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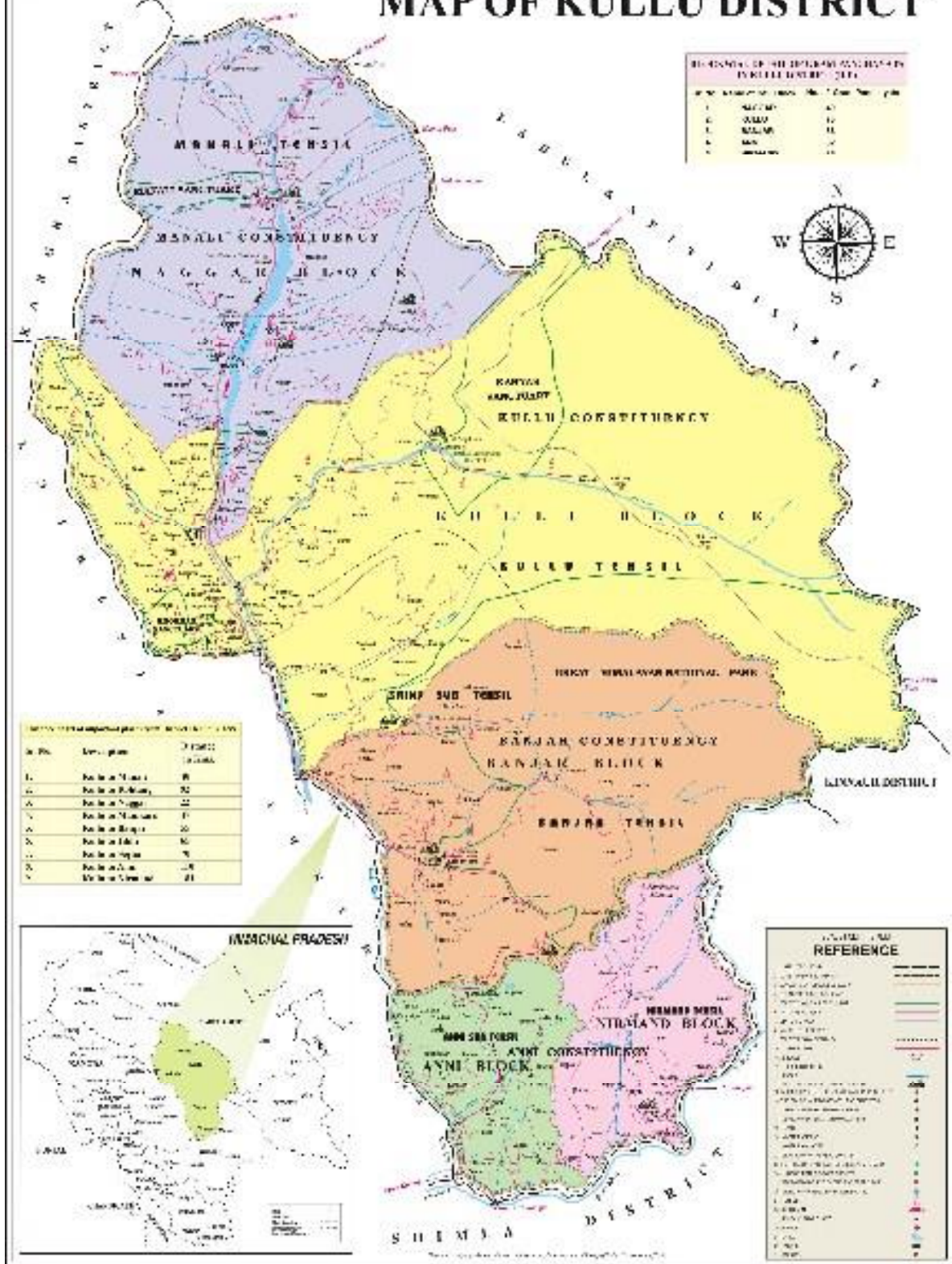
**DISTRICT
ADMINISTRATION
KULLU
HIMACHAL
PRADESH**

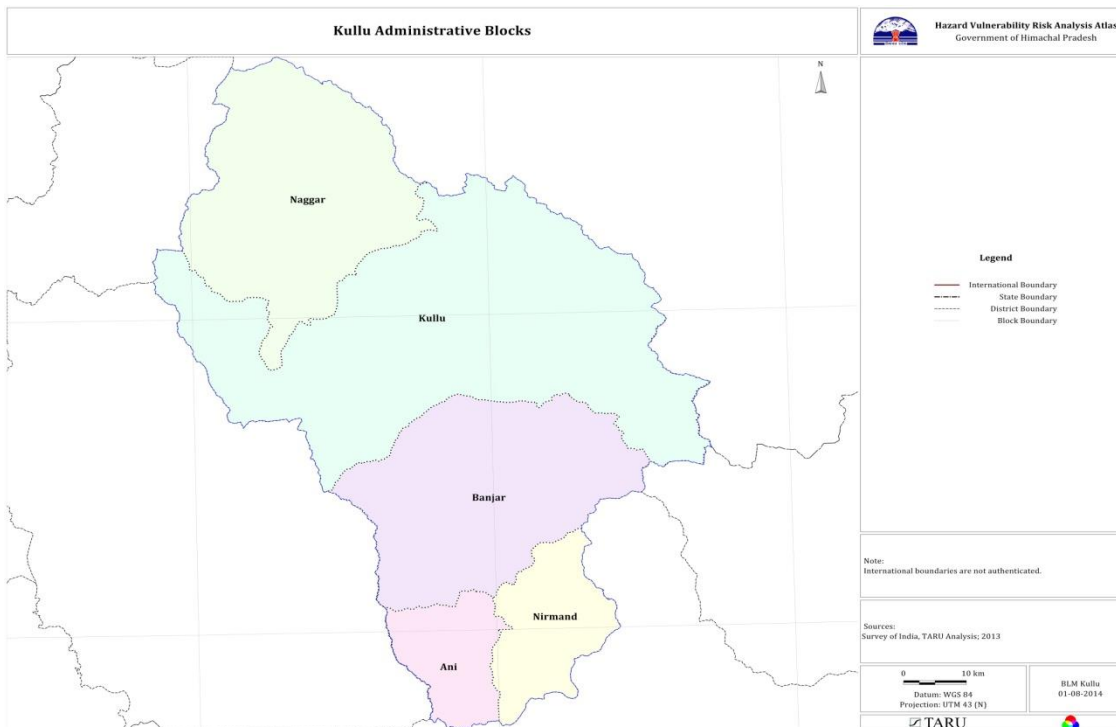
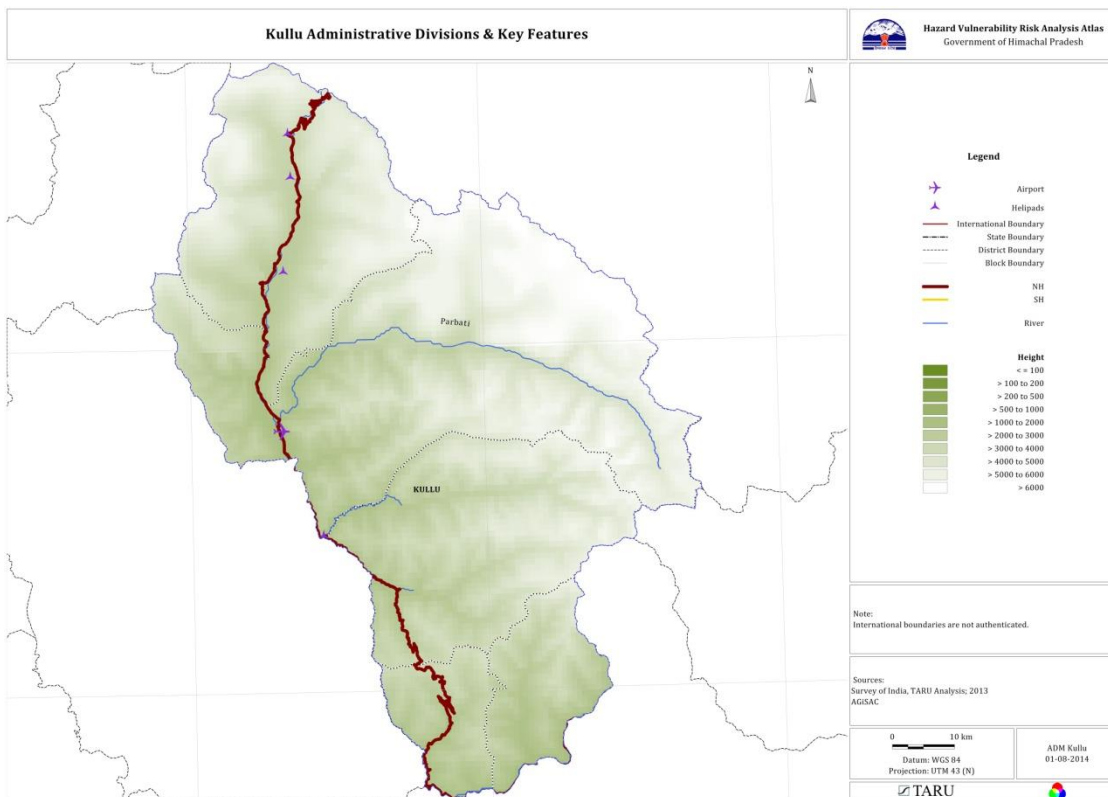


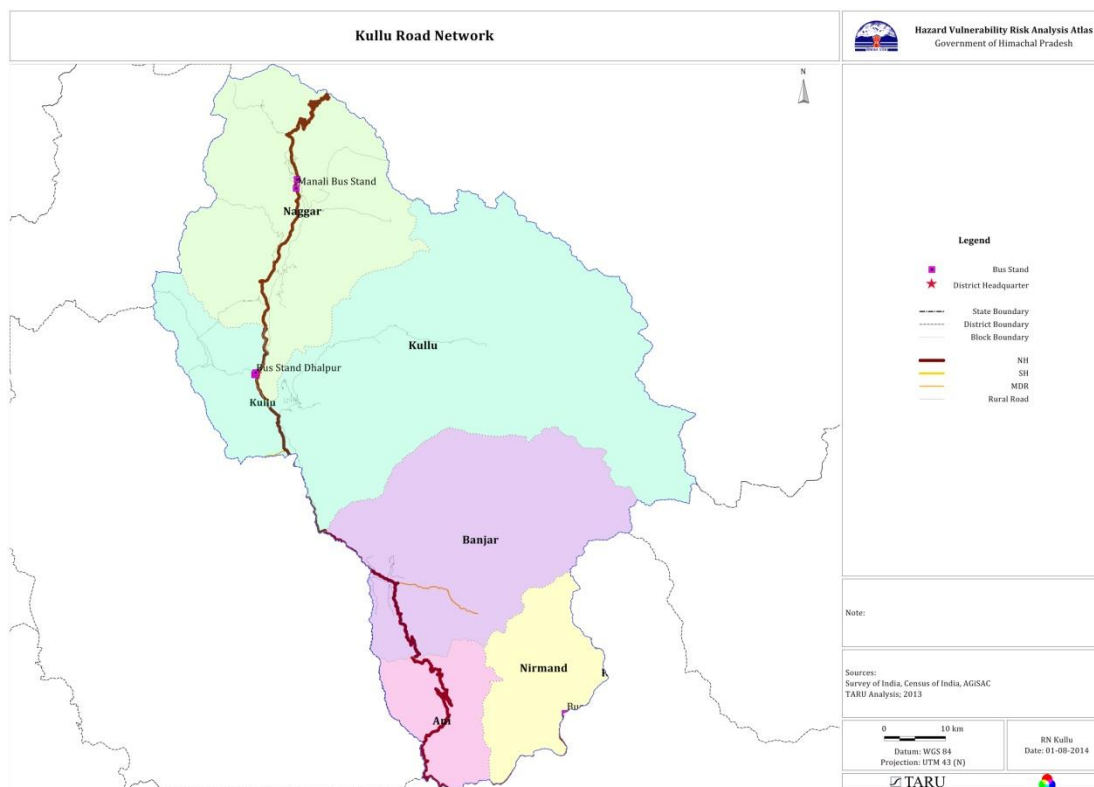
KULLU DISTRICT DISASTER MANAGEMENT PLAN

**APPROVED BY THE DISTRICT DISASTER
MANAGEMENT AUTHORITY [DDMA]
KULLU DISTRICT KULLU [H.P.]**

MAP OF KULLU DISTRICT







No.Rev(DMC)(F) 11-11/2007
Government of Himachal Pradesh
Department of Revenue (DM)

From

Additional Chief Secretary (Rev.) to the
Government of Himachal Pradesh,
Shimla-2

To

The Deputy Commissioner,
District Kullu (H.P.)

The Deputy Commissioner,
District Bilaspur, (H.P.)

Dated Shimla the 21st March 2015

Subject: - Regarding approval of District Disaster Management Plan

Sir,

I am directed to refer to the subject cited above and to convey the approval^{re} of the District Disaster Management Plan (DDMP) of your district by Himachal Pradesh State Disaster Management Authority (HPSDMA). You are requested to circulate the copy of the DDMP to all the departments in the district as required under section (3) of section 31 of DM Act, 2005. You are further requested to kindly ensure that all departments of the State Government, Govt. Of India and local authorities located within the district should also prepare their respective Disaster Management Plans as provided under section 32 of the Act ibid. The DDMP may be updated on an annual basis.

Yours faithfully,


(Dev Dutt Sharma)

Special Secretary (Rev-DM) to the
Government of Himachal Pradesh

Foreword

The Disaster Management Act, 2005 mandates Disaster Management Plans at various levels aimed at reducing potential loss of life and property in disasters as well as ensuring strong preparedness, response and recovery measures to manage any disaster situation. Disasters, either natural or manmade, affect humanity on long term basis.

This plan has been prepared after conducting Hazard Vulnerability Analysis of Kullu district and in view of the guidance provided by the National Disaster Management Authority. The roles and functions to be played by the District Disaster Management Authority have been detailed in the plan. Disaster Management, by its very nature, requires a multidisciplinary approach and hence, a strong coordination mechanism forms the core of successful disaster management.

Next logical step will be to have departmental sectoral plans with detailed Standard Operating Procedures (SOPs) which become integral part of the District Plan. Any disaster management plan is useless if it is not updated regularly and if it fails to translate into regular practice and mock-drills. We shall strive to develop a self regulatory mechanism that takes care of this part.

