-style-type: none"> • Preparedness and implementation of preparedness plan of the department • Make arrangement for proper disposal of waste in their respective areas; • Arrange adequate material and manpower to maintain cleanliness and hygiene • For making available mobile toilets • To dispose of the carcass • Providing support to local Administration • Water purification installation with halogen tablets • 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
10.	Electricity Department (Power)	<ul style="list-style-type: none"> • Making arrangement for and to provide the alternative sources of power supply for emergency purposes to the affected populations and relief camps. • Identify requirements of external equipment required such as DG sets etc. • Prepare emergency repair teams equipped with tools, tents and food; • Listing of hired labour for the clearing of damaged poles etc.
11.	Transport Department	<ul style="list-style-type: none"> • Pre coordination of required transport and its implementation during emergency related response and recovery functions, search and rescue and damage assessment • Arrangement for Coordinating Vehicles for transportation of relief supplies from helipads/airports to the designated places • Preparedness regarding availability of fleet for the purpose of SAR, transportation of supplies, victims etc; • Provide arrangement for stocking of fuel for emergency operations
12.	Department of Food and Civil Supplies	<ul style="list-style-type: none"> • Designating temporary shelters for Emergency mass feeding; • Arrangement for providing logistical and resource support to local entities • Designate team to coordinate damage assessment and post disaster needs assessment • Making arrangements for emergency food and clothing supplies available for population • Control the quality and quantity of food, clothing and basic medicines; • Ensure the timely distribution of food and clothing to the people
13.	Forest Department	<ul style="list-style-type: none"> • Making arrangements for timely removal of trees obstructing the movement of traffic and which have become dangerous; • Make arrangement for fuel wood for the relief camps and for general public; • Providing fuel wood for mass cremation etc.
14.	Animal Husbandry Department	<p>Making arrangement for timely care and Treatment of animals in distress;</p> <p>Provision of vaccination;</p> <p>Provision for disposal of dead animals</p>

15.	Communication/ Information Department	<ul style="list-style-type: none"> • Coordination of telecommunication with other networks and available police wireless network, satellite phones, Ham Radio units of armed forces in the area affected • For rendering necessary assistance in terms of resources, expertise to the primary agency in performing the assigned task • Operate a Disaster Welfare Information (DWI) System to collect, receive, and Report the 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.
16.	Panchayati Raj Institution and Urban Development	<ul style="list-style-type: none"> • Preparing the Community as first responder and local authorities as per Village Disaster Management Plan • Identification of public buildings as possible shelters • Department of Panchayati Raj through local Panchayats would assist the primary agency in establishing shelters of smaller dimensions • 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 • Quick assessment and identifying the area for the establishment of the relief camp • Solid/ liquid waste treatment and management.
17.	Department of Public Relations	<ul style="list-style-type: none"> • Preparedness for providing and collecting reliable information on the status of the disaster and disaster victims for effective coordination of relief work at state level • Procedure for coordinating with all TV and radio networks to send news flashes for specific needs of donation • Using of 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.

Preparedness Measures to be undertaken in the District

5.16 Early Warning

Nodal Agencies for Early Warning have been identified by the District for the multi- hazard preparedness as follows:

SN	Hazards	Warning Agency	Contact Details
1	Earthquake	N- (IMD) Indian Meteorological Department / S- SDMA/SEOC D- DDMA/ DEOC	011-24619943 / 24624588, 0177-2626211/ 0177-2629724/ 0177-2624976; 9816127668 1077, 01786-223151 to 54
2	Landslide	N- (GSI) Geological Survey of India /DDMA/ D- DEOC	0172-2622529 Fax; 0172-2621945; Mob: 094173-71954. 1077, 01786-223151 to 54
3	Heavy Rain / Snowfall	N- (IMD) Indian Meteorological Department / S- SEOC D- DEOC	0177-2626211 1070 1077, 01786-223151 to 54
4	Flood/ Flash Flood	N- (CWC) Central Water Commission S -(CWC) Central Water Commission D -Irrigation and Public Health Dept./ DEOC	0183-236105 0177-2624036, 0177-2624224 ,
5	Domestic / Forest Fire	D- Department of Fire Services D- Department of Forest	101
6	Epidemics	D- Health and Family Welfare Department D- Horticulture D- Veterinary	
7	Human Induced Hazards	D- Himachal Pradesh Police	100
8.	Road Accidents	D- EMRI-GVK D- Police	108 100
9.	Stampede	D- District Administration/DEOC	1077, 01786-223151 to 54
10	Dam / Reservoir Burst	D- Hydro power project, I&PH, District Administration	

5.17 DEOC / Control Room:

DEOC at Kinnaur is equipped with all the basic and modern communication and IT infrastructure like EPBAX, Computers, LED sets, Telephone sets, Generator, and Voice logger that records all the incoming and outgoing calls from the DEOC. The Disaster Emergency number or the hunting line operational within district is 1077, which is a toll free number for disaster and is operational from all telecommunication networks. Emergency Operation Centre, will be the nodal control & coordination point for management of pre and post disasters in the district. The EOC will be activated in 24x7 basis with trained staff. The primary function of EOC is to facilities information dissemination, smooth inflow and outflow of relief and other disaster related activities. These EOCs act as bridges between District, State and Centre Government. In normal times, the EOC shall have only limited support staff. A register of all incoming and outgoing calls is maintained by EOC Operators.

Activities of EOC, Kinnaur

To ensure that warning and communication systems are in working conditions

- Collection and compilation of district level information related to hazards, resources, trained manpower etc.
- Networking and coordination with community, district and state level departments
- Monitoring and evaluation of community and inter-intra organization level disaster management plans
- Develop a status report of preparedness and mitigation activities under the plan
- Allocation of tasks to the different resource organizations and decisions making related to resource management
- Reviewing and updating response strategy
- Supply of information to the state government

Facilities with EOC

The emergency operation centre will be operating in 24/7 mode well-equipped with computer, wireless and telephone facilities with well-designed control room workstation, hotlines and intercoms. Following other facilities shall be made available within the EOC:

- A databank of resources, action plans, district disaster management plan, community preparedness plan would be maintained at EOC
- Maps indicating vulnerable areas, identified shelters, communication link system with state government and inter and intra district departments would strengthened
- Inventory of manpower resources with address, telephone numbers of key contact persons has been maintained
- EOC have to identity desk arrangements during disaster situations
- Frequently required important phone numbers would be displayed on the walls so that they can be referred whole other phones and addresses would be kept under a easy-retrieval and cross-referring system
- EOC shall be operational 24 hours with the help of police, fire and home guard department
- GIS map shall be made available within EOC for effective and smooth coordination.

5.18 Role of 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 Divisional Commissioner/District Collector of the occurrence of a disaster, all community preparedness measures including counter-disaster measures will be put into operation. The Chief Secretary/Relief 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:

- 1) Governor
- 2) Chief Minister
- 3) Revenue Minister
- 4) MPs and MLAs from affected areas
- 5) NEOC;
- 6) Joint Secretary, NDM, Ministry of Home Affairs, GOI.

The Level 0 disaster/event 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 in written to the DM.

The occurrence of disaster shall be immediately communicated to all the first responders such as police, fire, health, DM, SDM and other stakeholders such as NGOs, trained SAR volunteers through SMS gateway for which specific provision of group mobile directory would be made. The directory would be grouped according to the disaster specific response groups.

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

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. Establish an on-going VSAT, wireless communication and hotline contact with the Divisional Commissioner, and Collector/s of the affected district/s.

EOC Staffing

To make EOC operational during and post disaster situation there would be a need of keeping adequate staff. There is a need of regular staff, staff-on requirement and staff-on disaster duty. Therefore, trained manpower shall be working 24 hours on shift basis for managing the communication and transportation of rescue equipments in EOC during any disaster. Staff on disaster duty can be appointed by Deputy Commissioner, Kinnaur. This staff can be drawn from the various government departments.

CHAPTER 6

CAPACITY BUILDING AND TRAINING MEASURES

6.1 To enhance organizational and capability skills to deal with emergency situations requires trainings and capacity building exercises of the various linked government and non-government officers. Since disaster management is a multi-organizations effort, it emphasizes on trainings in execution and coordination as well. Therefore, wide ranges of trainings related to management skills are highly required for potential officers in order to equip them for specialized disaster related tasks. They require orientation of various aspects of crises management such as Skill training,

As per the Disaster Management Act (2005), capacity-building includes:

1. Identification of existing resources and resources to be acquired or created;
2. Acquiring or creating resources identified
3. Organization and training of personnel and coordination of such trainings for effective management of disasters.

The primary purpose of capacity-building in disaster management is to reduce risk and thus make communities safer. This can be done by increasing resilience and enhancing coping capacities. Effective capacity-building at the district level requires the active participation of all those who are tasked with it. It must, therefore, include maintaining a comprehensive and up-to-date District Disaster Management Resource Inventory, awareness generation, education, Research and Development (R&D) and systematic and systematized training.

The Deputy Commissioner should ensure the following capacity-building activities of the entire district, and the various Heads of Departments should ensure capacity-building of their respective departments. Furthermore, the Nodal Officers should, in coordination with the HODs, procure relevant equipment for disaster management activities.