Another aspect of disaster management is a trained, prepared and equipped community. Each individual needs to be made part of disaster management process as the community is the first responder. Thus the focus has to be on Community Based Disaster Management.

I hope that plan serves the purpose.


(Rakesh Kanwar)
Deputy Commissioner, Kullu

DDMP KULLU

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ABBREVIATIONS

AADRR	:	Alliance for Adaptation and Disaster Risk Reduction
ARMV	:	Accident Relief Medical Van
ASHA	:	Assistant Secretary for Health Affairs
BDO	:	Block Development Officer
BEML	:	Bharat Earth Movers Limited
BIS	:	Bureau of Indian Standard
BMO	:	Block Medical Officer
BRO	:	Border Roads Organisation
BSNL	:	Bharat Sanchar Nigam Limited
BSUP	:	Basic Services to the Urban Poor
CASA	:	Church's Auxiliary for Social Action
CARE	:	Child and Adolescent Resources and Education
CBDM	:	Chemical and Biological Defence Management
CBO	:	Community Based Organization
CBRI	:	Central Building Research Institute
CBRN	:	Chemical, Biological, Radiological and Nuclear
CDPO	:	Child Development Project Officer
CHC	:	Community Health Centre
CMO	:	Chief Medical Officer
COVA	:	Confederation of Voluntary Associations
CPMF	:	Central Paramilitary Forces
CPWD	:	Central Public Works Department
CSO	:	Civil society organisations
CWC	:	Central Water Commission
DC	:	Deputy Commissioner
DCG	:	District Crisis Group
DCMG	:	District Crisis Management Group
DDMA	:	District Disaster Management Authority

DDMC:	District Disaster Management Committee
DDMP :	District Disaster Management Plan
DEOC :	District Emergency Operation Centre
DHO :	District Health Officer
DM :	Disaster Management
DMP :	Disaster Management Plan
DMT :	Disaster Management Teams
DNA :	Deoxyribonucleic acid
DPRO :	District Public Relation Officer
DRDA :	District Rural Development Agency
DRO :	District Revenue Officer
DRR :	Disaster Risk Reduction
DYV :	Disaster Youth Volunteer
EIC :	Emergency Information Centre
EMS :	Emergency Medical Services
EOC :	Emergency Operation Centre
ESF :	Emergency Support Function
EWS :	Early Warning Systems
FIR :	First Information Report
GIS :	Geographic Information System
GLOF :	Glacial Lake outburst Floods
GoI :	Government of India
GSI :	Geological Survey of India
HIMUDA:	Himachal Pradesh Housing and Urban Development Authority
IAG :	Inter-Agency Group
IAY :	Indira Awas Yojana
ICDS :	Integrated Child Development Services
ICIMOD:	International Centre for Integrated Mountain Development
ICT :	Information and Communication Technologies
IDRN :	India Disaster Resource Network
IIT :	Indian Institute of Technology
IMD :	Indian Meteorological Department
I&PH :	Irrigation and Public Health

IRS	:	Incident Response System
IRT	:	Incident Response Team
ISRO	:	Indian Space Research Institute
ITBP	:	Indo- Tibetan Border Police
JCB	:	Joseph Cyril Bamford Machine
JE	:	Junior Engineer
JS	:	Joint Secretary
LHZ	:	Landslide Hazard Zonation
MARG:		Mutual Aid and Response Group
MFA	:	Medical First Aid
MFH	:	Mountain Forum Himalayas
MGNREGS:		Mahatma Gandhi National Employment Guarantee Scheme
MLA	:	Members Legislative Assembly
MP	:	Members of Parliament
NCC	:	National Cadet Corps
NDMA:		National Disaster Management Authority
NDRF	:	National Disaster Relief Fund
NEC	:	National Executive Council
NEOC	:	National Emergency Operations Centre
NGO	:	Non-Government Organization
NHPC	:	National Hydroelectric Power Corporation
NIT	:	National Institutes of Technology
NPDM:		National Policy on Disaster Management
NRSA	:	National Remote Sensing Agency
NRSC	:	National Remote Sensing Centre
NSS	:	National Social Service
NYKS	:	Nehru Yuva Kendra Sangathan
OXFAM	:	Oxford Committee for Famine Relief
PHC	:	Primary Health Centre
POL	:	Petroleum, Oil and Lubricants
PPP	:	Public Private Partnership
PRA	:	Participatory Rural Appraisal
PRI	:	Panchayati Raj Institutions

PSSMHS:	Psycho- Social Care and Mental Health Support
PWD :	Public Works Department, Persons with Disability
QRT :	Quick Response Team
RAY :	Rajiv Awas Yojana
RD :	Rural Development
SAIL :	Steel Authority of India Limited
SAR :	Search and Rescue
SASE :	Snow and Avalanche Study Establishment
SDMA :	State Disaster Management Authority
SDM :	Sub-Divisional Magistrate
SDO :	Sub Divisional Officer
SDPO :	Sub Divisional Police Officer
SDRF :	State Disaster Relief Fund
SCMG :	State Crisis Management Group
SE :	Supridenent Engineer
SEB :	State Electricity Board
SEC :	State Executive Committee
SEOC :	State Emergency Operation Centre
SHG :	Self- Help Group
SHO :	Station House Officer
SMO :	State Medical Officer
SMS :	Short Mmessage Service.
SOP :	Standard Operating Procedure
SP :	Supredindent of Police
SRC :	Search and Rescue Centre
SSA :	Sarva Siksha Abhiyan
UD :	Urban Development
ULB :	Urban Local Bodies
UNDP :	United Nations Development Programme
UNICEF:	United Nations International Children's Education Fund
UN:ISDR:	United Nations International Strategy for Disaster Reduction
VANI :	Voluntary Action Network India
VHAI :	Voluntary Health Association of India

VSAT : Very Small Aperture Terminal

WFP : World Food Programme

WPS : Water Purification System

XEN : Executive Engineer

INTRODUCTION

Objectives of District Disaster Management Plan (DDMP)

Disasters, either natural or manmade, have been main hurdles in the development of civilization since ages and affect humanity on a long term basis. Devastation and destruction caused by such catastrophic event is widespread. Restoring the affected area socially, economically, ecologically and environmentally is along and protracted process. The loss to property and resources in a calamity is to such an extent that it becomes hard, difficult to restore the original real state, particularly in third world countries. Natural disasters like earthquake, landslide, flash-flood, flood, drought and cloud burst affect life, property and environment. Such events hamper the normal development processes and only cause losses. Disaster is a sudden mishap resulting into a catastrophe leading to tremendous loss of lives and property. In any such situation the district administration is responsible for the management of event. In recent time the frequency and intensity of disasters have been increasing due to anthropogenic activities. Therefore need of the hour is to adopt pro-active measures along with the re-active measures so that overall management of disasters can be taken up efficiently.

Changing Context of Disaster Management: - Earlier the Disasters management was under Ministry of Agriculture but after the Disaster Management Act 2005 disaster management comes under Ministry of Home Affairs (MHO) with an objective for overall management of disasters which include pre, during and post disaster management. The act envisaged the creation of the National Disaster Management Authority (NDMA) headed by the Prime Minister, State Disaster Management Authorities (SDMA) headed by the Chief Ministers, and District Disaster Management Authorities (DDMA) headed by the District Magistrates or Deputy Commissioners as the case may be, to spearhead and adopt a holistic and integrated approach to disaster management (DM). In this context along with the national Disaster Management Plan every state and district should have their own respective state and district disaster management plans.

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

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

- Prevention of danger or threat of any disaster;
- Mitigation or reduction of risk of any disaster or its severity or consequences;
- capacity-building;
- Preparedness to deal with any disaster;
- Prompt response to any threatening disaster situation or disaster;
- Assessing the severity or magnitude of effects of any disaster;
- Evacuation, rescue and relief;
- Rehabilitation and reconstruction;”

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

Objectives of District Disaster Management Plan:-

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

The DDMP is an attempt at preparing a multi-disaster action plan essentially

concentrating on institutional setup and provides for hazard specific roles and responsibilities of primary and secondary agencies. It identifies the operational structure and the coordination mechanisms, the roles and responsibilities of various agencies along with the standards of service expected from them, the information and monitoring tools and modes of communication, and the monitoring and evaluation components.

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

CHAPTER: 1

DISTRICT PROFILE: KULLU

Located on the banks of river Beas, Kullu is one of the important district of Himachal Pradesh. The district is popular for its unique geographic conditions and touristic attractions like temples, museums, castle etc. 90% of its population living in villages situated in far-flung areas. It has 4 sub-divisions i.e. Manali, Kullu, Banjar and Anni and 5 developmental blocks i.e. Naggar, Banjar, Kullu, Anni and Nirmand. The district is located between 31°58'00" North latitude and 77°06'04" East longitudes. It is bounded by Lahaul-Spiti and Kangra districts, on the East and South East by Kinnaur and Shimla districts. It is well connected by road, rail and air routes. December and January during winter observe lowest temperature ranging from 4 ° C to 20° C with some snowfall. Annual highest temperature in summer ranges from 25°C to 37°C during May to August. Months of July and August are rainy because of Monsoon season, having around 15 cm rainfall monthly. Climate is pleasant in October and November. Mainly covered with Pine and Deodar forests and sprawling apple orchards. Hot water springs occur in various places much resorted to as places of pilgrims. Kullu valley also known as “valley of Gods” is well known for the seven days festival of Kullu Dusshera, a celebration of Avatar lord Rama’s victory over the evil King Ravan. Due to its being the commercial and economic center, the township of Kullu has had an eclectic influx of nearby village/district inhabitants etc.

Table 1:- District Profile: Kullu

ADMINISTRATIVE SET-UP		
Administrative Division	Zonal Headquarter	Kullu
	Sub Division (04)	Manali ,Kullu, Banjar and Anni
	Tehsil (05)	Kullu, Nirmand, Banjar , Manali and Bhuntar
	Sub Tehsils (03)	Sainj, Anni and Neether
	Blocks	5 Nos.
	Towns	4 Nos.
	Total villages	172 Nos.
	Total Police Stations/Posts	13 Nos.

CLIMATE			
Annual Rainfall: Kullu (1995-2010)			
Year	Rainfall (mm)	Year	Rainfall (mm)
1995	1038.1	2003	947.8
1996	1044.8	2004	906.8
1997	1052.4	2005	992.2
1998	886.3	2006	794.6
1999	1272.2	2007	886.6
2000	1088.0	2008	1215.3
2001	922.0	2009	825.6
2002	733.4	2010	1732.5

Source: - District Revenue Officer, Kullu

DEMOGRAPHY									
District-wise Percentage of Rural/Urban population									
District	Total			Rural			Urban		
	1991	2001	2011	1991	2001	2011	1991	2001	2011
Kullu	5.85	6.28	6.38	5.96	6.41	6.42	4.68	5.05	6.01

Source: - Census of India, 1991 to 2011

District and Tehsil/Sub-Tehsil-wise Rural and Urban Population 2011									
District/ Tehsil	Total			Rural			Urban		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Kullu	4,37,903	2,25,452	2,12,451	3,96,512	2,03,269	1,93,243	41,391	22,183	19,208
Manali	51,661	27,710	23,951	43,565	22,993	20,572	8,096	4,717	3,379
Kullu	2,06,716	1,06,128	1,00,588	1,74,835	89,410	85,425	31,881	16,718	15,163
Sainj (S.T.)	25,908	13,342	12,566	25,908	13,342	12,566	0	0	0

Banjar	43,612	22,193	21,419	42,198	21,445	20,753	1,414	748	666
Ani(S.T.)	56,917	29,077	27,840	56,917	29,077	27,840	0	0	0
Nirmand	53,089	27,002	26,087	53,089	27,002	26,087	0	0	0

Source: Census of India: 2011

Sex –wise Rural Urban population-2011 census									
District	Area in sq. km	Total		Rural			Urban		
		Male	Female	Person	Male	Female	Person	Male	Female
Kullu	5503	437903	225452	212451	396512	203269	193243	41391	19208

Source: Census of India: 2011 H.P.

Decennial Population of Kullu (1991, 2001,2011)									
District	Total			Rural			Urban		
	1991	2001	2011	1991	2001	2011	1991	2001	2011
Kullu	302432	381571	437903	281421	351478	396512	21011	30093	41391

Source: (i) Census of India, 1991 H.P., Primary Census Abstract. (ii) Census of India-2001and 2011

District-wise Decadal Growth Rate									
District	1981-1991			1991-2001			2001-2011		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Kullu	26.87	24.15	26.68	24.89	43.22	26.17	12.81	37.54	14.76

Source: - Census of India, 1981 to 2011

District-wise Scheduled Castes Population in India									
District	Total			Rural			Urban		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
Kullu	122659	62686	59973	115514	58981	56533	7145	3705	3440

Source: - Census of India-2011

Town-wise Population -2011 Census			
District/Towns	Population		
	Person	Male	Female
Kullu	41391	22183	19208
Manali	8096	4717	3379
Kullu	18536	9608	8928
Bhunter	4475	2364	2111
Banjar	1414	748	666
Shamshi(C.T)	8870	4746	4124

Source: - Census of India 2011 (C.T. Census Town)

LITERACY										
Rural-Urban Literacy Percentage in Kullu: 2001 & 2011 Census										
District	Year	Total			Rural			Urban		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
Kullu	2001*	72.9	84.0	60.9	71.6	83.2	59.1	88.0	91.8	83.1
	2011**	79.4	87.4	70.9	78.5	87.0	69.5	88.1	91.2	84.6
	Literates-2011 Census**									
	Total			Male			Female			
	3,07,672			1,74,550			1,33,122			
	Literacy Percentage among Scheduled Castes Population : 2001 and 2011Census(*/**)									
	2001 Census				2011 Census					
	Male	Female	Total		Male	Female		Total		
	76.8	52.4	64.9		83.6	66.1		75.1		

Source: - Census of India-2001*, Census of India-2011**

AGRICULTURE	
Total Agricultural Land (Hect.)	65,186
Net Sown Area (Hect.)	36,342
Irrigated Area (Hect.)	2,878

INDUSTRIES	
Large and Medium Scale Units	02
Small Scale Units	1,962
Industrial Area	01

EDUCATION	
Anganwaris	376
Primary/Nursery School	749
Secondary School	127
Senior Secondary School	50
Higher School	54
Degree College	4
Industrial Training Centre	4

GEOGRAPHICAL AREA (In Hectares)	
Total Area	64224
Forest Land	2520
Cultivated Land	38485
Non-Cultivated Land	23219
Altitude	1,279 m (4,196 ft)
Longitude	31° 58'00" North latitude
Latitude	77° 06'04" East longitudes
Major Rivers	Beas, Parvati & Satluj

HEALTH	
Community Health Centre	07
Primary Health Centre	17
Sub-Centres	99
Hospitals	02
Ayurvedic Health centres	65

BANKS	
Co-operative Banks	19
Commercial Banks	37
Gramin Banks	14
Land Development Banks	02

PANCHAYATI RAJ	
Total Panchayats	204
Backward Panchayats	71
Zila Parishad Panchayats	14
Panchayat Samiti Members	103
Gram Panchayat Members	1,228
Total Panchayat Secretaries	63
Total Panchayat Sahyaks	120
Total Technical assistants	63

CHAPTER 2

HAZARD, RISK, VULNERABILITY AND CAPACITY ANALYSIS

I. RISK ANALYSIS OF DISTRICT KULLU

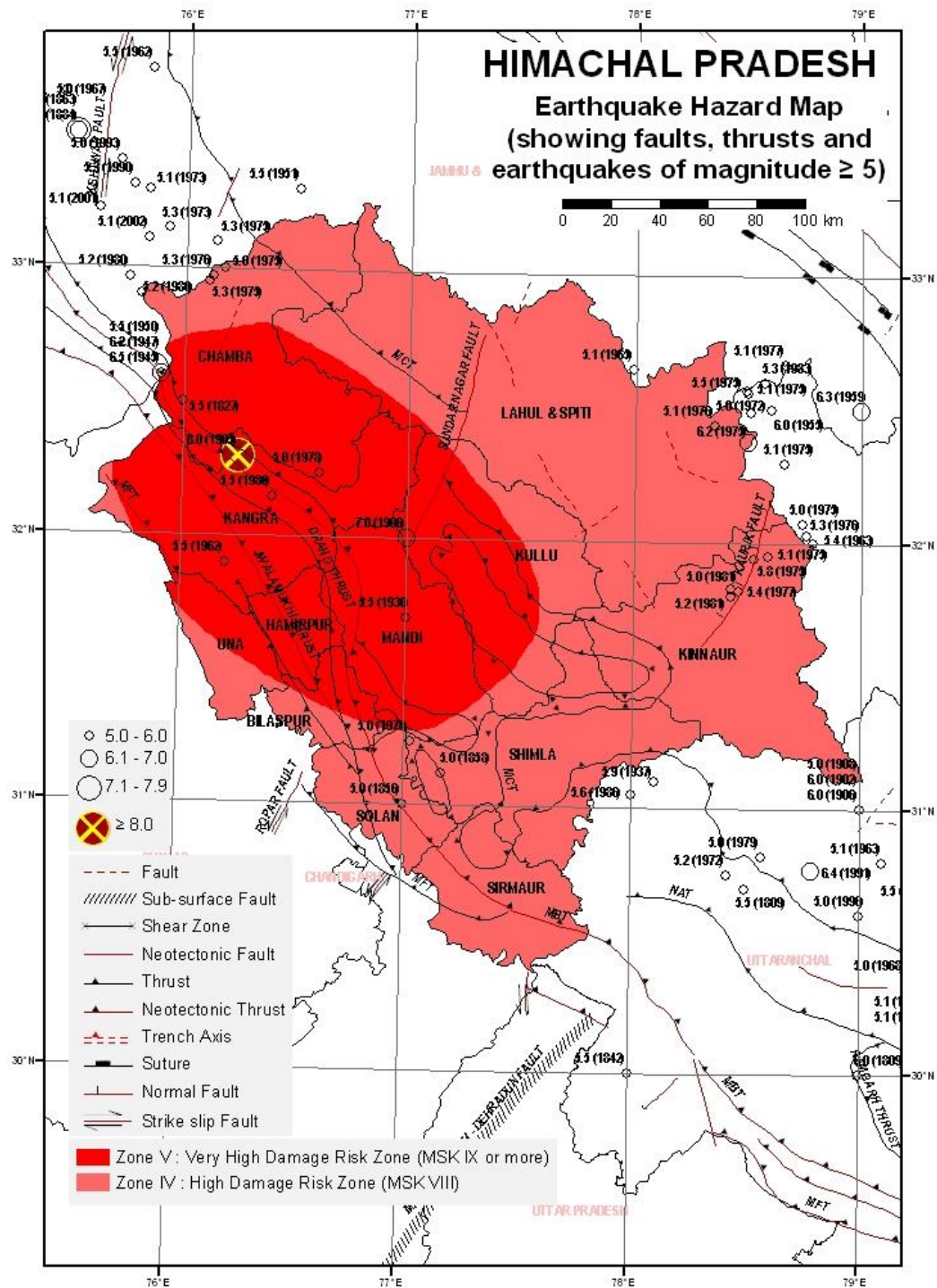
1. Earthquake:-

Earthquakes, quite devastating and sudden in nature, are one of the most common types of disasters that hit the state of Himachal Pradesh. Lying in the sensitive Himalayan belt, at the juncture of two active tectonic plates, the region is prone to severe seismic activity. The district of Kullu falls in the highest seismic zone i.e. Zone V and is prone to disastrous earthquakes. The movement of large blocks along the thrust planes resulting in the release of stored energy is the basic cause of earthquakes in this region. According to the seismic zoning map of the state 53.1 % area of Kullu is liable to the severest designed Intensity of MSK IX or more. Table 2 shows district level ranking of individual hazards. Table 3 and 4 depicts seismic intensity of different districts in Himachal Pradesh and Kullu Hazard Vulnerability Matrix respectively.

Table 2: - District level ranking of individual (Earthquake, Wind and Climatic) Hazards

Important Factor			20%	20%	20%	40%	Integrated Hazard Zoning
State	District's	Geographical Area (Sq. km)	Wind Zoning	Seismic Zoning	Climate Zoning	Hill Zoning	-
Himachal Pradesh							
	Chamba	6,487	1.5	3.1	1.7	4.5	3.1
	Kangra	5,704	1.5	3.4	2.0	4.0	3.0
	Lahul & Spiti	13,841	1.5	3.0	1.2	5.0	3.1
	Kullu	5,513	1.5	4.0	1.2	5.0	3.3
	Mandi	3,963	1.5	4.0	1.7	4.5	3.2
	Hamirpur	1,123	2.7	1a.6	2.0	4.0	2.8
	Una	1,541	2.4	3.0	2.0	4.0	3.1
	Bilaspur	1,167	1.7	3.3	2.0	4.0	3.0
	Solan	1,937	2.0	3.1	2.0	4.0	3.0
	Sirmaur	2,837	1.9	3.0	2.0	4.0	3.0
	Shimla	5,171	1.5	3.6	1.4	5.0	3.3
	Kinnaur	6,495	1.5	3.2	1.0	5.0	3.1

Source: - SoER, 2007



BHMP: Vulnerability Atlas - 2nd Edition; Peer Group, MohSUA; Map is Based on digitised data of SOI, GOI;
Seismic Zones of India Map IS:1893: 2002; Seismotectonic Atlas of India, GSI, GOI

Figure 1: Earthquake Hazard Map: Himachal Pradesh

Table 3: - Districts of Himachal Pradesh with Seismic Intensities

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

Source: - SoER, 2007

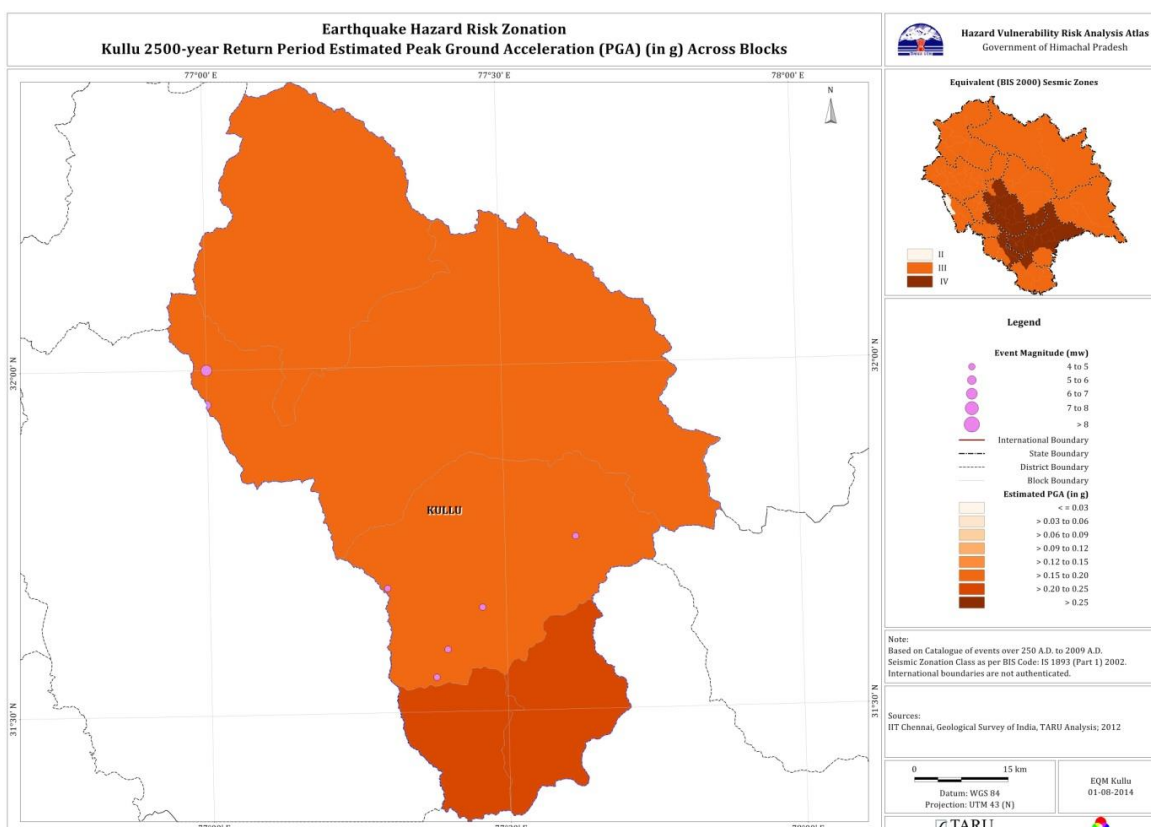


Figure 2: Earthquake Hazard Risk Zonation Map: Kullu

Table 4: - Vulnerability Matrix: Kullu

District	Earthquake	Landslide	Floods	Avalanches	Industrial	Overall Vulnerability
Kullu	High	High	High	Medium	High	Very High

Source: - SoER, 2007

2. **Landslide: -**

Landslides are simply defined as the mass movement of rock, debris or earth down the slope and leads to broad range of motions where by falling, sliding and flowing under the influence of gravity dislodges earth material. They often take place in conjunction with earthquakes, floods and volcanoes. At times, prolonged rainfall blocks the flow of river and cause havoc. In the hilly terrain of Himalayas, landslides have been a major and widely spread natural disaster and often affect life and property and occupy a position of major concern. As identified by the Commandant Home Guards, Kullu, the landslide areas of Anni sub-division are Bro, Jagat Khana, Sagofa, Sarga, Deem, Chayal, Gabal and Bakhun; in Banjar sub-division are Neuli, Siund, Sainj, Bhyaliand Largi; in Manali sub-division are Gulaba, Nehru Kund, Rangri to Aloo ground near Bahnu Bridge respectively. Table 5 shows landslide vulnerable areas in Kullu. The fragile nature of rocks forming the mountains, along with the climatic condition and various anthropogenic activities has made the state vulnerable to the vagaries of landslides. It is one the geological hazards that are very common to this region. 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. The mass movement varies in magnitude from soil creep to landslides. Solifluction (form of creep in which snow or water saturated rocks move down slope) is another type of mass movement that is common on the higher snow covered ranges.

Table 5: - Landslide Vulnerable Area's: Kullu (Area in sq.km)

District	Severe to very High	High	Moderate to Low	Unlikely	Total Area
Kullu	1820	3513	65	03	5401

(Source: - Landslide Hazard Zonation Atlas of India, 2003)

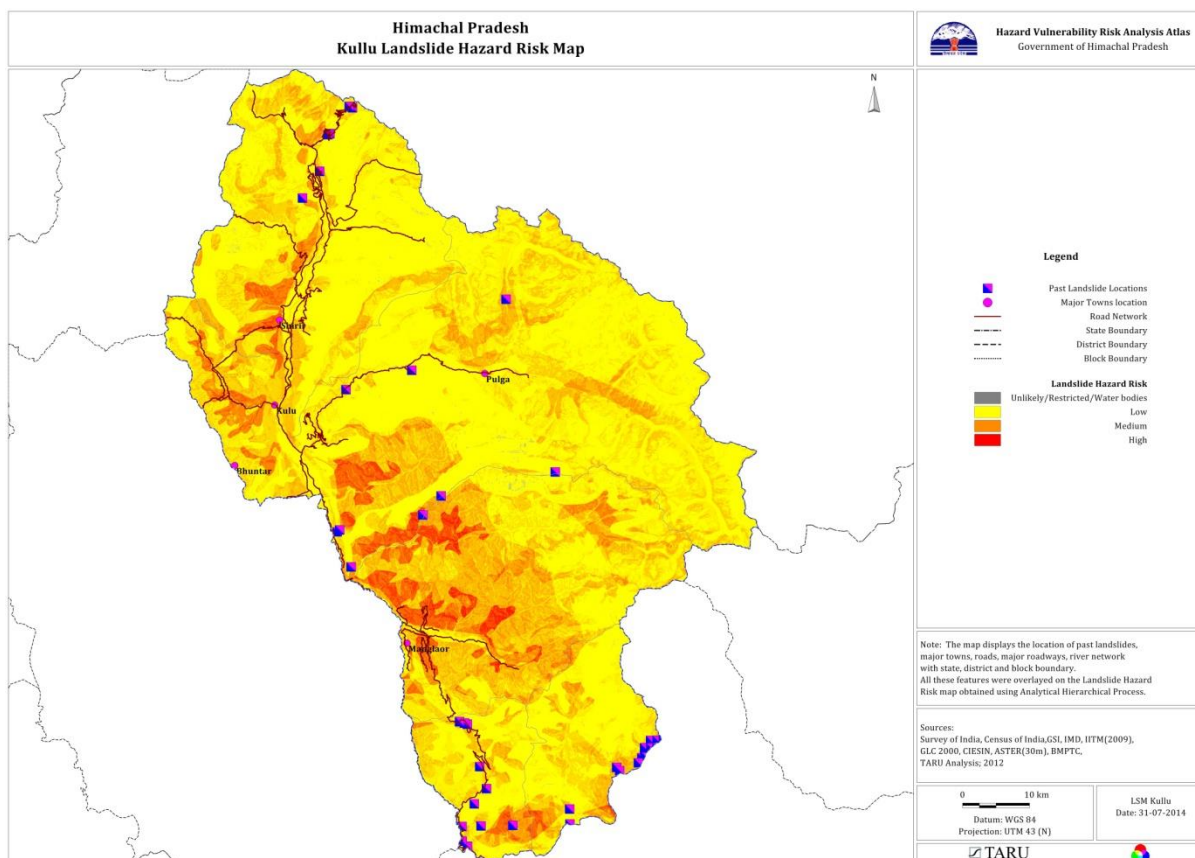


Figure 3: Landslide Hazard Risk Map: Kullu

3. Flash Floods:-

Flash floods, short lived extreme events, which usually occur under slowly moving or stationary thunderstorms, lasting less than 24 hours, is a common disaster in the Kullu district. As identified by the Commandant Home Guards, Kullu, the flood areas of Anni sub-division are Luhari, Gugra, Kamand, Anni, Karanaand Logati; in Banjar sub-division are Gushaini, Bathahed, Jibhiand Manglore; in Manali sub-division are Anjan Mahadev, Dhundi, Pagal Nalla, Solang, Bhahang, 15 mile and Patlikuhl area respectively & the cloud burst area in Manali sub-division are Gulaba, Solang, Prini and Vashisht. As a result of the high velocity of the current which can wash away all obstacles in its way, this phenomenon has resulted in enormous loss of life and property in various parts of the region. 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.