6.2 Capacity Building Plan of DDMA Kinnaur

Task	Activities	Responsibility	Time Period
Training & Awareness	Training to Engineers, Architects, and Masons	DDMA, Revenue, PWD I&PH & All relevant Departments	April- May Organized by HP State Council for Environment in collaboration with DDMA Kinnaur
	Training to Media in various aspects of Disaster Management	DDMA, Revenue, Public Relation Department	June- Sept
	Training of Police, Home Guards, and volunteers in various aspects of DM includes First Aid/Search &Rescue.	Revenue, DMC, SDMA, HIPA, Water Sports, GVK 108.	April- Sept
	Training to NGO/CBO/civil society/SHG/Clubs etc./NCC/NSS/NYK & formation of task forces	DDMA	March to April
	Training of doctors & paramedics on Medical Preparedness & Mass Causality Management	DDMA, Health Deptt.	June- October
	Training to Anganwadi Kendra	DDMA & Social Welfare Deptt.	June- October
	Training to PRI in various aspects of DM	DDMA & BDO	April- October

IEC	Advertisement, street Play, Banners, Demonstration, Booklets, Exhibition, Documentary, Hoarding	DDMA & All Frontline Departments.	IEC Material has been printed by DDMA Kinnaur
Mass Awareness	Samarth campaign on Disaster Risk Reduction	SDMA, DDMA & All Frontline Departments.	Sept- Oct
	Mass Awareness During Fairs	DDMA	Oct to November

6.3 Community Awareness and Community Preparedness Planning:

The hazard analysis of the district indicates that there is a high need of community awareness through public awareness programmes on the following themes of disaster: Types of disasters and basic do's and don'ts related to those disasters Post disaster epidemic problems Construction and retrofitting techniques for disaster resistant buildings Communication of possible risk based vulnerable areas in the district Evacuation related schemes and community preparedness problems Volunteers and social organizations also play a vital role in spreading mass scale community awareness. Media can also play an important role in raising awareness and educating people. Community Disaster Management Planning is one of the vital components of community preparedness. It involves all important parameters related to hazard awareness, evacuation planning, resource inventory, community level taskforces and committees etc which helps community members in organizing themselves to combat disaster in a pre-planned manner. Preparation of community plans encourages promote preparedness planning at community level. District administration is also imparting trainings on regular basis to the volunteers of Civil Defence and Home Guards, Nehru Yuva Kendra Sangthan, Residential Welfare Associations, Market Trade Associations, Self Help Group, GRCs and NGOs etc to involve them to into community planning.

6.4 Capacity Building of Community Task forces:

Community taskforces and community committees has been constituted and trained in all types of communities by government and non-government agencies. District administration, Medical officers, Trained volunteers, fire Services, Civil Defence and Home Guard

volunteers etc. are playing important role in building capacities of community task forces in building their capacities in search and rescue, fire-fighting, warning dissemination, first-aid and damage assessment etc. Similarly, fire service along with CD & HG gives trainings on search and rescue and fire fighting. Police provides trainings on warning dissemination, traffic norms, communication and damage assessment. Similarly, such programmes is also being organized by HIPA, Shimla. Although many task forces had been constituted in past, but presently 2 task force training were organized in Kalpa and Nichhar subdivision. The task force included PRI members, officials, local community and even students.

6.5 Trainings and Capacity Building

Following stakeholders are key for disaster response and hence they need to be adequately trained for managing response. The capacity building will cover functional, managerial as well as policy aspects of Disaster Management. To enhance capacity for disaster management the following training plan is proposed:

Table : Training and Capacity Building Table for District, Kinnaur

Nature of training	Target departments	Demand	Training institutes	Approach
Policy level training for DDMA and other senior level district officials	Chairman-DDMA Members of DDMA	10	<ul style="list-style-type: none"> • HIPA • NIDM • UNDP 	Short term
<p>Police</p> <ul style="list-style-type: none"> • Training of personnel to maintain the law and order in emergency situation, search and rescues, and maintain record of district-level trained personnel • Training to prevent human trafficking which is common in the after math of disasters 	Police, Home Guard/Fire personnel's	40 Personnel	<ul style="list-style-type: none"> • District Police training Junga • HIPA 	Short/ Medium term
<p>Home-Guard/Civil Defence/ NCC/NSS/NKYS</p> <ul style="list-style-type: none"> • Provision of trainings for volunteers in Search and Rescue (SAR), First Aid, Traffic Management, Dead Body Management, Evacuation, Shelter and Camp Management, Mass Care and Crowd Management etc. 	Home Guard and police personnel's	40 Personnel	<ul style="list-style-type: none"> • District Police training Complex • HIPA 	Short/ Medium/ Long term
<p>Medical and Health</p> <ul style="list-style-type: none"> • Training for the preparation of ward-level and village level First Aid teams. • Ensure organisation of blood donation camps on a regular basis during normal times. • Organise drives to recruit volunteers to help with blood donation camps and other activities. • Formation and training on damage and needs 	Doctors and Support staff/Health workers	60	<ul style="list-style-type: none"> • IGMC, Shimla • State Institute of Health & Family Welfare, Shimla • Indian Red Cross Society • NRHM 	

<p>assessment teams within the department.</p> <ul style="list-style-type: none"> • Trainings for Quick Response Medical teams (QRMTs) of paramedics, mobile medical teams, psychological first aid teams and psycho-social care teams. • Procurement of portable equipment for field and hospital diagnosis, triage, etc. • Trainings for health attendants and ambulance staff in First Aid and life-saving techniques. • Capacity-building at the institution all level should be done by carrying out various activities under the Hospital Emergency Preparedness Programme (HEPP). 			<ul style="list-style-type: none"> • EMRI 	
<p>ASHA/ ANM</p> <p>Provision of trainings on:</p> <ul style="list-style-type: none"> First Responders Post Disaster Needs Assessment Relief distribution Community Kitchen Hygiene Promotion Psycho-Social support 	<p>PRI members ward members and college students</p>	50	<ul style="list-style-type: none"> • IGMC, Shimla • State Institute of Health & Family Welfare, Shimla • Indian Red Cross Society • NRHM • EMRI 	<p>Short/ Medium term</p>
<p>Electricity Department</p> <ul style="list-style-type: none"> • Pre-positioning of electric equipments necessary for speedy and efficient disaster response, • Prepositioning of emergency lighting and support equipment for immediate recovery • Training and development of task forces on emergency lighting and immediate recovery 	<p>SDO, Junior Engineers</p>	30	<ul style="list-style-type: none"> • IIT, Mandi • NIT, Hamirpur • HIPA 	<p>Short/ Medium term</p>

<p>PWD Department</p> <ul style="list-style-type: none"> • Sensitization Training for Civil engineers to keep themselves updated about the latest research and developments in construction technology; • Advanced trainings in construction materials and design 	XEN, SDO and Junior Engineers	20	HIPA	Short/ Medium/ Long term
<p>PRI's Representative</p> <ul style="list-style-type: none"> • Trainings on Community Based Disaster Preparedness. • Trainings for formation of teams to engage with the issues of hygiene and sanitation at the village level through the Gram Panchayats. 	PRI members, Patwaris and local community	70	<ul style="list-style-type: none"> • HIPA • DDMA • Indian Red Cross Society 	Short/ Medium term
<p>Forest Department</p> <ul style="list-style-type: none"> • Training and development of teams within the department for catching wild/ escaped animals who pose a threat to human safety. • Awareness generation among community on Forest Fires. • Awareness generation on afforestation among communities. 	ACF, Range Officer and forest guards	40	<ul style="list-style-type: none"> • HIPA • Forest Training Institute, Sunder Nagar • Forest Training Institute, Sunder Nagar 	Short/ Medium term
<p>Himachal Pradesh Road</p> <ul style="list-style-type: none"> • Training of drivers, conductors and staff in First Aid and basic life saving techniques • Adequate stocking/ replenishing of First Aid kits and maintenance of fire extinguishers in all vehicles and depots in the district 	Bus drivers, taxi operators, HRTC Officials	20	<ul style="list-style-type: none"> • DDMA • EMRI • Indian Red Cross 	Short/ Medium term
Irrigation Department	XEN, SDO, Junior	25	<ul style="list-style-type: none"> • IIT Mandi 	

<ul style="list-style-type: none"> • Trainings of personnel with on early-warning for flood. • Prepositioning of early warning and communication equipment through appropriate channels of the District Administration. 	Engineers and linemen		<ul style="list-style-type: none"> • NIT Hamirpur • HIPA 	
<p>Fire Services Department</p> <ul style="list-style-type: none"> • Fire-safety trainings for all district officials • conducting safety audit so of various government and civilian buildings for compliance of fire-safety norms. • Regular Mock-drills for fire-fighting and evacuation procedures • Pre-positioning of fire fighting equipment • District-level database of trained persons 	Local community, Officials of various departments and PRI members	30	<ul style="list-style-type: none"> • Forest Training Institute, Sunder Nagar • Forest Training Institute, Chail • HIPA • National Fire Service College, Nagpur 	Short/ Medium/ Long term

CHAPTER 7: RESPONSE AND RELIEF MEASURES

7.1. Introduction and Objective

The post disaster phase of Disaster Management looks into Relief, rehabilitation, reconstruction and recovery. The effective disaster management strategy aims to lessen disaster impacts through strengthening and reorienting existing organizational and administrative structure from district – state to national level. Relief on the contrary, is 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. Relief needs to be prompt, adequate and of approved standards. It is no longer perceived only as gratuitous assistance or provision of emergency relief supplies on time.

7.2. Response Planning

The onset of an emergency creates the need for time sensitive actions to save life and property, reduce hardships and suffering, and restore essential life support and community systems, to mitigate further damage or loss and provide the foundation for subsequent recovery. Effective response planning requires realistic identification of likely response functions, assignment of specific tasks to individual response agencies, identification of equipment, supplies and personnel required by the response agencies for performing the assigned tasks. A response plan essentially outlines the strategy and resources needed for search and rescue, evacuation, etc.