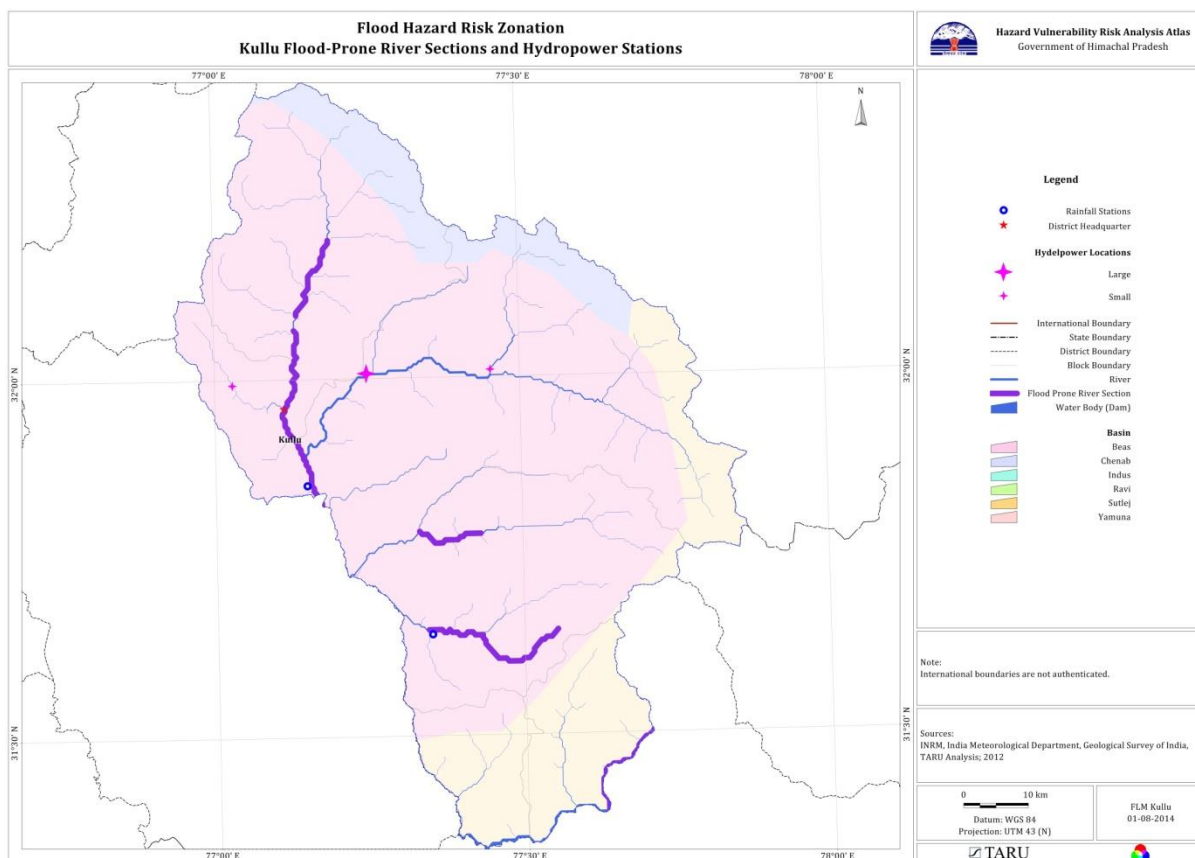


Figure 4: Flood Hazard Risk Zonation Map: Kullu

4. Cloud Burst:-

A cloudburst is an extreme amount of precipitation, sometimes accompanied with hail and thunder, which normally lasts no longer than a few minutes but is capable of creating flood conditions. It is one of the common disasters in the district which is largely responsible for flash floods.

5. Snow Avalanches:-

Snow cover on a slope tends to slide down the slope because of gravity. Conditions affecting stability include the gravitational force component of the snow and resisting forces, such as the frictional resistance of the slope or the anchoring effect of shrubs. In general, avalanches are caused when this balance is lost and when the forces exceed the resistance. Avalanches are rarely observed closely since they normally occur during a short time period of one or two minutes. Major causes of avalanches can be classified into fixed (prime factors) and variable factors (exciting factors), such as weather conditions and the weight of the snow cover. Avalanches occur when these factors are combined. The types and scale of avalanches can differ depending on the combination of

these various factors and their scale. Avalanches, river-like flow of snow or ice descending from mountain tops are common in the high ranges of the Himalayas. They are common in elevations of more than 3500 m on slopes of 30-45°. Convex slope covered with grass are more prone to avalanches. Avalanches also cause 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. Table 6 shows district-wise breakup of the avalanche accidents in Kullu.

Table: 6 - District-wise Breakup of the Avalanche Accidents: Kullu

Sr. No.	District	No. of Accidents	Persons Involved	Persons Killed	Persons Injured
1	Chamba	12	59	53	0
2	Kinnaur	32	144	129	09
3	Kullu	6	13	09	04
4	Lahaul & Spiti	21	397	298	53
5	Shimla	2	6	01	05

Source: - SASE, DRDO Chandigarh

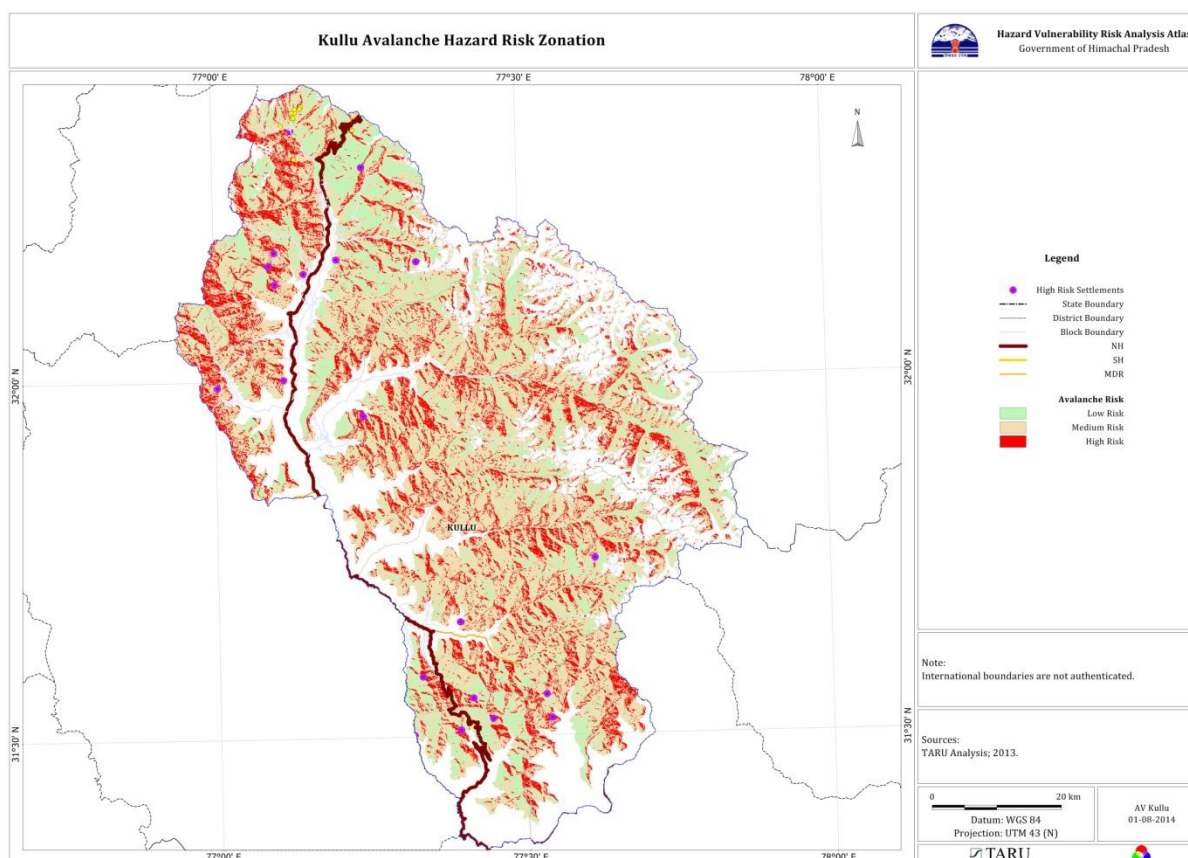


Figure 5: Avalanche Hazard Risk Zonation Map: Kullu

Types of Damage (Snow Avalanche)

The following lists typical examples of damage to roads caused by avalanches. The scale of damage can differ depending on the scale and type of avalanche.

- Traffic blocked by snow deposited on road surface.
- Roads damaged by avalanches.
- Road structures, such as retaining walls, overturned.
- Structures damaged by an avalanche during construction of roads occur most frequently.

6. a) Forest Fires: -

The most common hazard in forests is forest fires. Forest fires are as old as the forests themselves. They pose a threat not only to the forest wealth but also to the entire regime to fauna and flora seriously disturbing the bio-diversity and the ecology and environment of a region. During summer, when there is no rain for months, the forests become littered with dry senescent leaves, which could burst into flames ignited by the slightest spark. Approximately 90 percent of the forest fires are human-induced, intentional or unintentional due to the negligence and poor knowledge of the people. Collection of forest produce, shifting cultivation, throwing mouldering bidis, cooking food in the forest etc. are the basic anthropogenic causes that ignite forest fires. The losses are caused to structures and also to the personal belongings, rendering the people shelter less. Due to the climatic conditions of the state, the houses are constructed with local material and the villages are inhabited in cluster, resulting in huge losses in the event of fire mishaps

b). Domestic Fires:-

Kullu is famous for its touristic attraction and most of its building structures like traditional houses, castles, museums etc. are built with “kath-kuni” architectural style. These structures continued to be reduced to ashes due to lack of proper fire services in the district. At least one fire incident of fire is being reported every day, but fire tenders reach the spot after everything is destroyed. Timber is the major construction material in old traditional houses and such structures are quite prone to fire incidents in the district. Houses are also constructed close to each other and a spark in one house can prove dangerous to others. Mostly the fire incidents in Kullu are reported during winter season as villagers store fodder and wood. Banjar divisions have 36 panchayats, which do not have fire service and are most affected by such accidents. Property worth Rs. 1 crore has been damaged by fire in Sidhwa, Bashir and Mohni villages of Banjar in

recent time. Many villages in the district have no road connectivity while others are linked with narrow roads that are incapable of accommodating large fire tenders. In many cases, firemen helplessly watch houses being gutted as they cannot take their machineries up to the villages. Unavailability of small fire tenders has also proved fatal to many houses. Banjar gets fire service from Kullu town, which is at a distance of about two hours, while some villagers that are about 100 km from Kullu take even more time. Villagers, who are bound to keep fodder and fuel wood under the same roof, are watching their properties being destroyed by fire. Properties worth hundreds of crores have been damaged in recent fire incidents in Mohini, Channaun, Chaddiyar, Chipani, Pharyari, Shrikot, Garuli, Gehra, Goshala, jamad and other villages. Along with the threat of fire incidents during winter season the wiring in old houses, which have old electrical fitting, burns due to overload. As a result, stored fodder works as fuel in spreading fire.

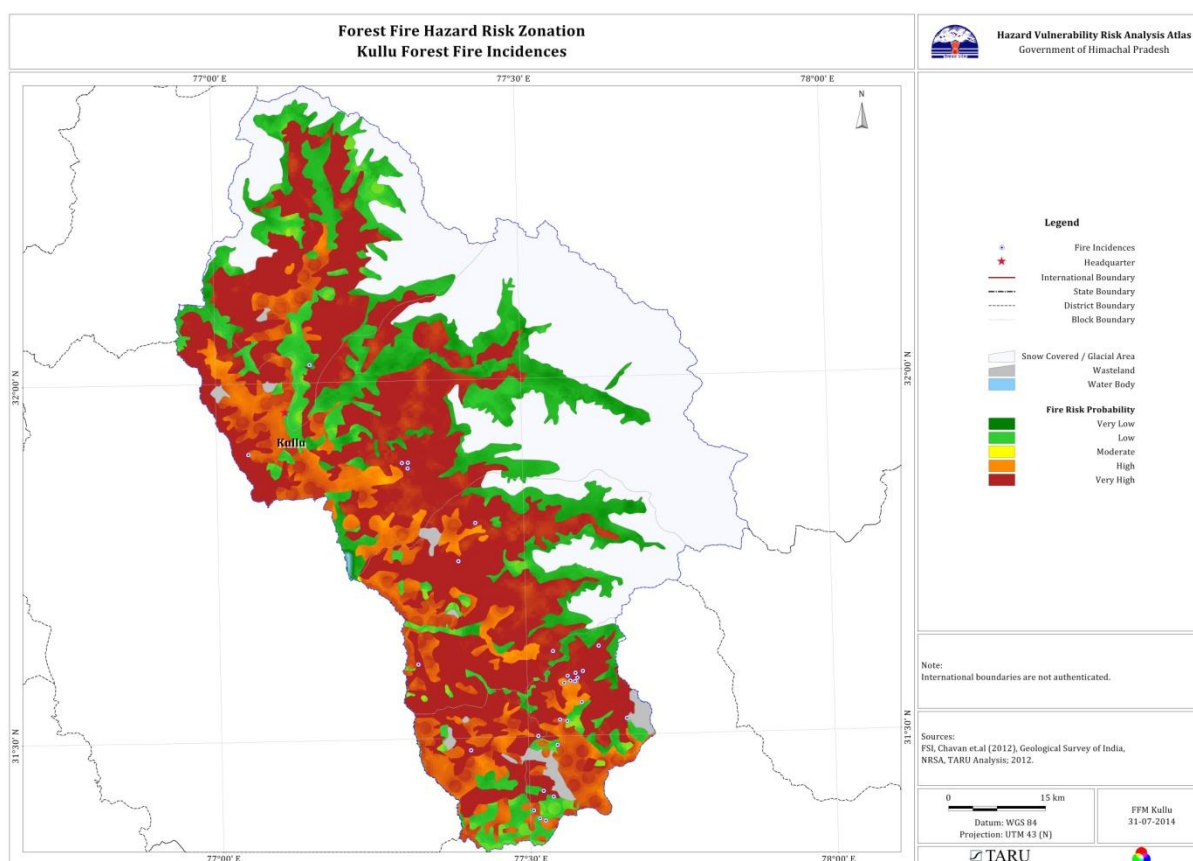


Figure 6: Forest Fire Hazard Risk Zonation Map: Kullu

7. Soil Erosion:-

Soil erosion is as low phenomenon, causing extensive loss to soil fertility and damage to the

land basin. Though the process of soil erosion is natural and has been continuing on the surface of the earth since its origin, recently, due to various human induced activities, its rate has accelerated to dangerous proportions. The area being drained by a large network of river systems, soil erosion by water has become a serious problem. Besides causing great loss to soil fertility huge quantity of eroded material carried by water channels cause floods in downstream regions. Along with other developmental activities, deforestation, road construction, forest fires etc. are the basic reasons for the high rate of soil erosion in the state. The main physical triggering mechanism for most of the erosion processes is moisture. Although earthquakes can also play a large role in mobilizing various mass wasting processes, they are not nearly as frequent as precipitation and runoff events that are capable of destabilizing a slope. Intense, prolonged monsoon rains and abundant winter snow fall combined with a steep, geologically weak and weathered environment such as the Kullu Valley leads to the activation of a variety of denudation processes. An increase in the magnitude and/or frequency of precipitation or runoff events could potentially lead to higher moisture conditions and likely an increase in the magnitude and/or frequency of erosion processes. However, previous literature and the statistical analysis of a 100-year precipitation record for three urban centers in the valley (i.e. Manali, Nagar, and Kullu town) indicate that there has been no net change in the precipitation amount over the past century. Although the intensity and frequency of isolated storm events may have changed, the available climatic data precludes any detailed analysis of individual precipitation events.

8. Climate Change: -

Unpredictable period of rains and rising temperature indicate that the temperature is rising in Kullu district. The recent climate change perhaps is leading the district towards massive disaster in near future. In the Kullu valley of Himachal Pradesh it has been reported that the rainfall has decreased by about 7cm, snowfall by about 12 cm, but the mean minimum and maximum temperatures have increased by 0.25-1 degree Celsius respectively in 1990s as compared to 1880s (Vishva Karma et. al. 2003). A massive glacial retreat rates 178 m/ year in Parbati Glacier in Kullu district during 1962 to 2000 has been observed (Kulkarni et. al. 2004). These observations, irrespective of the differences in the retreat of glaciers, suggest that global warming and climate change has affected snow-glaciers melt and runoff pattern in the

Himalayas. Table 7 shows statistical analysis of last 41 years rainfall record at Sarsai farm in Kullu which indicates an increasing trend of annual rainfall.

Table 7: Average Temperatures (° C), rainfall (cm) and percentile changes in temperatures and rainfall at Sarsai Farm in Kullu valley in North Western Himalayas and hence of annual precipitation.

Months	Average Maximum Temperature (°C)			Average Minimum temperature (°C)			Mean rainfall (cm)		
	1963-1972	1995-2004	Difference	1963-1972	1995-2004	Difference	1963-1972	1995-2004	Difference
January	11.0	11.6	0.6	0.9	1.8	1.0	6.6	6.4	-0.3
February	12.7	12.8	0.1	1.7	3.1	1.4	10.1	9.4	-0.8
March	17.2	17.4	0.2	5.1	6.2	1.1	11.1	12.1	1.0
April	20.0	22.3	2.4	8.1	9.5	1.4	8.5	10.3	1.8
May	24.9	26.5	1.6	11.1	13.1	2.0	6.3	6.2	-0.1
June	28.2	27.5	-0.7	15.8	17.2	1.4	6.8	8.6	1.8
July	26.9	28.6	1.7	17.6	19.9	2.3	12.4	12.6	0.2
August	25.2	27.4	2.3	16.9	19.0	2.2	17.0	15.4	-1.6
September	25.5	26.1	0.6	13.2	14.8	1.6	8.7	10.1	1.4
October	21.7	23.8	2.1	8.5	9.7	1.2	2.2	3.1	0.9
November	17.4	19.2	1.8	4.5	6.1	1.6	2.8	3.0	0.2
December	13.7	14.4	0.7	2.3	3.2	0.9	2.8	3.6	0.7
Annual	244.3	257.6	13.3	105.5	123.7	18.2	95.7	100.9	5.2

9. Road Accidents: - The high frequency of vehicles, congested roads, reckless driving, lack of safety measures, over speeding, unplanned construction and narrow roads are some of the major factor behind road accidents in Kullu district.

10. Stampede:- Kullu has lot of temples viz Raghunath Temple, Shringi Rishi Temple (Banjar), Maha Devi Tirth Temple, Bijli Mahadev, Devta Narsingh, Hidimba temple etc. The district is famous for festivals and fairs like Kullu Dusshera which are visited by thousands of tourists. The police and Home Guards assigned with the task of managing the rush but even then there is no strong mechanism to efficiently deal with the situation.

11. Chemical or Biological Hazard: -There is IOC depot stationed at Mohal having huge storage capacity and there are number of petrol pumps in the district. All are vulnerable destinations

if proper security measures are not adopted. Most of these stations are located in populated areas. There is movement of oil and gas supply to Leh during summer season via Kullu. Lot of oil tanker move during this time and there are incidents of oil spillage due to accident in the past and this makes the surrounding population vulnerable in case affective timely steps are not under taken.

12. Wind Storm:-

In simple terms Wind storm is defined as “A storm with high winds or violent gusts but little or no rain”. During winter season Kullu district is prone towards wind storms leads to destruction of lives and properties.

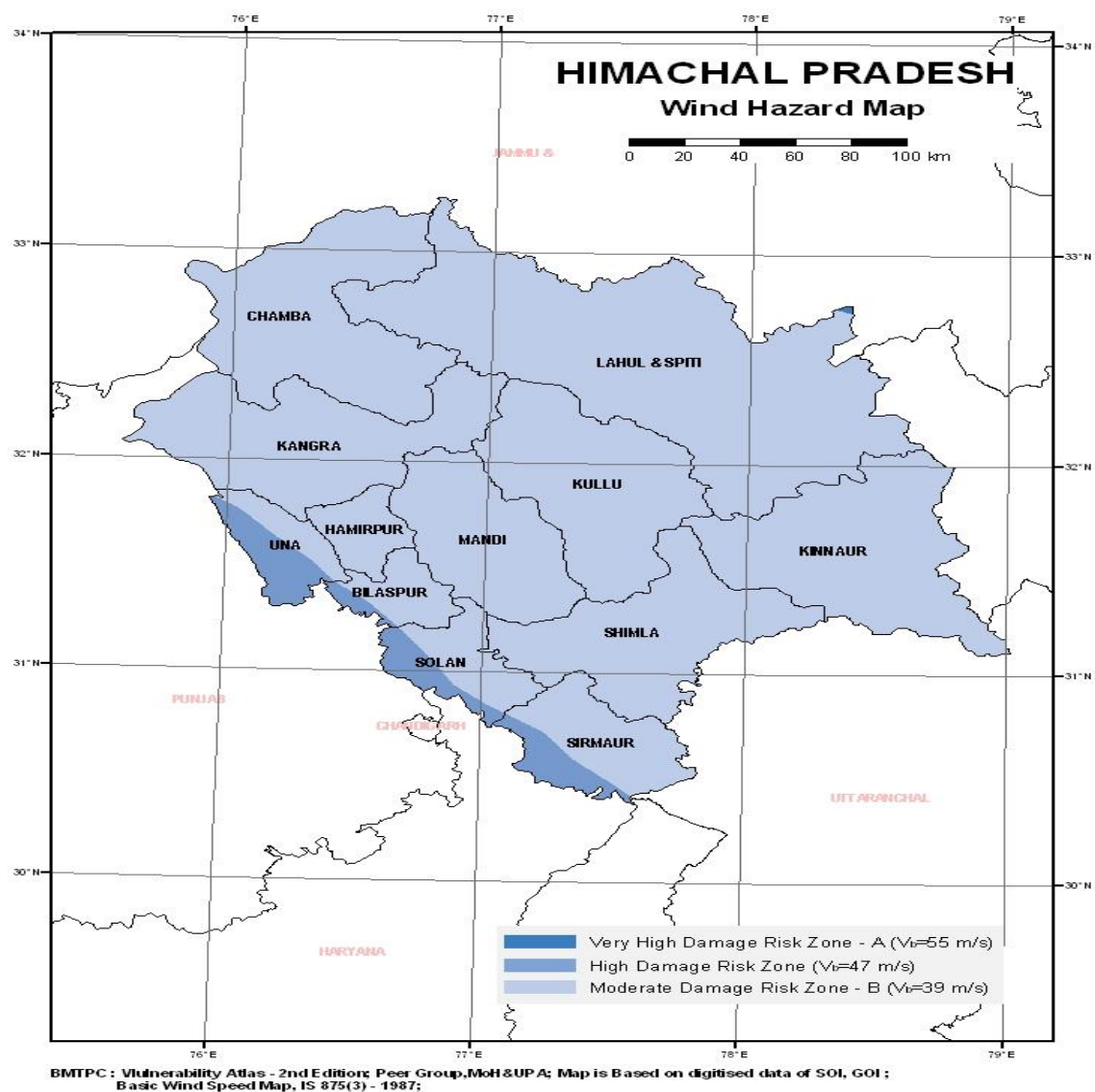


Figure 7: Wind Hazard Map: Himachal Pradesh

CLIMATE CHANGE AND ITS IMPACT ON DIFFERENT ASPECTS IN KULLU DISTRICT

Kullu district is environmentally most fragile with large scale human activity due to tourism, power projects and vehicular movements

1.	Melting of Glaciers	Emission of large amount of carbon in environment in Kullu district is a cause of worry for glacial melting. An unusual retreat of the Parbati glacier in the Parbati river basin, Kullu district, Himachal Pradesh is reported. This is one of the largest glaciers in the valley. Satellite data of 1990, 1998, 2000 and 2001 are used in the investigation and the study has shown that the glacier had retreated 578 m between 1990 and 2001, almost 52 m per year. The glacier is retreating in response to climatic warming (Kulkarni, June 10, 2005).
2.	Rainfall and Water Sources	At present, the district is facing acute shortage of water as traditional water sources are either on the verge of extinction or have dried. These changes in the availability of water resources will have negative impact on overall economy of the district. Due to erratic rainfall drought conditions prevail. During the year 2009 the discharge of water sources is reduced by 10.15% in Kullu district. In the same year 332 habitations, two towns and 38460 rural populations was affected during summer season due to reduction in discharge of water sources (Singh et. al., 2010). A senior scientist at the GB Pant Institute of Himalayan Environment and Development said that temperature in the Kullu valley have risen by about point six degrees centigrade (Source: Voice of America, September 2013)

3.	Agriculture	The farmers in Kullu district are forced to abandon apple farming. The research shows that the apple belt was shifting upwards due to climbing regional temperatures, making the lower parts of the valley unsuitable and the upper valley hospitable for the apple crop. Apple production in Kullu valley has significantly decline during the period 1981-2000. Another significant observation has been the shift in the cropping pattern from apple to pomegranate and vegetation cultivation i.e. area under apple is diverted to vegetable due to rising temperature. Overall decrease of about 2-3% in yield has been reported in Shimla, Kullu, Lahual and Spiti districts. Apple cultivator's i.e. about 35,000 families of the valley perceives that over the years the amount of snowfall has decreased, and that it occurs later than before. The farmers in the district also look at climate change primarily in relation to the decrease in their apple production. Because of the change in snowfall the chilling hours for apple trees are reduced, affecting the time of its bud-break. In addition to direct impact of climate change on apple productivity, it has also aggravated infestation of some diseases and pests resulting in more losses.
4.	Tourism Industry	Tourism is a major economic activity in the district and any significant reduction in tourist arrivals will have serious employment impacts and can generate further poverty. Retreating glaciers and snow melt on high Himalayan peaks is impacting tourism in Kullu especially in Manali. Tourists in the hill town of Manali in Kullu Valley thrive on the tourists who

		visit the place to escape the scorching heat of the Indian Plains. Research reveals that during season time there is traffic jam for four to six kilometres on Rohtang road which was not the same 20 years ago. While the tourism industry is flourishing on one side but on the other side the swelling number of vehicles on snow-capped mountains is a matter of concern. Some of the major tourist sites viz. Solang Valley, Manikaran, Naggar etc. are flooded with people and vehicles which pollute the place and gradually degrading the environment.
5.	Economic Losses	Due to physiographic conditions Kullu district is highly prone towards some of the major climate induced disasters like cloud burst and resultant flash floods. These disasters lead towards tremendous loss of not only precious lives but also property worth crore's. On 4th August 2012 flash flood wreaks havoc in Kullu (Manali area). The loss to roads, bridges and other property was estimated to about Rs. 8 crore, including Rs. 5-7 crore loss incurred by the BRO and about Rs. 2 crore by the state (Source: Hindustan Times, August 04,2012).Glacial melt have major impact on long-term lean-season flows, with adverse impacts on the economy in terms of water availability and hydropower generation.
6.	Depletion of Natural Resources and Man-Animal Conflict)	No less harm has been caused in the Kullu – Manali valley for depletion of natural resources is the alarming. Ecological problems in the mountains stem from the population increase; be it due to domestic or commercial imbalances of vegetation dynamics or due to geo- disturbances accelerated by development

		activities. The buffer zone, marked for domestic needs between cultivated lands and natural forests, have been badly degraded and people are now frequently trespassing the reserve forests (Source: hp hill post, Jul 1, 2013). These changes are forcing animal to encroach human habitation which leads towards man-animal conflict. The clear impact of climate change on the forest cover is visible in the form of shifting of tree line to higher altitudes and movement of pine species to higher altitudes.
7.	Environmental Degradation	De-forestation, establishment of hydel projects, tremendously increasing population and increase in vehicles and resultant harmful emission of gases leading to degradation of environment. Non-availability of warning system along the rivers for local people and tourists further increases their vulnerability.