Table : Response planning phases when the early warning is available

Pre-Disaster	Responsible Deptt.	Post-Disaster	Responsible Deptt.
Activate control room if necessary	DDMA will activate the control room at district level. Control room at Sub-Division and Tehsil level will be activate by concerned disaster management authority.	Quick Damage and Need Assessment	Multi-Sectoral committees encompass all line departments constituted by DDMA
Review situation	DDMA will review all the situation on the basis of data and reports provide by the line departments	Search and rescue	Home Guard/Civil Defence/Fire with coordination with Police and NDRF (if required)
Communicate warning (Inform community likely to be affected by the impending disaster Inform line departments/agencies to mobile resources/teams for quick deployment)	DEOC will communicate the warning to all potential affected areas with support of DPRO, DRDA, Police, Home Guard, Fire and Local Administration.	Activate Line Departments/Agencies to Quick restoration of basic utilities and critical infrastructure e.g. Roads, Life Line Buildings i.e. Hospital, Blood Bank, Schools and Banks, Admin Building, Electricity , Water/Sanitation,	DDMA will coordinate with all line departments for quick restoration

Coordination with all line departments	Chief Executive officer appointed by DDMA will coordinate	Activate all Quick response Team QRTs/ First Responder Team	DDMA will coordinate with all available QRTs in the District
Stocking of Essential and basic life line Items and materials	All frontline departments i.e. Medical, Food and Civil Supplies, IPH, PWD, HPSEB, Police	Sharing, reporting and communicating the info to the State and National Level and Requisition for assistance to prompt response or relief	Chief Executive officer appointed by DDMA will coordinate
Identification of temporary shelter	Revenue Department will identify the shelter with support of PWD, MC and Education	Activate and deploy the Incident Response Teams	DDMA Chairman
Evacuate people to temporary shelter with necessitated facilities	Police and Home guard will evacuate the people to safer place or identified temporary shelter in support of Fire Deptt., NKYS, NCC, NSS and Paramilitary Forces i.e. IRB Battalion in Kinnaur	Provide temporary shelter and basic necessitate facilities to people	Revenue Department will coordinate with all line departments
Remove assets from dangerous areas	PWD will facilitates all these activities in coordination with RTO, HRTC		

Table: Response planning when there is no early warning

Activities	Responsible Deptt.
Activate control room and forward the report to state and national level	DDMA will activate the control room at district level. Control room at Sub-Division and Tehsil level will be activated by concerned disaster management authority. CEO of DDMA will report to higher Authority
All heads of the departments will report to the Control Room	DDMA will coordinate with line departments
Activation of damages and needs assessment teams to undertake damages and needs assessment	Multi-Sectoral committees encompass all line departments constituted by DDMA will undertake an assessment of damages to assets and infrastructure and assess the needs of the community.
Restoration of Critical and life line infrastructure	PWD, IPH, HPSEB, Health and family Welfare, Food and Civil Supplies will initiate efforts to restore the infrastructure starting especially with the most critical infrastructure that could assist relief
Activate and deploy the Incident Response Teams	Chief Executive officer appointed by DDMA will coordinate
Provide relief to the affected communities	DDMA will coordinate with food and civil supplies, health and family welfare, Police, RTO, HRTC, PWD and IPH
Coordinate relief operations	DDMA and Revenue Deptt will coordinate with Incident response team at Hierarchical admin level e.g. SDM, BDO, Tehsildar, ZP
Request for possible help from external sources/ Resource's Mobilization	Chief Executive officer appointed by DDMA will coordinate

7.3 Disaster Response Functions to be carried out:

Early Warning Phase:

1. Activation of Control Room/EOC: As soon as EW Message/Information is available through IMD/CWC/GSI, DDMA will activate EOC/CR
2. Inform Community likely to be impacted
3. Inform Line Departments/Agencies
4. Hold Meetings of DDMA
5. Requisition of NDRF
6. Requisition of Paramilitary-IRB/TBP/SSB

7.4 Immediate Post Disaster Phase

1. Search & Rescue: Home Guard/Civil Defence/Fire will carried out the search and rescue with coordination with Police and NDRF and the existed Paramilitary Forces within or nearby the district.
2. Quick Damage Assessments: DDMA will constitute a multi-sectoral damage and need assessment team which will carry out the process of damage and need assessment and report to the DDMA for further action. The multi-sectoral teams will be constituted and its members having local knowledge and will comes from different expertise to do the synthesis damage and need assessment compressively. The team will conduct damage assessment in the special following sectors

Table: Damage assessment in context to Response

Sl. No	Damages
1	Roads and Bridges
2	Life Line Buildings
	Food and Civil Supplies
3.	Houses
3	Water lines and Tanks
4	Electricity
5	Communication

6	Medical Infrastructure
7	Monuments
8	Agriculture Crops and Horticulture
9	Livestock
10	Forest

7.5. Quick Need Assessments

Need assessment will be undertaken by a multi-sectoral team with a special focus on the following sectors mentioned in table.

Table: Need assessment in context to Response

Sl.No.	Sector of Need
1.	Temporary Shelter
2.	Food and Civil Supplies
3.	Medical/health
4.	WASH
5.	Special Needs
6.	Psychosocial care
7.	Security needs in context to varying social groups
8	Restoration of essential services like, roads, water facilities, power, communication

7.6. Resource Mobilization

Resource mobilization is one of the most important and crucial activity when any disaster occurs in the district for responding to disaster in an efficient manner. The IDRN portal has information regarding the different kind of resources available for multi-hazard, with the various departments along with their location across district. It can lead to quick and immediate procurement of the required resources from the nearest available site and department for response to any disaster.

Various resources required in the damages and needs assessment will be mobilized by the concerned departments. Following is the list of the departments which are responsible for mobilizing various needs identified in the damages and needs assessment:

Table: Resource Mobilization and Responsible Department

Sl. No	Identified Need	Action	Nature of resources	Responsibility
1.	Temporary Shelter	DDMA/Revenue Department will arrange relief camps/shelters. Wherever required Tents will be pitched in to accommodate affected people. Departments of Education, Health and Family Welfare will provide support	Tents, sleeping bags blankets and clothing's, Sanitizer and sanitary pads, stretchers	Revenue Deptt/DDMA/Health/
2.	Food and Civil Supplies	Food and Civil Supplies Deptt. will Provide food, Fuel, and Drugs	Essential food items and fuel	Food and Civil Supplies Deptt.
3.	Medical	Medical Deptt will arrange the lifesaving medicines, blood, Doctors, Paramedical staff	Medicines, doctors, ANM, nurses, Asha Workers	Health and Family Welfare Deptt./Red Cross
4.	WASH	IPH will provide choline tables for water purification, drinking portable water, sanitation kits	Drinking water, sanitation	IPH
6.	Psychosocial care	Health and Family Welfare Deptt./Red Cross will take care the reported Physco and Mental Trauma cases	Psychosocial care	Health and Family Welfare Deptt./Red Cross
7.	Security needs in context to varying social groups	Maintain the Law and Order and security of Social group and tackle the human trafficking situation	Trained personnel	Police/Home Guard, Civil Defence
8.	Road clearance	To restore the road function, remove the debris and clearance of any blockage	Earth removers and man power	HPPWD, BRO

9.	Power storage	To restore the power, provide the temporary chargeable generators and batteries, Him Urja will provide the Solar Lights	DG sets, wires, manpower, batteries, search lights,	HPSEB and Him Urja
10	Communication	To restore the communication network	Network restoration, v-sets, satellite phones, walkie talkie	BSNL, NIC, Police

7.7. Response Management

Multi functional damages and needs assessment teams will be deployment under the leadership of the DDMA

7.7.1. Activation of EOC

The DEOC will function to its fullest capacity on the occurrence of disaster. The district DEOC will be fully activated during 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 approved agency which is competent to issue any early emergency 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. All the line department senior official will be immediately reported to the DEOC. The DDMA will 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. All the occurrences report would be communicated to the SEOC/SDMA, NEOC/NDMA and Supporting Agencies by means of telephone and subsequently fax periodically. The occurrence of disaster shall be immediately communicated to the stakeholders such as NGOs, trained SAR volunteers through SMS gateway (or telephonic in case of communication exist or any available communication network) for which specific provision of group mobile directory would be made.

Main Roles of DEOC after activation:

- 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.
- g. Collect information
- h. Analyse data
- i. Prepare and disseminate reports
- j. Support decision making mechanism
- k. Support coordination of relief operations
- l. Success stories
- m. Lessons for Future

7.7.2. Relief distribution: - Relief distribution will be coordinated by sub divisional, tehsil and respective disaster management committees. The onsite distribution will be done by incident response team. The updated needs will be communicated to the DDMA and the DDMA will ensure the regular supply of the required items. The relief distribution will include essential items which serves the basic needs of the affected community like LPG , medicines, clothes, food items, drinking water, soaps, blankets, items of special needs for women's, children's, handicapped and old aged.

7.7.3. Search and rescue management

Search and Rescue activities include, but are not limited to, locating, extricating, and providing immediate medical assistance to victims trapped in exigency situation. People who are trapped under destroyed buildings or are isolated due to any disaster need immediate assistance. The District Commissioner, in conjunction with local authorities will be responsible for the search and rescue operations in an affected region. At present, Nodal department for this activity is NDRF and Home Guard/civil Defence Department. The helping departments for search and rescue are P.W.D., Nagar Panchayat/Nagar Palika, Self-help groups, N.S.S, N.C.C, and PRIs. There are other bodies too that help these departments in this work, like, Health department, Fire department. In doing so, the DC will be guided by relevant disaster management plans and will be supported by Government departments and local authorities.

Dedicated search and rescue teams from various line departments has been formed to support the search and rescue operations in the district and more details given regarding this mentioned in

Annexure-VII. Team members have to be periodically trained/retrained on the elements of collapsed structure, confined space search & rescue, and rope rescue etc.

7.7.4. Information management and Media management

Media has to play a major role during disaster. They will aid in information dissemination about help-line, aid-distribution camps, emergency phone number or the needs of the people. Further, they will also help in quashing rumors, for crowd management and prevent panic situation. Media will also help in mobilizing resources [money, volunteers etc.] from other areas. To disseminate information about various hazards in the district and the relevant dos and don'ts during and after a disaster encompass under the media management. This will be done through various media such as newspapers, television, radio, internet, media and information van, street theatre, etc. The DDMA will establish an effective system of collaborating with the media during emergencies. At the District Emergency Operation Centre (DEOC), a special media cell will be created during the emergency. Both print and electronic media are regularly briefed by some senior official designated from DDMA at predetermined time intervals about the events as they occur and the prevailing situation on ground. The DPRO in consultation with the DDMA would take appropriate steps in this direction also too.