II. HISTORY OF SOME OF THE MAJOR DISASTERS IN KULLU:-

1. Previous Disasters and its Impact on Kullu District

Disasters lead to tremendous losses of both lives and property. In recent time there has been an increase in the reports of natural disasters. The growing incidents of natural disasters are highly correlated to the increasing vulnerability of households and communities in developing countries. District Kullu have also been ravaged by catastrophic events in the past and had worst experienced in terms of loss of life and property.

The available data about some of the past incidents of various disasters is as follows:-

Table 8: -History of Earthquakes in Kullu District

Sr. No.	Year	Magnitude	Coordinates	Location	Losses
1	28 Feb 1906*	6.4	32 18'00" 77 00'00"	Near Karshing	-
2	19 May 2014	4	-	Kullu	No loss to life and property
3	20 May 2014	4	-	Kullu	No loss to life and property

Source:-IMD: Indian Meteorological Department, DLDH-Oldam, ISS: international Seismological Summary, PDE: Preliminary Determination of Earthquakes

Table 9: -History of Landslides in Kullu District

Sr. No.	Area	Date	Damage
1.	Luggar Bhatti*	12.09. 1995	65 person* (35 as per official record) were buried alive during the slide **
2.	Kullu-Anni	28.08 2013	Blocked the Kullu-Anni highway at two places and residents of hundreds of villages falling under 58 panchayats in Anni and Nirmand sub-divisions of Kullu had no connectivity with the District headquarter headquarters for about one week.
3	Manali	5.03.2011	Roads were blocked, electricity Supply dismantled, a four story traditional house collapsed due to weight of four-foot snow in Malana village.
4	Manali	26.02.2011	Collapsed terraced fields, uprooting and falling of trees, disrupting vehicular traffic at Raison, Dobhi, Alu Ground, Rangri and Manali.
5.	Manali-Leh Highway	16.09.2012	Blocked Manali-Leh highway, Leaving people stranded amidst Chaos and traffic bottlenecks.

Table 10: - History of Flash Flood: Kullu

Sr. No.	Prominent Flash Floods	History of Damage Occurred
1.	December 1988	Washed away 15 houses, 35 bighas of agricultural land and about 600 apple trees in Solang village. 32 persons and 35 cattle heads also lost their lives. 2kms stretch of NH-22 across Solang Khad was also washed away. The hydro project work of Bhabanagar suffered complete damages.
2.	4th and 5th September 1995 in Kullu	Damage to the tune of Rs. 759.8 million
3.	August 1997	Triggered due to cloud burst. 124 human lives were lost.

4.	4-5 & 12 September Flash Flood in Kullu	Flood and Landslide along Beas river in the Kullu valley killed 65 people , NH damaged at numerous places , loss to the government and private property, road and bridges estimated US \$ 182 million
5.	Flash floods in the night of 21 st and 22 nd August 2001, cloudburst in Ani Sub Division of Kullu district occurred	Due to flash flood in village Badhali 2 houses in which a couple was buried alive and their two children were injured. In village Sarli 7 people lost their lives, 15 houses were washed away besides the loss of 12 cows, 18 oxen and 40 sheep and about 115 bighas of agriculture and horticulture land was washed away.
6.	Flash flood on the night of 2 nd July 2001 in Sainj Valley district Kullu	Cloudbursts in the upper reaches of Satluj valley caused flash flood in two nallahs namely, Sainj and Jeeba affecting about 40 families, 2 bridges on Sainj and Jeeba nallahs and plenty of fertile land were washed away. Connecting road to Siund and Sainj was also washed away at a number of places. Two persons and 5 cattle perished. Some other areas in Kullu district were also affected due to excessive rains in July and the population of 6355 was adversely affected.
7.	Flash floods due to cloudburst in Gharsa valley on 16 th July 2003 in Kullu district	21 people lost their lives, 21 people suffered major injuries and 9 are still missing.
8.	Flash floods in Kangni nalla near Solang in Kullu district on 7 th August 2003	30 people lost their lives, 19 injured, 9 people lost their lives due to landslide near Bhang nalla
9.	Bahang valley (near Manali) 24 th July 2003	2 people lost their lives. Property and houses were damaged

Sources: - HPSDMA, 2012

Table 11: - Incidents of Village and Urban Fires in Kullu

District	No. of Fire Stations	No. of fire Calls attended	No. of Human Lives		No. of cattle Lives		Value of property (Rs in Lakhs)	
			Saved	Lost	Saved	Lost	Saved	Lost
Kullu	02	75	01	03	-	37	1715	381

Source: - Chief Fire Officer, Himachal Pradesh

Table 12: Fire Incidents in Kullu

Sr. No.	Date	Area	Losses
1.	June 2007	Kullu	Gutted 6 houses, 8 shops, 2 rooms of a primary government school, 34 families rendered homeless and 13 villagers were injured
2.	December 2013	Manali	Property worth Rs. 1 crore damaged
3.	February 2014	Manali	-
4.	April 2014	kullu	13 houses gutted, property valued at 2 crore destroyed, inflicted losses on 31 families, 4 of which lost their homes.

Table 13: - Hazard Vulnerability Matrix: Kullu

District	Total Population	Population Density	Area (%) under seismic zone- V liable to design severest intensity	Buildings in “A” categories (%)	Infrastructure Risk	Earthquake Intensity (%) no. s	Area prone for severe high land slides	Flood Hazard , Excess rainfall intensity
Kullu	3,81,571	79	53.1	89.91	Very High	3.44(19)	1820	Very High

III. DISASTER VULNERABILITY

- **Physical vulnerability:** - Risk to life and property is a consequence of natural hazards, which result from this juxtaposition of the human and physical environments. Disasters are the realization of risk and often occur at specific sites (i.e. hazard sites). Table 14 depicts Earthquake

Intensity and Building Types in Kullu district. In addition to this lot of wooden material is used in the built structures which are again highly prone to fire hazards. Construction activities associated with hydel power projects also affecting the fragile ecology of the state. The built-up land use/cover includes not only urban infrastructure within towns and cities, but also individual dwellings, roads linking settlements, and other human-built structures. The removal of a forest cover from a steep slope often leads to accelerated surface erosion and dramatically increases the chances for landslides as well as runoff. The consequences of deforestation include raised riverbeds due to increased channel siltation, which ultimately leads to more flooding in low-lying areas. The increasing population, rapidly expanding infrastructure, and continued intensification of land use are superimposed onto a physically unstable landscape characterized by frequent mass wasting and erosion, activity and floods.

Table 14: Earthquake Intensity and Building Types : Kullu

Sr. No.	Name of District (Total No. of Housing units)	MSK IX or More % area	MSK VIII % area	A-Cat (Clay)	A-Cat (stone)	B-Cat (brick)	C-Cat Reinforced buildings, well built wooden structures	X-Cat Other types covered A,B,C These generally light
1.	Kullu (123455)	53.1	46.9	1.22	88.69	3.00	6.80	0.30

Source: Vulnerability Atlas of India of Himachal Pradesh, 1977

- Housing Vulnerability:** -Table 15 & 16 shows the district-wise residential houses and distribution of houses by predominant materials of roof and wall and level of damage risk respectively. The tables clearly show that 69.5 % houses falls under Category A, which cannot withstand the vagaries of Disasters like earthquakes. Rural wooden structures are particularly prone to fire hazards in the district. Category B consisting 10.1% houses structures. 9.1% structures comprising Category C, are reinforced and well-built wooden structures and only 1.4% category X made of light material and can be considered safe construction.

Table 15: District-wise Residential Houses: Kullu (2001 and 2011 Census)

District	2001			2011		
Kullu	Total	Rural	Urban	Total	Rural	Urban
	77,655	69,865	7,790	94,807	84,358	10,449

Source: - Census of India – 2001 & 2011

Table 16

Distribution of Houses by Predominant Materials of Roof and Wall and Level of Damage Risk

Table No. : HP 04

State : HIMACHAL PRADESH

KULLU

TABLE NO. 7. III - C4				STATE - BIHAR / FRANCE								ROOF		
Wall / Roof		Census Houses		Level of Risk under										Flood Prone Area in %
		No. of Houses	%	EQ Zone				Wind Velocity m/s						
				V	IV	III	II	55 & 50	47	44 & 39	33			
				Area in %				Area in %						
WALL				67.4	32.6							100		
A1 - Mud		Rural	2,834	1.9										
Unburnt Brick Wall		Urban	249	0.2										
		Total	3,083	2.1	VH	H						M		
A2 - Stone Wall		Rural	113,753	74.4										
		Urban	4,558	3.0										
		Total	118,311	77.4	VH	H						L		
Total - Category - A			121,394	79.4										
B - Burnt Bricks Wall		Rural	8,364	5.5										
		Urban	7,124	4.7										
		Total	15,488	10.2	H	M						L		
Total - Category - B			15,488	10.1										
C1 - Concrete Wall		Rural	1,013	0.7										
		Urban	294	0.2										
		Total	1,307	0.9	M	L						VL		
C2 - Wood wall		Rural	11,092	7.3										
		Urban	1,511	1.0										
		Total	12,603	8.3	M	L						M		
Total - Category - C			13,910	9.1										
X - Other Materials		Rural	1,827	1.2										
		Urban	246	0.2										
		Total	2,073	1.4	M	VL						M		
Total - Category - X			2,073	1.4										
TOTAL BUILDINGS			152,865											
ROOF														
R1 - Light Weight Sloping Roof		Rural	33,435	21.9										
		Urban	4,497	2.9										
		Total	37,932	24.8	M	M						H		
R2 - Heavy Weight Sloping Roof		Rural	90,084	58.9										
		Urban	2,769	1.8										
		Total	92,853	60.7	H	M						L		
R3 - Flat Roof		Rural	15,364	10.1										
		Urban	6,716	4.4										
		Total	22,080	14.5	Damage Risk as per that for the Wall supporting it									
TOTAL BUILDINGS			152,865											

Probable Maximum Precipitation at a Station of the district in 24 hrs is 400 mm

Housing Category : Wall Types

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

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

Category - C : Reinforced building, well built wooden structures

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

Notes : 1. Flood prone area includes that protected area which may have more severe damage under failure of protection works. In some other areas the local damage may be severe under heavy rains and clogged drainage.

2. Damage Risk for wall types is indicated assuming heavy flat roof

in categories A, B and C (Reinforced Concrete) building

3. Source of Housing Data : Census of Housing, GOI, 2001

DMPC Building Materials & Technology Promotion Council

Housing Category : Roof Type

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

Category - R2 - Heavy Weight (Tiles, Slate)

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

EQ Zone V : Very High Damage Risk Zone (MSK > IX)

EQ Zone IV : High Damage Risk Zone (MSK VIII)

EQ Zone III : Moderate Damage Risk Zone (MSK VII)

EQ Zone II : Low Damage Risk Zone (MSK < VI)

Level of Risk : VH = Very High; H = High;

M = Moderate; L = Low; VL = Very Low

Peer Group, MoH&UPA, GOI

• **Socio-Economic Vulnerability:** - Kullu District has experienced several periods of rapid socioeconomic change. The local people are quite vulnerable towards natural disasters in the district. The people are not aware about the threats posed by the deadly hazards/disasters. Large proportions of socially weak groups are generally located in disaster prone areas. Table 17 shows Social Vulnerability of Kullu district. Table 18, 19 and 20 shows different aspects of social vulnerability in the district i.e. physically challenged people, pensioners and unemployed registered people in the district. The Kullu District has undergone significant land use/cover change and intensification. The extent of economic and human losses due to flooding and mass wasting activity, especially during the previous two decades, is alarming. The unchecked expansion of built-up areas into geomorphologically active regions such as the river flood plain, unstable slope and debris flow has been accelerating and is a major cause of concern.

Table 17 :-Social Vulnerability of Kullu									
District	Area in sq. km	Population	Female/ 1000 males	Density per km	Urban population (%)	Literacy (%)	Percentile villages with infrastructure		
Kullu	5,503	3,79,865	927	69	7.92	73.36	45.93		
	Table 18: - Physically Challenged People: Kullu								
	VI		HI		OI		MR		TOTAL
	1093		1048		1946		483		4570
	Table 19: - Unemployed Registered with Employment Exchanges: Kullu (Jan 2011)								
	Registration		Vacancies		Submission		Placement		Live Register (31.01.2011)
	4960		63		1136		30		48635
	Table 20: - Social Security Pensioners- Most Vulnerable Population								
	National Gandhi pensioners		In wid	Old Pension	Widow Pension	Old Widow Pension	National Indira Gandhi pension	Handicapped Allowance	Patient Allowance
5662			4265	459	4155	9	2268	81	16899

The primary causative factors in the increased risk are growth in tourist demand and intensification and diversification of commercial agriculture. The area has undergone noticeable land use change over the past century, particularly since about 1970. Land use change is usually brought about by a change in the socioeconomic situation of an area. Agriculture has been the dominant economic and

land use activity in the region for centuries, at times employing 90% of the population (Singh, 1992). Research reveals that women and children suffer immensely from the hazardous impacts of disasters, severe weather events, and climate change because of cultural norms and the inequitable distribution of roles, resources, and power.