7.7.5. VIP management

It may be possible that the scale of a disaster may in addition prompt visits of the VVIPs/VIP which further requires the active management to ensure the effortlessly ongoing response and relief work without any interruption. DDMA will designate a senior official to handle the VVIPs/VIPs visits to the affected areas and further to brief the VVIP/VIP beforehand about the details of casualties, damage and the nature of the disaster. The Police and Home guard will handle all the security of VVIPs/VIP during their visit. It would be desirable to restrict media coverage of such visits, in which case the police should liaise with the government press officer to keep their number to a minimum. Detailed SOP for VIP management is available in chapter 12 of the plan.

7.7.6. NGO Coordination and Management

Non-governmental organizations (NGOs) can play an effective alternative means of achieving an efficient communications link between the disaster management agencies and the affected community due to their outreach at the grassroots level. As per the section 35 and 38 of the DM Act 2005 stipulates that the DDMA shall specifically emphasize the coordination of actions with NGOs. In any kind of

disaster situation, DDMA with the support of DRDA, will coordinate the NGOs/CBO's and further manage their work in prompt response, relief and rescue, and also in monitoring and feedback at grassroots level by the agreeable community participation.

7.7.7. Disposal of dead bodies and carcass

District administration will coordinate to arrange the mass cremation burial of the dead bodies with support of police & forest department after observing all codal formalities & maintain the video recording of such unclaimed dead bodies after properly handing over the same to their kith or kin. Department of animal husbandry in association with the local administration shall be responsible for the disposal of the animal carcass in case of mass destruction. Detailed SOP for dead body disposal and carcass disposal is available in chapter 12 of the DDMP.

7.8 Seeking external help for assistance

1. **As and when required the DDMA and SDMA could seek support of Military, Armed forces and NDRF.** 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.

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

- Infrastructure for command and control for providing relief. This would entail provision of communication sound technical man power.
- Search rescue and relief operations at disaster sites.
- Provision of medical care at the incident site and evacuation of casualties.
- Logistics support for transportation of relief materials
- Setting up and running of relief camps
- Construction and repair of roads and bridges to enable relief teams/material to reach affected areas.
- Repair, maintenance and running of essential services especially in the initial stages of disaster relief.
- Assist in evacuation of people to safer places before and after the disaster
- Coordinate provisioning of escorts for men, material and security of installations,

- Stage management and handling of International relief, if requested by the civil ministration.

There is a manual on aid to civil authority for requisitioning the services of armed forces and the same should be followed.

For NDRF support, the nearest the DDMA could seek the support of the support of NDRF battalion, Bhatinda.

7.9. Management of Tourists:

District Kinnaur is a major tourist destination and the major tourist season in the district is from may-October. Tourists are especially vulnerable to disasters for variety of reasons and hence need special attention in the event of a disaster. The HP Tourism Development Corporation (HPDTC) should take the following preparedness and response measures:

- Registration of tourists and the transportation vehicles used by the tourists
- Making special provisions for their evacuation, search and rescue
- Facilitate their return
- Coordinate with the state counterparts from where the tourists reached

CHAPTER 8

RECONSTRUCTION, REHABILITATION AND RECOVERY MEASURES

Reconstruction and Resettlement:

8.1 The approach to the reconstruction process will be aimed at converting 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 choice of technology will be based on its likely impact on physical, social-cultural or economic environment of the communities in the affected areas or in their neighborhood. Systems for providing psycho-social support and trauma counseling need to be developed for implementation during the reconstruction and recovery phase. Once the response process is in place the recovery process is activated by resorting to the following actions:

Providing and erecting temporary housing to the victims and displaced persons.

- Facilitating and providing claims and grants as per the relief manual.
- Providing counseling to the victims
- Providing and facilitating medical support for the victims requiring long term care.
- Clearing and disposing off the debris created as a result of collapse of physical infrastructure and elements.
- Initiating the process of reconstruction by adapting improvised technologies for safe construction.

Sector specific approach and processes for Reconstruction, Rehabilitation and Recovery are as follows:

Sector	Approach	Process
Public assets: <ul style="list-style-type: none">• Roads and bridges• Culverts• Public buildings like hospitals and schools	Multi hazard resistant construction to be followed while reconstruction of public assets. For example <ul style="list-style-type: none">• Hazard resistant buildings to be made with the help of certified engineers.• Use of non-shrinking mortar• Evacuation plans to be made for the public buildings• Non-structural mitigation measures to	<ul style="list-style-type: none">•Detailed damages and needs assessment: Multi sectoral/ multi-disciplinary teams are to be made which can do a detailed damage and need assessment of the entire area.•Develop a detailed recovery plan through multi departmental participation. Specific recovery plan through consultative process of different line department are to be made.•Arrange for funds from Central government, state government, multi-

	<p>be taken into consideration</p> <p>Risk sensitive development will be ensured in each of the reconstruction Programme.</p> <p>For example:</p> <ul style="list-style-type: none"> • landslide and flood zone mapping to be implemented • Detailed geological survey of the land to be used for reconstruction. • Recommendations from PDNA report to be considered. 	<p>lateral agencies (World Bank or ADB)”</p> <ul style="list-style-type: none"> •Multi sectoral Project Management Unit to be made. • The process of monitoring and manipulation is to be done by SDMA.
<p>Utilities</p> <ul style="list-style-type: none"> • Water supply • electricity • communication 	<p>Multi hazard resistant construction to be followed.</p> <p>For example:</p> <ul style="list-style-type: none"> • Water pipelines, communication equipment used can be of such material which can resist impact of certain hazards • Risk sensitive development will be ensured • Electric and communication junctions to be installed after considering landslide and flood zonation. • Recommendations from PDNA report to be considered. 	<ul style="list-style-type: none"> •Detailed damages and needs assessment: Multi sectoral/multi-disciplinary teams are to be made which can do a detailed damage and need assessment of the utilities of the entire area. •Develop a detailed recovery plan through multi departmental participation including specific line departments and other stake holders. •Arrange for funds from Central government, state government, multi-lateral (World Bank or ADB) •Multi sectoral Project Management Unit to be made. •Monitoring and evaluation: The process of monitoring and manipulation is to be done by SDMA.
<p>Housing</p>	<ul style="list-style-type: none"> •Multi hazard resistant construction to be followed. •Risk sensitive development will be ensured •Owner driven approach will 	<p>Detailed damages and needs assessment: Multi sectoral/ multi-disciplinary teams are to be made which can do a detailed damage and need assessment of the entire area.</p> <p>Develop a detailed recovery plan</p>

	<p>be preferred. For example:</p> <ul style="list-style-type: none"> • National and State schemes like Pradhan Mantri Awas Yojna (rural/ urban) and Mukhya Mantri Awas Yojna can be included in construction of the individual houses. • Non-structural mitigation measures to be taken into consideration • Use of non-shrinking mortar • Further loans can be sourced through banks and other financial institutions. 	<p>through multi departmental participation: Specific recovery plan through consultative process of different line department are to be made.</p> <p>-Arrange for funds from Central government, state government and multi- lateral (World Bank or ADB)” and world Bank</p> <p>-Multi sectoral Project Management Unit to be made.</p> <p>-Monitoring and evaluation: The process of monitoring and manipulation is to be done by SDMA.</p>
<p>Economic restoration</p> <ul style="list-style-type: none"> • Agriculture • Horticulture • Industry • Allied sectors • Tourism etc. 	<ul style="list-style-type: none"> • Multi sectoral assessment • Assess direct and indirect losses. • Develop sectoral strategies the sectors that affected the most poor. • the sectors which are most critical for district’s economy • Risk sensitive development will be ensured • Owner driven approach will be preferred • Provision of single window insurance claim system • Promote insurance facility for all sectors through government and private institutions 	<p>-Detailed damages and needs assessment: Multi sectoral/ multi-disciplinary teams are to be made which can do a detailed damage and need assessment of the entire area.</p> <p>-Develop a detailed recovery plan through multi departmental participation: Specific recovery plan through consultative process of different line department are to be made.</p> <p>-Arrange for funds from Central government, state government, multi lateral (World Bank or ADB)”</p> <p>-Multi sectoral Project Management Unit to be made.</p> <p>-Monitoring and evaluation: The process of monitoring and manipulation is to be done by SDMA.</p>
<p>Livelihood Restoration</p>	<ul style="list-style-type: none"> • Nature, number and types of livelihoods affected • Interim and long term 	<p>Detailed damages and needs assessment: Multi sectoral/ multi-disciplinary teams are to be made which can do a detailed damage and need</p>

	<p>strategies</p> <ul style="list-style-type: none"> • Focus on livelihood diversification • Issues related to most poor, women, and marginalized sections • Livelihoods of people without assets (labor) • Role of NGOs 	<p>assessment of the entire area.</p> <p>Develop a detailed recovery plan through multi departmental participation: Specific recovery plan through consultative process of different line department are to be made.</p> <p>Arrange for funds from Central government, state government, multi lateral (World Bank or ADB)</p> <p>Multi sectoral Project Management Unit to be made.</p> <p>Monitoring and evaluation: The process of monitoring and manipulation is to be done by SDMA.</p>
<p>Psychosocial restoration</p>	<ul style="list-style-type: none"> • Consider abnormal behavior of the affected communities as normal and temporary • Set up effective grievances redressal mechanism • Establish supportive systems for the most vulnerable communities • Demonstrate sensitivity to the affected communities • Spiritual leaders can help the community to cope up from the trauma 	<p>Obtain technical support from national institutes like NIMHAN</p>

CHAPTER 9

FINANCIAL RESOURCES FOR IMPLEMENTATION OF DDMP

District Disaster Response Funds and District Disaster Mitigation Funds are proposed to be created at the District Level as mandated by Section 48 of the DM Act. The disaster response funds at the district level would be used 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. 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 organizations, research and academic institutions, private sector, industries, civil society organization 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.