Table 21: Rural Families Living Below Poverty Line (Survey): 2002-2007			
District	Total Number of Rural Households at the time of survey	Number of Households below Poverty line	% age of households below poverty line to the total rural households
Kullu	69388	11267	16.24

Table 22: - Detail of Disabled person in district Kullu (2001 Census)					
Type of disability	Total Disabled	Rural	Urban	Male	Female
(1)	(2)	(3)	(4)	(5)	(6)
Blind	4291	---	---	---	---
Handicap	2299	---	---	---	---
Deaf	1411	---	---	---	---
Dump	1019	---	---	---	---
Mentally Disturb	766	---	---	---	---
Total	9786	9337	449	5549	4237

IV. OVERALL VULNERABILITY OF THE DISTRICT

District Kullu is prone to multiple disasters and the overall vulnerability of the district has been stated to be very high. The main connectivity of Kullu district with rest of the state is through NH-21. In case of any disaster, if communication through this highway is disrupted then major population of the district will be susceptible to natural wrath. There are a number of Hydro Power Projects in the district almost on all major Nallas, Streams and also the run of river projects which further adds to the vulnerability and risk life and infrastructure. Kullu valley being paradise for adventure sports viz River Rafting, Mountaineering, and Skiing on the snow slopes etc. to the valley every year. Most of the people in district Kullu live in villages and are dependent on collection of herbs and other medicinal plants from nearby forest. Climate change will have adverse impact on this population in terms of economic loss and will be severely affected by climate change.

IV. CAPACITY ANALYSIS

District Kullu is highly vulnerable to some of the devastating natural disasters. In this context the capacity analysis of the district to deal with an emergency situation is very crucial.

1. Fire Station:-

Table 23: Fire Stations in Kullu							
District	Area	Total Population Census 2011	Population Density	No. of Fire stati Operational		Average Population per fire	
Kullu	5,514	4,37,474	79	2		2,18,737	
	Table 24 : Number of Operational and New Fire Stations : Kullu						
	No. Operational Fire Stations	Ideal population Served under Operational stations	No. of new urban fire stations	Ideal population served for new urban fire stations	No. of new rural stations	Ideal popula served for new urban stations	Total Fire stations
	02	98,780	0	0	06	347,659	08

Table 25: Operational Fire Fighting Vehicles Available with Kullu Fire Services(Aug.2012)																
Fire Stations	Ideally Served estimates	Water	Water Bowrs	Foam Tenders	Advanced Rescue Teams	Hydraulic Platform/ lifts/TTL	DCP tenders	Hose Tenders	BA Vans	Hazmat Vans	QRT	Motor Cycle Mists	Fire Bodies	Ambulances	Educational Vans	Total Vehicles
02	88,376	05	02	0	0	0	0	0	0	0	01	0	0	0	0	08

Table 26 : Specialised Equipment Available with Kullu Fire services Department

Fire Stations	Ideally Served population estimate	Hydraulic Rescue Tool	Combi Tool	B.A. Set	BA Compressor	First-aid Box	Thermal Imaging Camera	Electric Chain Saw/cutter/hammer for concrete	Electric chain saw/cutter/hammer for wood	Hydraulic /manual chain	Personal protection equipment	Hand held gas detector kit	Life locator equipment	Portable pump	Floating pump
02	98,780	01	0	05	01	04	0	02	02	0	02	0	0	02	0

2. Home Guards Network:-

The Government of India have authorized 8000 Home Guard volunteers to Himachal Pradesh. 7653 Home Guards volunteers were on the rolls during the year 2008-2009. The State has 12 Battalions of Home Guards. The home Guard strength of Kullu district is mentioned below:-

Table 27: Home Guard in Kullu District

District	Battalion	Authorised Strength
Kullu	Battalion No. VII	723
The sanctioned and posted strength of the regular staff is as under		
Sr. No.	Name of Post	Sanctioned Strength
1.	Commandant General	01
2.	Dy. Commandant General	01
3.	Senior Staff Officer (Admin.)	01
4.	Commandant (Training)	01
5.	Staff Officer/Commandants	14
6.	Company Commander	20
7.	Platoon Commander	47
8.	Havildar	56
9.	Radio Wireless Operator	01
10.	Radio Wireless Mechanic	01
11.	Band Man	18
12.	Quarter Guard/Naik/L. Naik	11

3. Police Network

Table 28: Police Network : Kullu			
Sr. No.	Police Station	Contact Number	E-Mail Address
1.	Anni Police Station	01904-253310	police.anni-hp@nic.in
2.	Banjar Police Station	01903-222227	police.banjar-hp@nic.in
3.	Bhuntar Police Station	01902-265412	police.bhuntar-hp@nic.in
4.	Brow Police Station	01782-232516	police.brow-hp@nic.in
5.	Manali Police Station	01902-252326	police.manali-hp@nic.in
6.	Nirmand Police Station	01904-255126	police.nirmand-hp@nic.in
7.	Sadar Police Station	01902-222775	police.kullu-hp@nic.in

4. Army Network and Paramilitary Forces: -

Kullu district is well equipped with vast man power of Army and ITBP forces. The presence of these forces in the district comes as handy for disaster response. There is ITBP battalion situated at Babeli near Kullu. There is Army headquarter at Palchan where there is presence of Army personnel's. There is SSB stationed at Shamshi, which has 181 trained personnel's. All these Paramilitary and Military establishments are handy and have proven their worth in the recent calamities.

5. CBOs and NGOs: -

Manycommunity based and Non- Government organisations are in existence but unfortunately these organisations are not trained in the field of disaster management. However, their networking and orientation in DM is under way.

6. Landing Sites:-

The list of landing sites (Table 29) which may be of immense help in disaster is given below. However, non-availability of re-fuelling facility in the area may hinder the smooth operations of air relief operations.

7. Equipment and Machinery – Resource inventory

The list of equipment, machinery and manpower available in the district is at **-Annexure I**

Table 29: Landing Sites (Kullu)					
Sr. No.	Name of Helipad/Station	latitude	Longitude	REF	Altitude
1.	Larji	31.43.0	77.13.0	A.004/36	---
2.	Kullu	---	---	---	---
3.	Bhunter	---	---	---	---
4.	Palchan	32.18.36	77.10.82	---	7100 Ft.

IV. IMPORTANT GAPS IN EXISTING CAPACITY TO DEAL WITH DISASTERS

- Connectivity and terrain of the district.
- Lack of specialised SAR equipment and capabilities with the state and local authorities.
- Communication–land and mobile based communication only.
- Lack of trained workforce.
- Lack of awareness at all levels–government functionaries, elected representatives and the general public.
- Lack of clarity of roles of various departments and stakeholders.
- DRR not integrated into development planning and programmes.
- Hospital and schools not prepared to deal with disasters.
- Only 2 fire station for the entire district.
- The existing construction in the district is not hazard resistant.
- Huge infrastructure has come along the major river courses of the district making them vulnerable to flash floods.
- Lack of mechanism for transferring the risk by way of insurance etc.
- Non availability adequate EWS network and mechanism to communicate the EW to the vulnerable community.
- Non availability of functional EOC.
- The institutional set-up –SAR, MFA ,etc. to deal with disasters is not adequate

CHAPTER 3

INSTITUTIONAL MECHANISM

I. NATIONAL LEVEL

The Disaster Management Act, 2005 lays down institutional, legal, financial and coordination mechanisms at the National, State, District and Local levels. These institutions are not parallel structures and will work in close harmony. The new institutional framework is expected to us here in a paradigm shift in DM from erstwhile relief centric approach to a proactive regime that lays greater emphasis on preparedness, prevention and mitigation. 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, Defence, 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 Defence 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 discharge of its functions and also ensure compliance of the directions issued by the Central Government. The NEC is to coordinate the response in the event of any threatening disaster situation or disaster.

II. STATE LEVEL

At the State level, the State Disaster Management Authority constituted under the chairmanship of the Chief Minister and has the responsibility of planning, policies, plans guidelines for DM and coordinating their implementation for ensuring timely, effective and coordinated response to disasters. The Chief Secretary is the Chief Executive Officer of the SDMA. Besides, the SDMA has seven other members. The SDMA will, inter alia approve the State Plan in accordance with the guidelines laid down by the NDMA, approve DMPs prepared by the departments of the State Government, lay down guidelines to be followed by

the departments of the Government of the State for the purpose of integration of measures for prevention of disasters and mitigation in their development plans and projects, coordinate the implementation of the State Plan, recommend provision of funds for mitigation, preparedness measures, review the developmental plans of the different Departments of the State to ensure the integration of prevention, preparedness and mitigation measures and review the measures being taken for mitigation, capacity building and preparedness by the departments. The State Authority shall lay down detailed guidelines for providing standards of relief to persons affected by disaster in the State. The State Executive Committee (SEC) headed by the Chief Secretary and four other Secretaries as its members shall be there to assist the SDMA in the performance of its functions. The SEC will further provide necessary technical assistance or give advice to District Authorities and local authorities for carrying out their functions effectively, advise the State Government regarding all financial matters in relation to disaster management, examine the construction, in any local area in the State and, if it is of the opinion that the standards laid for such construction for the prevention of disaster is not being or has not been followed, may direct the District Authority or the local authority, as the case may be, to take such action as may be necessary to secure compliance of such standards, lay down, review and update State level response plans and guidelines and ensure that the district level plans are prepared, reviewed and updated, ensure that communication systems are in order and the disaster management drills are carried out periodically. The SEC will also provide information to the NDMA relating to different aspects of DM.

Table 30: Members of SDMA

1.	Hon'ble Chief Minister	Chairman
2.	Hon'ble Revenue Minister	Member
3.	Chief Secretary	Chief Executive Officer, ex officio
4.	ACS cum FC (Revenue)	Member
5.	Principal Secretary (Home)	Member
6.	Principal Secretary (PWD/I&PH)	Member
7.	Principal Secretary (Health)	Member
8.	Director General of Police	Member
9.	Secretary (Revenue)	Member Secretary

III. STATE MANAGEMENT GROUP

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.

IV. DISTRICT DISASTER MANAGEMENT AUTHORITY

The District Disaster Management Authority (DDMA) will act as the district planning; coordinating and monitoring body in accordance with the guidelines lay down by the State Authority. As per Section 25 of the DM Act 05, DDMA for every district in the State of Himachal Pradesh has also been constituted, consisting of the following members:

Table 31:- Members of DDMA

Sr. No.	Designation	DDMA
1.	Deputy Commissioner	Chairperson
2.	Superintendent of Police	Member
3.	Chief Medical Officer	Member
4.	Superintending Engineer (PWD)	Member
5.	Superintending Engineer (I & PH)	Member
6.	Superintending Engineer (MPP & P)	Member
7.	Chairperson of the Zila Parishad	Member
8.	Additional District Magistrate	Member

The roles and responsibilities of the DDMA have been elaborated in Section 30 of the DM Act, 2005. The DDMA will act as the planning, coordinating and implementing body for DM at the 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, the State Plan and the District Plan. The DDMA will also ensure that the guidelines for prevention, mitigation, preparedness and response measures lay down by the NDMA and the SDMA are followed by all the Departments of the State Government at the District level and the local authorities in the District. The DDMA will further ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of its effects are taken, ensure that the guidelines for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the National Authority and the State Authority are followed by all departments, lay down guidelines for prevention of disaster management plans by the department of the Government at the districts level and local authorities in the district, monitor the implementation of disaster management plans prepared by the Departments of the Government at the district level, lay down guidelines to be followed by the Departments of the Government at the district level for purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and monitor the implementation of the same, review the state of capabilities and preparedness level for responding to any disaster or threatening disaster situation at the district level and take steps for their up gradation as may be necessary, organise and coordinate specialised training programmes for different levels of officers, employees and voluntary rescue workers in the district, facilitate community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, governmental and non- governmental organisations, setup, maintain, review and upgrade the mechanism for early warnings and dissemination of proper information to public, prepare, review and update district level response plan and guidelines.

The DDMA will also coordinate response to any threatening disaster situation or disaster, coordinate with, and provide necessary technical assistance or give advice to the local authorities in the district for carrying out their functions, examine the construction in any area in the district and issue direction the concerned authority to take such action as may be necessary to secure compliance of such standards as may be required for the area, and identify buildings and places which could, in the event of any threatening disaster situation or disaster, be used as relief centres or camps and make arrangements for water supply and sanitation in such buildings or places, establish stockpiles of relief and rescue materials or

ensure preparedness to make such materials available at as or notice. The DDMA will encourage the involvement of non- governmental organisations and voluntary social-welfare institutions working at the grassroots level in the district for disaster management ensure communication systems are in order, and disaster management drills are carried out periodically.

An effective disaster management strategy must be supported by a quick decision making process which will include the issues related to warning, conduct evacuation and rescue & relief operations in the event of a disaster. This requires a core team of senior decision-maker shaving administrative control over the key resource organisations. Therefore, it is utmost need to constitute a DCG (District Crisis Group) with District Deputy Commissioner as its leader. The organisational structure for disaster management in the district has been proposed here, which recommends the District Magistrate as the nodal officer for control and co-ordination of emergency activities.