9.1 Disaster Mitigation Fund:

In accordance to the provisions in the Disaster Management Act 2005, Disaster Mitigation Fund has been constituted at state and district levels.

9.2 National Disaster Response Fund :

NDRF is a fund constituted under section 46 of the Disaster Management Act 2005. These Guidelines are issued under section 46 (2) of the Disaster Management Act, 2005 (herein after DM Act, 2005), to supplement funds from the State Disaster Response Fund (SDRF) of a State, to facilitate immediate relief in case of calamities of a severe nature.

9.3 State Disaster Response Fund :

The State Disaster Response Fund (SDRF) is a fund constituted under section 48(1) (a) of the Disaster Management Act, 2005 (53 of 2005) (hereinafter DM Act, 2005). These guidelines are being issued under section 62 of the DM Act, 2005

9.4 Calamities Covered under SDRF :

The SDRF shall be used only for meeting the expenditure for providing immediate relief to the victims of cyclones, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanches, cloud burst and pest attack.

9.5 Flexi-funds under Centrally Sponsored Schemes:

NITI Aayog has issued instructions for Rationalization of CSS, vide OM No. O-11013/02/2015-CSS & CMC dated 17th August, 2016. These instructions are applicable for Centrally Sponsored Schemes with one of the key objective “To undertake mitigation/ restoration activities in case of natural calamities, or to satisfy local requirements in areas affected by internal security disturbances. Therefore the CSS mentioned in Chapter 4 of this plan are one potential source of funding for mitigation/restoration activities.

9.6 Prime Minister’s Relief Fund :

At the National level, Prime Minister’s Relief Fund was created shortly after Independence with public contribution to provide immediate relief to people in distress for: immediate financial assistance to victims and next of kin, assist search and rescue, Provide Health care to the victims, Provide Shelter, food, drinking water and sanitation, Temporary restoration of roads, bridges, communication facility and transportation & Immediate restoration of education and health facilities etc.

9.7 Member of Parliament Local Area Development Scheme (MPLADS) :

The Member of Parliament Local Area Development Division is entrusted with the responsibility of implementation of Member of Parliament Local Area Development Scheme. Under the scheme, each MP has the choice to suggest to the Deputy Commissioner for, work to the tune of Rs.5 Crores per annum to be taken up in his/her constituency. In the context of natural & man-made calamities, MPLADS works can also be implemented in the areas prone to or affected by the calamities. Lok Sabha MPs from the non-affected areas of the State can also recommend permissible works up to a maximum of Rs.10 lakh per annum in the affected area(s) in that State. In case of “Calamity of severe nature” in any part of the country, an MP can recommend works up to a maximum of Rs.50 lacs for the affected district.

9.8 Chief Minister Relief Fund :

Chief Minister’s Relief Fund has proved a ray of hope to the under privileged who run pillar to post for help during emergent situation. This fund is also granted as grant of relief for certain categories such as losses sustained due to natural calamities, premature death of earning members of the families, medical treatment in certain serious cases and other case where the Chief Minister is personally satisfied with regard to the genuineness of the demand.

9.9 By State Government :

As Stated in the section (48) of the DM Act 2005, the State Government shall establish for the purposes of the Act the following funds:

a) State Disaster Response Fund:

This fund will be constituted and made available to the SEC for meeting the expenses for emergency response, relief and rehabilitation.

b) District Disaster Response fund:

DDRF is proposed to be created at the District Level as mandated by Section 48 of the DM Act. The disaster response funds at the district level would be used 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.

c) State Disaster Mitigation Fund:

This fund will be constituted and made available to the SEC for meeting the expenses on mitigation activities.

d) District Disaster Mitigation Fund: This fund will be constituted and made available to the District Disaster Management Authority for meeting the expenses on mitigation activities. District Disaster Mitigation funds would be created at the District Level as mandated under Section 48 of the DM Act 2005. DDMF is to be used for the mitigation funds by the DDMA's for the purpose of mitigation as per the HP State Disaster Management Rules 2011.

9.10 By Ministries and Departments of Government of India and State Government:

As per the section (49) of the Disaster Management Act, 2005, every ministry or department of government of India and the state government shall make provisions in their annual budget for carrying out the activities and programs set out in their disaster management plans. The planning department will be advised to mark 0.5% of budget allocation for meeting the disaster management requirement.

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

9.12 Other Financing Options :

DDMA in coordination with the departments will identify other financing options for restoration of infrastructure/livelihoods, like utilization of flexi fund within Centrally Sponsored Scheme for mitigation/restoration activities in the event of natural calamities in accordance with the broad objective of the Central Sector Scheme.

Opportunities of Corporate Social Responsibility (CSR) & Public-Private Sectors funds investments would also be explored and elaborated by the DDMA for increasing disaster resilience.

CHAPTER 10

PROCEDURE AND METHODOLOGY FOR MONITORING, EVALUATION, UPDATION AND MAINTENANCE OF DDMP

10.1 Authority for maintaining and reviewing the DDMP

As per notification No. Rev. D(F) 4-2/2000 V dated 1/06/2007 via Additional Chief Secretary cum F.C.- Revenue, Govt. of HP, District Disaster Management Authority has been formed according to sub-section (1) of section 25 of Disaster Management Act, 2005 with following members:

Preparation of plan is the ultimate responsibility of the District Disaster Management Authority DDMA Kinnaur. The draft plan is to be discussed in the DDMA and the Chairman of the DDMA shall rectify it. Same procedure is to be followed in updating of the plan document. The District plan is to be updated annually by the District Disaster Management Authority or the committee appointed by the. In order to update the document, all Vertical and Horizontal plans shall be collected and incorporated to the District Plan. A copy of the updated document shall be circulated to each department of Government in district.

10.2 Proper monitoring and evaluation of the DDMP:

The DDMP is monitor and evaluated in every mock drill programme. The preparedness and achievement of all the line Deptt./Stake holders are tested. A quarterly meeting for DDMP update will be organized by the DDMA under the chairmanship of the Deputy Commissioner, Kinnaur. The Deputy Commissioner ensures for the progress and gap analysis. All concerned departments and agencies participate and give recommendations on specific issues and submit their updated reports on the above mentioned factors. A meeting was held on 5th May which was attended by heads of all departments in which officials give their inputs and all officials were also directed by the Deputy Commissioner to prepare their disaster plans.

10.3 Post-disaster evaluation mechanism for DDMP :

Meeting of the DDMA will be held within 2 weeks of facing the disaster like situation if any occurred in the District where the team leaders/nodal officers of each participating department/agency shall remain present for post disaster evaluation of the situation in all respect.

10.4 Schedule for updating of DDMP :

The DDMP will be updated annually in the month of April/May on the basis of information/data etc. receipt of various agencies. The DDMP shall however be updated on semester basis in the next year. The main objective of the review is to record the event facts and first hand experiences of the department personal. This activity will help to make the DDMP better by identification of gaps and suggestions for filling of the same. DDMP is an effective document for the District and the ADM and District Revenue Officer, along with the help of the nodal officers of the vanguard departments will update it on the basis taking into consideration:

1. Change in demography
2. Addresses and contact numbers of Skilled Human Resources
3. Medicinal stock
4. Changes in disaster profile,
5. Technology to be used,
6. Lessons learnt from incidents
7. Changes in Inventory of equipment in the district.

S.No.	Month	Purposed Activities
1	Oct	Review of DDMP by frontline departments
2	Oct-Nov	Submission of recommendations to DDMA
3	Nov-Dec	Amendments are distributed to all stakeholders
4	Dec-Jan	Submitted to SDMA for Approval/Uploading of updated plan at DDMA/SDMA website

10.5 Uploading of updated plans at DDMA/ SDMA websites :

District Disaster Management Plan of the district is a public document & should be uploaded at the DDMA/SDMA websites under the supervision of the District Information Officer after each updation with prior approval of the Chairman DDMA. The District Disaster Management Plan is uploaded on DDMA Kinnaur as well as website of State Disaster Management Authority.

10.6 Conducting of Mock Drill at District & sub-division levels :

Efficacy of DDMPs are tested and refined through training, seminars and mock drills. The DDMA and Local Authorities in association with the SDMA will also conduct mock drills in different parts of the district to test the efficacy of the plans so prepared. All stakeholders will be encouraged to generate a culture of preparedness and quick response. Involvement of all the stakeholders and community at large numbers may be ensured to make the mock

exercises as a means of awareness generation and community preparation. The inputs and lessons learnt during the mock exercises will be utilized to upgrade and improve the DDMPs. Mock exercises are being conducted on a regular basis in schools and Gram Panchayats with the assistance of Commandant Home Guards/NDRF. Mock drills were conducted in Gram Panchayats in Sub Division Pooch Nichhar and Kalpa. A mega Mock exercise was held on 24th Nov, 2016 in which all departments participated and gave their inputs how DDMP can be improved.

10.6.1 The Responsible parties for organizing district drills

Mock Drills will be conducted within District Kinnaur at various levels:

Level 1: District Level

Conducting of District level Mock drills will be the responsibility of the Deputy Commissioner Kinnaur, along with Additional Deputy Commissioner Kinnaur, in association with Key Participants Involved in Conducting a Mock drills the incident of disaster may be:-

- DDMA Kinnaur comprising of DC; Kinnaur; ADC Kinnaur; SP Kinnaur; SE(HPPWD, I&PH, Electricity); CMO Kinnaur, President Zila Parishad.
- Revenue Department
- SDM (C), Tehsildar, Block Officer
- Municipal Council/ Nagar Parishad
- Elected representatives of Panchayat Samiti -Sarpanch, Gram Sevak,
- Fire Brigade Personnel's
- Home Guards, Volunteers.
- DPRO
- Transport Department
- Food and Civil Supply Department
- Para- military forces, ITBP Babeli and SSB Shamshi
- NDRF, SDRF as the situation of the incident may demand
- Rest as per the IRS framework in chapter 4.

Level 2: Sub Divisional Level

The Sub Divisional Magistrate (Civil) will be the concerned authority to conduct mock exercise at the Sub-Division level.

Level 3: Block Level

At Block Level the Block Development Officer will be the nodal authority to get the mock exercise conducted.

Level 4: Panchayat Level

The Pradhans will be nodal for organizing the mock drills at Gram Panchayat level with Village Disaster Management Committees in each village of district Kinnaur.

Level 5: Departmental Level

At the Departmental levels the HOD's of the concerned departments/ units are responsible for the on –site mock drills and off- site drills with the district administration for their respective departments and concerned areas.

Levels 2, 3, 4 and 5 will carry out the mock exercise with intimation of the same to the District Administration and sending in reports of the lessons learnt and gaps identified for further up gradation of the plans after the drill.

10.6.2 Schedule for organizing drills

District administration shall hold mandatory mock drill twice annually for the monitoring, evaluation, updation and maintenance of DDMP. First Mock drill will be held before the beginning of the tourist season in the Month of March or April as the case may. Second drill will be held before the onset of the International Dushera at Kinnaur for checking the efficiency of the departments for any unforeseen incidence from taking place.

All the above mentioned levels will conduct mock drills at least once in every six months to evaluate their disaster management plans.

10.7 Monitoring & gap evaluation:

10.7.1 Check on Personnel's involved in Execution of DDMP are trained with latest skills:

The District Authority shall check whether all the personnel involved in execution of DDMP are trained & updated on the skills necessary in line with the updated SOPs. As per Section 30 (2) (xii) of DM Act 2005, the District Authority shall organize & coordinate specialized training programmes for different levels of officers, employees & voluntary rescue workers in the district.

Half yearly meeting for DDMP updation shall be organized by DDMA, under the chairmanship of Deputy Commissioner Kinnaur. DC should ensure for maintenance of DDMP and analysis the identified gaps. All concerned departments and agencies have to participate and give recommendations on specific issues of District Disaster Management Plan.

10.7.2 Check on-site / off site Plans of Major Accidental Hazard Units

All industrial units and power projects within Kinnaur district will submit their on-site/ off-site plans, after regular updation and maintenance to the DDMA for review and evaluation. They will regularly conduct on-site / off- site mock exercises annually or biannually as the case may be, to review, evaluate, and update their plans.

CHAPTER 11

COORDINATION MECHANISM FOR IMPLEMENTATION OF DDMP

The Coordination between District and Local governments is vital for the proper disaster management. It requires both inter departmental and intra departmental coordination with all the stakeholder line departments and local bodies like, HPPWD, I&PH, HPSEB, Health and Family Welfare, fire and home guards, police, BSNL, Food and Civil Supply, forest, revenue Education, Agriculture horticulture, HRTC, Red Cross, MC,NGO's. CBO's and other local authorities These partnerships recognize that each level of the disaster management arrangements must work collaboratively to ensure the effective coordination of planning, services, information and resources necessary for comprehensive disaster management.

The DDMP of the district is a three tier disaster management coordination based on bottom to top approach i.e. tehsil level, Sub-Division level and District Level. This system enables a progressive escalation of support and assistance.

The arrangements comprises of several key management and coordination structures. The principal structures that make up the Arrangements are:

- (A) Disaster management committees are operational at tehsil, Sub-Division and district level. The above committees are responsible for planning, organising, coordinating and implementing all measures required to mitigate, prevent, prepare, respond and recover from disasters the affected area under their jurisdiction.
- (B) Emergency Operation Centers at tehsil, Sub-Division and district level supports disaster management groups while coordinating information, resources, and services necessary for disaster operations.
- (C) Functional agencies of district administration, DDMA and DDEC, are responsible to coordinate and manage specific threats and provide support to other agencies on and as require

Intra Departmental Coordination:-

Each stake holder department i.e, HPPWD, I&PH, HPSEB, Health and Family Welfare, fire and home guards, police, BSNL, Food and Civil Supply, forest, revenue Education, Agriculture horticulture, HRTC, Red Cross will constitute departmental level disaster management committee headed by a gazette officer pertaining to that department. The committees will organise quarterly meetings of the committee members to analyses the preparedness level of the department in regard to disaster management. The committee will also decide the measures to be taken for reducing the gaps in their capacities and keep the proper record of the same.

Sub division level coordination mechanism:-

As per the institutional mechanism, sub divisional officer (Civil) will call for the quarterly meeting the sub division level disaster management committee to review the preparedness level and plan to reduce the gaps identified. The chairperson will further report the situation to the DDMA and send the requisition of resources if required.

Tehsil level coordination mechanism:-

As per the institutional mechanism, tehsildar will call for the quarterly meeting at the tehsil level disaster management committee to review the preparedness level and plan to reduce the gaps identified at Tehsil level.

Arrangements at local level

It is the local level that manages disasters within their own communities. Tehsil, sub division and district levels are to provide additional resources, support, assistance and expertise as required. Local government is the key management agency for disaster events at local level. Local government achieves coordinated disaster management approach through Local Disaster Management committees.

Coordination system with inter departments and at district level

The District Magistrate/DC is the head of the District administrative set up and chairperson of the DDMA as per the DM Act, 2005. She / He has been designated as the responsible officer in the District. The heads of different departments in the District will have separate roles to play depending on the nature and kind of disaster. The roles and responsibilities of the members of the DDMA will be decided in advance in consultation with the concerned members

Pre Disaster coordination: Minimum Annual meetings for review of preparedness and discussing the roles and responsibilities of the line departments, tehsils and Sub Divisions. The meeting agenda would be discussing the capacity of each department in terms of SAR equipment's and manpower and regular updation of the same

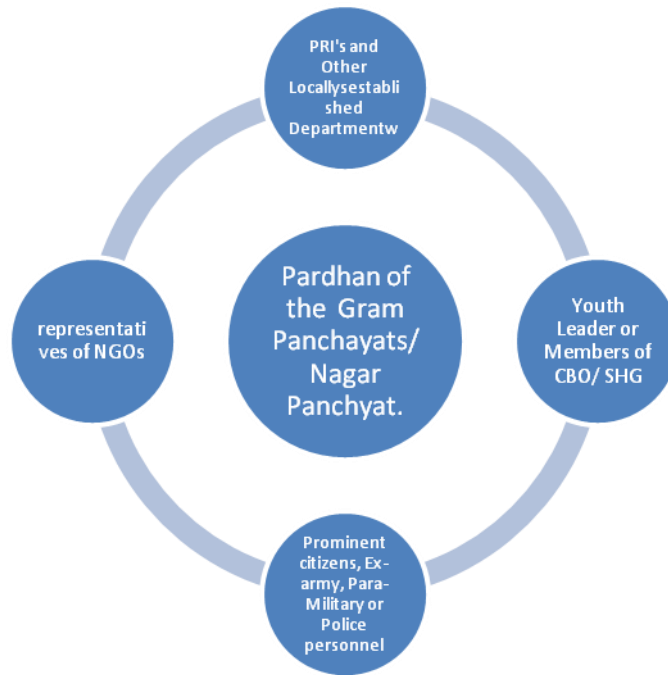
Disaster phase coordination:

Coordination through phone or any other mode of communication in a disaster phase is not possible hence all the line departments and training institutes in the district should report to the DEOC as soon as the disaster strikes. After loss/damage assessment at the DEOC, the RO (D.C) would direct various stake holders to deploy their resources and task forces in the affected areas. Relief camps would be setup at a pre-defined location.

Post disaster coordination: In the post disaster phase, the RO would take updates on the conditions of basic amenities like water, food, roads, law and order etc from the respective departments. An assessment of relief given and need of rehabilitation would also be taken in the post disaster phase.

Coordination mechanism with community:-

The community will be coordinated through the village disaster management committees.



Frequency of local Committee meetings

Local Committee meetings must be held at least once in every six months at particular time and place decided by the chairperson of the group. In addition, the chairperson of a Local Committee must call a meeting if asked, in writing, to do so by:

- a) The District Authority for the Disaster district in which the Local Committee is situated;
or
- b) At least one-half plus one of the members of the Local Committee.
- c) To help the Local government to prepare a local disaster management plan for its area;
- d) To identify, and provide advice to the relevant District Authority about support services required by the Local Committee to facilitate disaster management and disaster operations in the area;
- e) To ensure the community is aware of ways of mitigating the adverse effects of an event, and preparing for responding to and recovering from a disaster;
- f) To manage disaster operations in the area under policies and procedures decided by the district Authority;
- g) To provide reports and make recommendations to the relevant District Authority about matters relating to disaster operations;
- h) To identify, and coordinate the use of resources that may be used for disaster operations in the area;
- i) To establish and review communication systems in the Local Committee, and with the relevant District Authority and other Local Committees in the situation of disaster.
- j) To ensure that information about a disaster in the area is promptly given to the relevant District Authority, and
- k) To ensure risk management and contingency arrangements of essential services within the Local government area. Further information about the functions of the Local Authority may be found under sections 41 of the DM Act 2005

Coordination mechanism with NGOs, CBOs, Self Help Groups (SHGs),

The strong linkages which NGOs CBOs 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.

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.

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 programs, schemes and projects to create the required synergy in transforming the lives of at-risk communities.

THE DDMA will maintain a proper record of the NGO's and CBO's working in the district and also map the available resources for them. The DDMA will appoint a Nodal officer for coordination with NGO's, CBO's and SHG's. The DDMA will call annual meeting of NGO's, CBO's & SHG's for mapping their resources. The meeting will be coordinated by the designated Nodal officer.

Coordination with other districts and state:

The DDMA will call annual meeting with neighboring district authorities pertaining to Disaster risk reduction and capacity building by reducing the existing gaps through regular coordination. The DDMA will participate in the meetings called by SDMA or other State level authorities to promote coordination with other districts and state authorities.

Chapter 12 Standard Operating Procedures

The following SOPs are designed to guide and initiate immediate action. The DDMA and the district administration will initiate action and build and expand the scope of these actions based on unfolding situation.

1. Early Warning Management

Actions	Responsibility
Obtain early warning inputs from IMD, CWC, MHA / NDMA / SDMA control rooms, GSI, Snow and Avalanche study centre	In charge – DEOC
Notify the early warning to Chairman and the members of the DDMA, Nodal officers of the line departments, ADMs, SDM, Dy SPs	In charge - DEOC
Disseminate early warning to divisions, blocks and Panchayats	ADM/SDM. Superintendent of Police
Flash warning signals on all television and radio networks	District Information Officer
Establish disaster dash board on the official district website	District Information Officer
Inform communities / public / villagers about the disaster warning using vehicles mounted with loudspeakers	Tehsildars / Nayak Tehsildars / Patwari
Use PA systems facilities at Temples, Mosques, Gurdwaras and Churches to announce about the impending disasters	Tehsildars / Nayak Tehsildars / Patwari
Share early warning information with educational information and instruct closure of institutions if required	Tehsildars / Nayak Tehsildars / Patwari

2. Evacuation when there is early warning

Actions	Responsibility
Obtain early warning inputs from IMD, CWC, MHA / NDMA / SDMA control rooms, GSI, Snow and Avalanche study centre	In charge – DEOC
Notify the early warning to Chairman and the members of the DDMA, Nodal officers of the line departments, ADMs, SDM, Dy SPs	In charge - DEOC
Hold meeting to assess situation and make a decision whether to evacuate specific communities / population	Chairman DDMA
Communicate decision regarding evacuation to concerned Revenue and Police officers	Chairman DDMA
Evacuating people to safer places	Concerned SDMs and Tehsildars
Deploy teams for law and order maintenance, traffic management as well as cordoning specific areas	District Superintendent of Police
Establish routes, shelters and other logistics arrangements	Revenue department
Establish information desk,	Revenue department
Establish helpline numbers	BSNL

3. Evacuation when there no early warning

Actions	Responsibility
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Activation of the DEOC	In charge DEOC
Notify about the disaster event to Chairman and the members of the DDMA, Nodal officers of the line departments, ADMs, SDM, Dy SPs	In charge - DEOC
Hold a meeting to assess situation and make a decision whether to evacuate specific communities / population	Chairman DDMA
Communicate decision regarding evacuation to concerned Revenue and Police officers	Chairman DDMA
Evacuating people to safer places	Concerned SDMs and Tehsildars
Deploy teams for law and order maintenance, traffic management as well as cordoning specific areas	District Superintendent of Police
Establish routes, shelters and other logistics arrangements	Revenue department
Establish information desk, helpline etc	Revenue department

4. Search and Rescue

Actions	Responsibility
Activation of the DEOC	In charge DEOC
DDMA to review disaster situation and make a decision to deploy search and rescue teams in anticipation of a disaster	Chairman DDMA
Deploy district level search and rescue teams in identified locations	Chairman DDMA
Deploy Fire & Emergency Service teams for search and rescue	District Fire Officer
Deploy Home Guards rescue teams	District Commandant – Home Guards
Requisition of NDRF	Chairman DDMA
Establish on site coordination mechanism	ADM / SDM
Assign area of search and rescue responsibility for different teams deployed on site	ADM/ SDMA
Establish Staging Area for search and rescue resources	ADM/SDM
Establish Camps for the responders with adequate food, water, sanitation facilities	ADM/SDM
Deploy teams for law and order maintenance, traffic management as well as cordoning specific areas	District Superintendent of Police
Identify nearest helipad and ensure it is in operating condition	ADM/SDM
Establish triage	CMO/ MO
Transport critically injured	CMO/MO / 108 Ambulance service / Red Cross
Establish onsite medical camps or mobile camps for first aid	CMO/MO
Establish information desk and dead body identification	ADM/SDM
Evacuating people to safer places	Concerned SDMs and Tehsildars
Deploy volunteers for supporting auxiliary functions such as crowd management, route management, first aid, information management	ADM/SDM
Rescue animals in confined spaces	Assistant Director – Animal Husbandry

5. Relief Operations

Actions	Responsibility
Undertake sub division wise / block wise / tehsil wise relief needs assessment in terms of food, water, shelter, sanitation, clothing, utensils, medical and other critical items	ADM/SDM
Identify suitable and safe facilities and establish relief camps	ADM/SDM/Tehsildar
Establish adequate lighting arrangement at the relief camps	HPSEB
Ensure adequate security arrangement at the relief camps and for the affected communities	District Superintendent of Police
Ensure adequate water and sanitation facilities in relief camps and other affected communities	SE – IPH
Set up RO plants / water purification plants or other suitable facilities for immediate water supply	SE-IPH
Supply, procure and provide food to the affected communities	District Supply Officer
Airdrop dry and un-perishable food to inaccessible location safe drinking water	DM/ADM/SDM
Provide essential items lost due to disasters such as utensils	ADM/SDM
Supply, procure and provide water to the affected communities	SE – IPH
Make required shelter arrangements including temporary camps	ADM/SDM/Tehsildar
Establish medical facilities at relief camps and at communities	CMO/MO / Red Cross / 108 Ambulance
Ensure suitable vaccination to prevent disease outbreak	CMO/MO
Arrange for psychosocial support for victims at the camps	CMO/MO
Ensure child friendly food for the children in the camps	DSO
Ensure nutritious food for pregnant and lactating mothers in the camps	DSO
Ensure medical care facility for pregnant women for safe delivery	CMO/MO
Involve and coordinate NGO participation	SDM / Tehsildar
Put in place grievance handling mechanism to prevent discrimination	SDM/ADM/Tehsildar
Ensure adequate availability of daily need items such as food, medicine, consumables etc to ensure their access to affected communities	ADM/SDM/DSO
Provide adequate and weather, gender, culture appropriate clothing to the affected communities and especially address the needs of women, children, aged and physically challenged	ADM/SDM/DSO
Ensure adequate transportation facility to transport relief items	District RTO
Maintain proper records of and documents of beneficiaries and relief distribution	ADM/SDM/Tehsildar
Ensure adequate and appropriate heating facilities depending on the weather situation	DFO
Supply fire wood, cooking gas, POL for the kitchen	DSO / DFO
Record and maintain documents of ex-gratia payments	ADM/SDM/Tehsildar
Provide first aid and medical treatment to the injured animals	Veterinary Officer
Establish animal shelters wherever required	Director – Animal Husbandry
Arrange fodder for animals	Director – Animal Husbandry
Wherever required involve Animal Welfare Board and the Civil Society Organisations	Director – Animal Husbandry
Establish banking facilities for people to withdraw cash	District Lead Bank

Guidelines for setting and running the Relief Camps:

- On receipt of report from Revenue officials, the DC/SDO(C) will order to set up a relief camp at pre-decided location as per District/ Sub-divisional disaster management plan

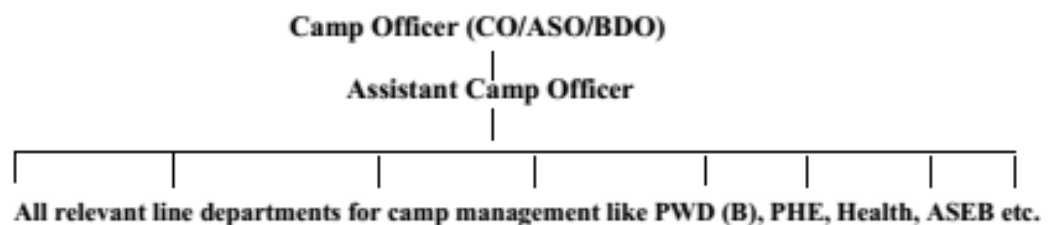
- In case new location is to be selected for the camp due to unavoidable circumstances, following points should be considered for arriving at a decision.
 - Camp should preferably be set up in an existing built up accommodation like a community hall.
 - It should be located at a safe place which are not vulnerable to landslides, flood etc.
 - It should be accessible by motor vehicles, if possible.
 - Adequate space for roads, parking's, drainage, should also be there.
- The area should not be prone to endemic disease like malaria.
 - Wide publicity should be given about the location of the camp and affected people should be evacuated and brought to the camp directly.
 - Emergency relief materials which include drinking water, food, bedding (mattress ,sheets & blankets), baby food, mosquito repellents etc. should be arranged as early as possible.
 - Control room/ help desk should be setup in the relief camp immediately.

Shelter

- The shelter should be such that people have sufficient space for protection from adverse effects of the climate.
- Ensure sufficient warmth, fresh air, security and privacy for their health and wellbeing.
- Tents should not be constructed too closely together and reasonable distance should be kept between the camps to provide some form of privacy.
- Priority should be given to widows and women headed households, disabled and elderly people in tent/room distribution.

General Administration of the Camp

- One responsible officer preferably CO/ASO should be designated as Camp Officer by the DC/SDO(C) who will ultimately be responsible for general management of the Relief Camp. He/She will co-ordinate & supervise the works of other officers in the camp. Administrative structure of the camp should be as follows:



- One help desk/ control room/ officer room should be designated where inhabitants can register their complaints

Basic Facilities

Lighting Arrangement and Generator Set

- A technical person, preferably from electricity or PWD (E) department should be detailed to supervise the proper lighting arrangement in and around the camp and operation and maintenance of the generator set.
- One big candle and one match box should be provided in every room/tent.
- Petromax or emergency light should be arranged in sufficient numbers in the camp.
- Approach to toilet and water source should properly be illuminated

Water Facilities

- Total requirement of drinking water, water for toilets, bath & washing of clothes and Utensils should be assessed and proper arrangement should be made accordingly
- One Sr. Officer of PHE Deptt. Should be detailed for maintaining water supply in the camp.
- Separate bathing units must be constructed for male & female

Sanitation, Food- Storage & Distribution, Clothing

- Toilet should be minimum 10 mtrs and maximum 50 mtrs away from shelter/tent/room
Sufficient stock of bleaching powder, harpic and others item should be maintained

Food- Storage & Distribution

- As far as practicable and as per available space cooked food may be served in hall or at one place for convenience of cleaning, hygiene, disposal of waste and smooth arrangement.
- Food should be culture specific and as per food habits of the community. People of rural area may not like bread & butter
- Packed food like biscuit, tinned food, ready to eat meals, noodles etc. should be properly checked that they are not expired before distribution.
- Separate queue may be allowed for women infirm & elderly people to collect relief aid.

Clothing

- People in the camp should be provided sufficient clothing to protect themselves from the adverse effects of the climate
- Culturally appropriate clothing should be made available.
- Women and girls should be provided necessary sanitary protection

Medical Facilities & Psycho-social Support

- One Doctor along with team of paramedical staff should be detailed on roster system around the clock in the camp
- A separate room or tent should be made available for the medical team.
- A rapid health assessment of all the inhabitants in the camp should be done on weekly basis
- Cases of snake bites are also reported from relief camp. Necessary arrangement should be made in nearest health institution for adequate stock of anti-venom injection.
- Psychological support is best obtained from the family. Therefore, even in abnormal conditions, family should be kept together

Special Arrangement for women, Children, and Physically Challenged and Elderly persons

- Since women are more vulnerable during disaster, their specific needs must be identified and taken care of.

- Female gynecologist and obstetrician should be available at hand to take care of maternity and child related health concern.
- Ensure that children inoculated against childhood disease within the stipulated time period.
- For safely and security of the women and children vigilance committees should be formed consisting of women.
- Women Police Officer should be stationed within the camp to record and redress any complaints made by women.
- Security measures should be taken in the camps to prevent abduction of women, girls and children.

Vermin control

- Insect and rodents are the unavoidable pests in the relief camp. They spread diseases, spoil foods and other material
- Fogging may be arranged to prevent mosquitoes and other flying insects.
- Waste segregation should be promoted and collected on daily basis

Security

- Security, peace and order must be maintained in the relief camp. The youths in the camp may be involved for providing better security environment.
- Police personnel should be detailed on roster basis.
- Adequate employment of force should be ensured on the boundary and gate of the camp.

Entertainment, Recreation & IEC Programme

- Literary clubs/ Organizations may be promoted to arrange books & magazines for camp populations.
- Camp population may be kept engaged by providing entertainment & recreational facilities to them.
- Temporary Anganwadi centres may be opened in the camp with the help of ICDS project officers for small children.
- Temporary schools may be setup in the camp involving volunteers from the camping habitans. SSA may provide free textbook, stationary, Siksha-Mitra etc. Reputed
- NGOs may also be allowed to run temporary schools in the camp.

6. Restoration of essential services

Actions	Responsibility
Assess, prioritise and develop work plan for debris removal and road clearance	SE / EE –PWD
Constitute teams with equipment for debris removal and road clearance	SE / EE PWD
Assess and prioritise and develop work plan for restoration of power supply	SE/ EE HPSEB
Constitute teams / crew to undertake restoration of power supply	SE / EE HPSEB
Assess, prioritise and develop work plan for restoration of water supply	SE/EE - IPH / Concerned ULB
Constitute teams / crew to undertake restoration of water supply	SE/EE - IPH / Concerned ULB
Assess, prioritise and develop work plan for restoration of telecommunication services	SE/EE - BSNL
Constitute teams / crew to undertake restoration telecommunication services	SE/EE - BSNL

Deploy temporary / portable exchanges in critical locations for immediate restoration of telecommunication services	SE/EE – BSNL
Assess, prioritise and develop work plan for restoration of road network	SE/EE – PWD
Constitute teams / crew to undertake restoration of road network	SE/EE - PWD
Constitute teams / crew to undertake restoration of road network in rural areas	SE / EE Rural Development
Coordinate with Army / SDMA for erection of bailey bridges / temporary road links where bridges are washed out	DC/ADM

7. Dead Body Disposal

Actions	Responsibility
Establish village / ward level committee for identification of dead bodies	ADM/SDM / ULB
Prepare a record of details of the bodies retrieved in the Dead Body Inventory Record Register, allocate individual Identification Number, photograph, and prepare Dead Body Identification Form	Tehsildar / SDM
Identification of the dead bodies and handing over to the next of kin	Village level / ward level committee
Transport unidentified dead bodies to the nearest hospital or mortuary at district / sub division / block level	SDM/ADM
Make public announcement for establishing identity	SDM/ADM
Handover the identified dead bodies to the next of kin	SDM/ADM/Tehsildar
In case of unidentified dead bodies – prepare inventory, allocate individual identification number, photograph, finger print, obtain DNA sample if possible and fill Dead Body Identification Form	SDM/ADM/Tehsildar
Preserve the information recorded as forensic information	SDM/ADM/Tehsildar
Undertake last rights of unclaimed / unidentified dead bodies as per established religious practices	SDM/ADM/Tehsildar
Coordinate with NGOs and obtain their support	SDM/ADM/Tehsildar
Preserve the bodies of foreign nationals (if any) by embalming or chemical methods and then placed in body bags or in coffins with proper labelling for handing over and transportation of such bodies to Ministry of Extern Affairs, or to the Consular offices of the concerned countries and other actors such as International Committee of the Red Cross	SDM/ADM/Tehsildar

8. Carcass Disposal

Actions	Responsibility
Prepare a record of details of the animal carcasses retrieved	SDM/ADM/Tehsildar/Pat wari
Identify owners of the livestock and hand over the animal carcasses	SDM/ADM/Tehsildar/Pat wari
Photograph all unidentified animal carcasses preferably before transportation for disposal	SDM/ADM/Tehsildar/Pat wari
Transport unidentified or unclaimed animal carcasses to the designated site for disposal	Assistant Director Department of Animal Husbandry
Maintain a record of carcasses buried or handed over	SDM/ADM/Tehsildar/Pat wari
Follow suggested guidelines for burial of carcasses or composting	SDM/ADM/Tehsildar/Animal Husbandry

GUIDELINES FOR DISPOSAL OF ANIMAL CARCASSES

Guidelines for Burial

- Burial shall be performed in the most remote area possible.
- Burial areas shall be located a minimum of 300 feet down gradient from wells, springs and other water sources.
- 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.
- The bottom of the pit or trench should be minimum 4 to 6 feet above the water table.
- 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.
- 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.
- 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.
- Burial areas shall be inspected regularly and any subsidence or cavities filled.

Guidelines for Composting

- 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.
- 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.
- 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.
- 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.
- 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.
- Let it sit for 4 to 6 months, then check to see if carcass is fully degraded.
- Reuse the composted material for carcass compost pile, or remove large bones and land apply.
- Site cleanliness is the most important aspect of composting; it deters scavengers, and helps control odours and keeps good neighbourly relations.

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

9. Information and Media Management

Actions	Responsibility
Establish a media centre at EOC or Deputy Commissioner's office	District PRO
Designate Official Spokes Person	Dy Commissioner
Prepare Press releases	DPRO
Decide on the time of press releases	District PRO
Decide on time and frequency of press conference	DPRO
Arrange for press conferences at the designated place and time	DPRO
Set up interaction times of media with senior officers	District PRO

Provide logistics support to the media during their visits to the disaster sites	District PRO
Scan media reports on disaster response and take necessary action	District PRO

Guidelines for Information Management

- flash warning signals on all television and radio networks
- coordinate, collect, process, report and display essential elements of disaster-related information
- update and feed information to key government agencies
- provide accurate information through print and electronic media as well as its website for easy availability and appropriate access to the members of public.
- provide situation updates to all television and radio networks at regular intervals
- keep the public updated and well informed about the status of the disaster
- develop appropriate graphics and pictures to disseminate useful information among all participating agencies as well as the people
- provide ready formats to collate information on different aspects of the disaster from the concerned state/district to facilitate accurate communication
- document all response/relief and recovery measures
- prepare situation reports every 3-4 hours during the initial response phase of a disaster and thereafter twice or once daily

10. VIP Visit Management

Actions	Responsibility
Receive information about VIP visits	Dy Commissioner / Protocol Officer
Make arrangements for receiving VIPs	Dy Commissioner / Protocol Officer
Prepare a detailed plan and minute to minute schedule for VIP visit	Dy Commissioner / Protocol Officer
Prepare latest detailed folder containing detailed information and submit the same to the visiting VIP	Dy Commissioner / District Information Officer
Designate nodal officials for each location of VIP visit such as Hospital, Disaster affected communities, Relief camps etc	Dy Commissioner / Protocol Officer
Organise adequate security	Superintendent of Police
Activate VIP visit protocols such as Ambulance, Fire tender, Security & Escort,	Dy Commissioner / Protocol Officer
Hold liaison meetings with Intelligence Department, SPG and NSG based on requirement	Superintendent of Police
Make appropriate arrangement for rest and stay of visiting VIP and her / his entourage	Dy Commissioner / Protocol Officer
Arrange visits to disaster sites along with necessary security arrangement	Dy Commissioner / Protocol Officer
Ensure availability of helipad if required	Dy Commissioner / Protocol Officer
Make arrangements for holding press conference	Protocol Officer / DPRO

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