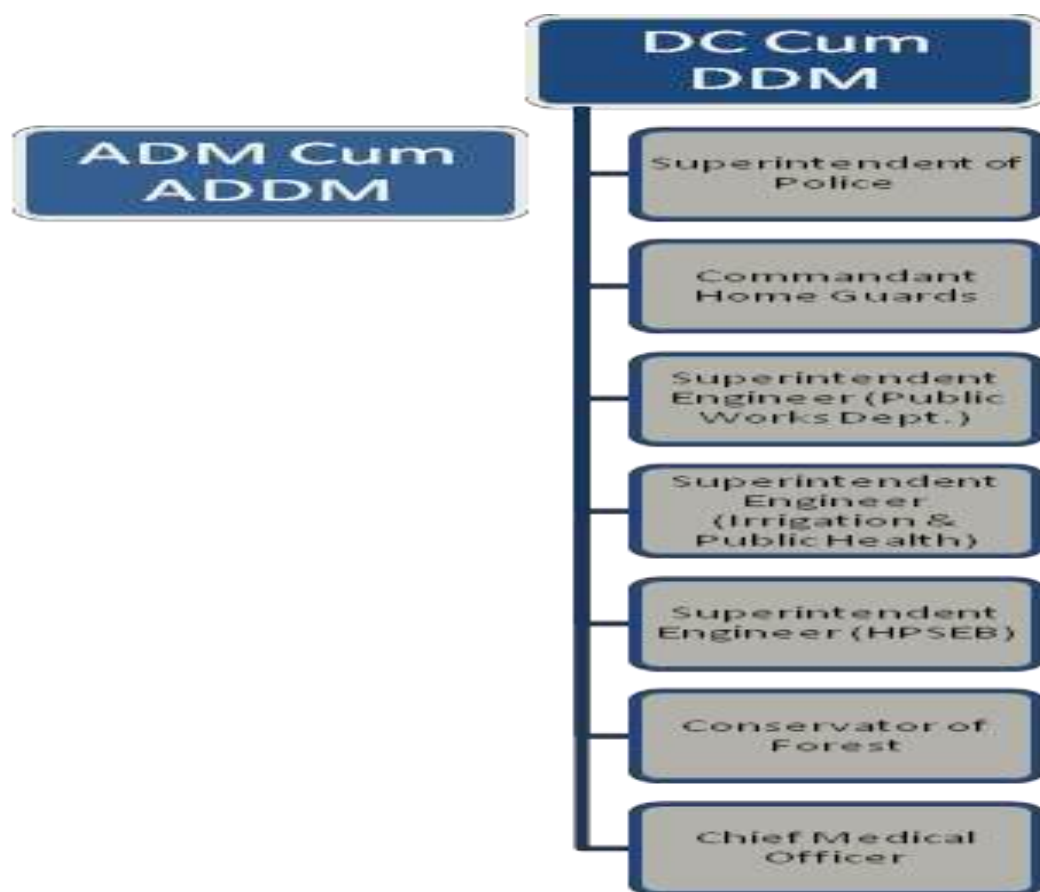


Figure 8: DISTRICT CRISIS MANAGEEMNT GROUP

V. 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:-

Table 32:- Members of Sub-Division Level - Disaster Management Committee

Sr. No.	Designation	
1.	Sub Divisional Magistrate	Chairman
2.	Block Medical Officer (Health)	Member
3.	SDPO	Member
4.	Executive Engineer , I & PH	Member
5.	Executive Engineer, HPPWD	Member
6.	Executive Engineer, (HPSEB)	Member
7.	Inspector, food Supply & Consumers	Member
8.	CDPO	Member
9.	BDOs	Member
10.	Divisional Forest officer	Member
11.	SDO (Telecommunication)	Member
12.	Tehsildar /Naib Tehsildar	Member

NON OFFICIAL MEMBERS:

- (I)\ Pardhans Gram Panchayats / Pradhan Municipal Council / Naggar Panchyat.
- (II) Representatives of NGO sat Sub Division Level
- (III) Elected representatives of the area
- (IV) Few prominent citizens.

VI. TEHSIL LEVEL DISASTER MANAGEMENT COMMITTEE

Tehsil/Sub Tehsil level Disaster Management Committee headed by Tehsildar/ Naib Tehsildar of the respective Tehsil/Sub Tehsil have been established in all Tehsils and Sub Tehsils of the District. The constitution of Tehsil/ SubTehsil Level Committees is as under:-

Table 33:- Members of Tehsil/ Sub-Tehsil Level - Disaster Management Committee

Sr. No.	Designation	
1.	Tehsildar/Naib Tehsildar	Chairman
2.	Medical Officer (Health)	Member
3.	SHO	Member
4.	Assistant Engineer , I & PH	Member
5.	Assistant Engineer, HPPWD	Member
6.	Assistant Engineer, (HPSEB)	Member
7.	Inspector, food Supply & Consumers	Member
8.	CDPO	Member

9.	BDO	Member
10.	Range Forest officer	Member
11.	SDO (Telecommunication)	Member
12.	Office Kanungo	Member

NON OFFICIAL MEMBERS:

- (1) Pardhans Gram Panchayats
- (II) Representatives of NGOs at Tehsil/Block Level
- (III) Elected representatives of the area
- (IV) Few prominent citizens

VI. ROLE OF STATE GOVERNMENT DEPARTMENTS AT DISTRICT LEVEL

It shall be the responsibility of every department of the Government to prepare DMP with respect to the irrespective departments as per the guide lines issued by DDMA, take measures necessary for prevention of disasters, mitigation, preparedness and capacity-building in accordance with the guidelines laid down by the National Authority, the State Authority and the District Authority. The departments will inter alia integrate into its development plans and projects, the measures for prevention of disaster and mitigation, allocate funds for prevention of disaster, mitigation, capacity-building and preparedness, respond effectively and promptly to any threatening disaster situation or disaster in accordance with the DMP and directions issued by the SEC or the DDMA, review the enactments administered by it, its policies, rules and regulations with a view to incorporate there in the provisions necessary for prevention of disasters, mitigation or preparedness, provide assistance, as required, by the National Executive Committee, the State Executive Committee and District Authorities, for drawing up mitigation, preparedness and response plans, capacity- building, data collection and identification and training of personnel in relation to disaster management, assessing the damage from any

disaster, and carrying out rehabilitation and reconstruction. The department will also make provision for resources in consultation with the State/District Authority for the implementation of the District Plan by its authorities at the district level, make available its resources to the National Executive Committee or the State Executive Committee or the District Authorities for the purpose of responding promptly and effectively to any disaster in the State, including measures for-providing emergency communication with a vulnerable or affected area, transporting personnel and relief goods to and from the affected area, providing evacuation, rescue, temporary shelter or other immediate relief, carrying out evacuation of persons or live-stock from an area of any threatening disaster situation or disaster, setting up temporary bridges, jetties and landing places, and providing drinking water, essential provisions, healthcare and services in an affected area and such other actions as may be necessary for disaster management.

VII. DISTRICT ADMINISTRATION

At the District level, DDMAAs will act as the District planning, coordinating and implementing body for disaster management and will take all measures for the purposes of disaster management in the District in accordance with the guidelines laid down by NDMA and SDMA or the SEC.

VIII. OTHER INSTITUTIONAL ARRANGEMENTS

- **Armed Forces**

Conceptually, the Armed Forces are called upon to assist the civil administration only when the situation is beyond their coping capability. In practice, however, the Armed Forces form an important part of the Government's response capacity and are immediate responders in all serious disaster situations. On account of their vast potential to meet any adverse challenge, speed of operational response and the resources and capabilities at their disposal, the Armed Forces have historically played a major role in emergency support functions. These include communication, search and rescue operations, health and medical facilities, and transportation, especially in the immediate aftermath of a disaster. Airlift, heli-lift and movement of assistance to neighbouring countries primarily fall within the

expertise and domain of the Armed Forces. The Armed Forces will participate in imparting training to trainers and DM managers, especially in CBRN aspects, heli- insertion, high-altitude rescue, waterman ship and training of paramedics. At the National level, the Chief of the Integrated Defence Staff to the Chairman Chiefs of Staff Committee has already been included in the NEC. Similarly, at the District level, the local representatives of the Armed Forces will be opted in the DDMA meetings to ensure closer coordination and cohesion.

- **Central Paramilitary Forces**

The Central Paramilitary Forces (CPMFs), which are also the Armed Forces of the Union, play a key role at the time of immediate response to disasters. Besides contributing to the NDRF, they respond to disasters which may occur in the areas where they are posted. The local representatives of the CPMFs located in the district Kullu will be co- opted/invited in the DDMA meeting for better coordination.

- **State Police Forces and India Reserve Battalions**

The State Police Forces and the India Reserve Battalions are crucial for immediate response to disasters. The existing Police Forces located in the district will be trained in advanced SAR and MFA techniques so that their services can be utilised in disaster situations/events.

- **Fire Services and Home Guards**

The Home Guards and Fire Services will be assigned an effective role in the field of disaster management. They will be deployed for community preparedness, conduct of mock drill and public awareness. A culture of voluntary reporting to duty stations in the event of any disaster will be promoted. The Fire Services upgraded to acquire multi-hazard rescue capability. The existing set up of these services would be strengthened to take up the new role more effectively.

NCC, NSS, NYKS, Scouts and Guides, Mahilla and Yuvak Mandals as organisations would be roped in DM. They will be trained in search and rescue (SAR) and

medical first aid (MFA) and other aspects of Disaster Management as per the need. The potential of these organisations would also be used for education and awareness generation in Disaster Management. A database of trained personnel would be created and uploaded regularly in the DDMA website.

- **Role of District Collector in Disaster Management**

The Act prescribes responsibilities to various authorities at all levels. The roles and responsibilities of DDMA have been elaborated in Section 30, 31, 33, and 34 of the Act. Keeping in view the provisions of the Act, the District Collector and the Chairman of the DDMA shall ensure the following:-

- i. Preparation of the Disaster Management Plan (DDMP) for the District with the assistance of the DDMA and other experts as per the provisions of the Act, guidelines issued by the NDMA, SDMA and the State Executive Committee (SEC);
- ii. Preparation of DMP by the departments of the Government and other agencies based on the DDMP;
- iii. Periodic mock drill to test the efficacy of the DMPs;
- iv. Integration of Disaster Risk Reduction (DRR) into development programmes and policies of all departments;
- v. To monitor the implementation of the DDMA and regular updation of the same;
- vi. Setting up the district control room and making it function effectively;
- vii. Earmarking and entrusting responsibility to the various departments including Emergency Support Functions (ESF) and appointment of Nodal Officers by various departments to perform the ESFs;
- viii. Coordination with all the line departments of the State, Central, Armed Forces and other agencies;
- ix. Periodic review of preparedness of departments at all levels;
- x. To liaise with the Government periodically about the disaster and the action taken;

- xi.** Integrating the MARG (Mutual Aid and Response Group) of the industrial belt with the disaster management committee;
- xii.** Equip and prepare the district machinery before the disaster;
- xiii.** Identification of building/open spaces for relief camps and setting up relief camps and transit camps whenever needed;
- xiv.** Conducting relief and rescue operations;

- xv.** Establishing GO-NGO Coordination during normal time so that it works during emergencies and to coordinate the actions of NGOs/CBOs, relief agencies and departments for effective disaster response and relief;
- xvi.** Organizing Training and conducting mock drills to the Government officials, community and other stakeholders;
- xvii.** Ensure public awareness on all the hazards which the district faces regularly;
- xviii.** Transmission of Early Warning alters to the vulnerable community with the effective means of communication;
- xix.** Maintaining the supply of essential commodities;
- xx.** Stocking of minimum essential relief material for ready availability; and
- xxi.** Any other action which is needed for the requirement of the situation or to comply with the provisions of the DM Act and instructions issues by the NDMA, SDMA or the SEC.

IX. DISTRICT EMERGENCY OPERATION CENTRE (DEOC)

DEOC will assist the commissioner in performing the roles assigned to him by DDMA. The DEOC would perform the following functions:-

- i.** District control room would be the nerve centre for the disaster management;
- ii.** To monitor, coordinate and implement the actions for disaster management;
- iii.** Activate the ESF in the event of a disaster and coordinate the actions of various departments/ agencies;
- iv.** Ensure that all warning, communication systems and instruments are in working conditions;

- v. Receive information on a routine basis from the district departments on the vulnerability of the various places and villages (parts of the districts);
- vi. Receive reports on the preparedness of the district level departments and the resources at their disposal to arrange and meet their requirements;
- vii. Upgrade the Disaster Management Action according to the changing scenario;
- viii. Maintain a web-based inventory of all resources through the India Disaster Resource Network (IDRN);
- ix. Provide information to the Relief Commissioner' Office of the disaster /emergencies /accidents taking place in the district regularly and maintain a data base of disasters and losses caused by them;
- x. Monitor preparedness measures and training activities;
- xi. Providing information at district level, local level and to disaster prone areas through appropriate media;
- xii. Brief the media of the situations and prepare day to day reports during the disasters;
- xiii. To report the actual scenario and the action taken by the District Administration;
- xiv. Maintain a data base of trained personnel and volunteers who could be contacted at any time;
- xv. Lease with on-site operation centre, State EOC and other emergency services.

The Additional District Magistrate shall be the Nodal Officer for Disaster Management and would be in-charge of the DEOC. The design, layout, equipment and operation of the DEOC would be as per the EOC Manual prepared at the State level.

X. MEASURES TO BE TAKEN FOR DISASTER MANAGEMENT

Generally speaking the following measure would help in dealing with disasters in the district:-

- i. Preparation of Disaster Management Plans at District and local

- level
- ii. Implementing of Disaster Management Plans
 - iii. Holding regular meetings at District and Sub-Division level to reviewing the readiness of the administrative machinery to deal with disasters.
 - iv. Constitution of Relief Committees at all levels.
 - v. Regular training programmes of Government functionaries, PRIs, ULBs and other stakeholders in various facets of disaster management.
 - vi. Public awareness and education in disaster management.
 - vii. Community training and empowerment.
 - viii. Taking preventive and mitigation measures for the identified hazards.
 - ix. Integration of Disaster Risk Reduction (DRR) into on-going development programmes of all departments.
 - x. Establishing effective early warning system for the vulnerable areas and communities.
 - xi. Improving the response capacities of the search and rescue teams.
 - xii. Conducting regular mock drills.

XI. POWERS AND FUNCTIONS OF DISTRICT AUTHORITY IN THE EVENT OF ANY THREATENING DISASTER SITUATION OR DISASTER

For the purpose of assisting, protecting or providing relief to the community, in response to any threatening disaster situation or disaster, the District Authority may -

- give direction for the release and use of resources available with any Department of the Government and the local authority in the district;
- control and restrict vehicular traffic to, from and within, the vulnerable or affected area;
- control and restrict the entry of any person into, his movement within and departure from, a vulnerable or affected area;
- remove debris, conduct search and carry out rescue operations;
- provide shelter, food, drinking water and essential provisions, healthcare and services;

- Establish emergency communication systems in the affected areas;
- Make arrangements for the disposal of the unclaimed dead bodies;
- 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;
- Require experts and consultants in the relevant fields to advise and assist as it may deem necessary;
- Procure exclusive or preferential use of amenities from any authority or person;
- Construct temporary bridges or other necessary structures and demolish structures which may be hazardous to public or aggravate the effects of the disaster;
- Ensure that the non-government organisations carry out their activities in an equitable and non-discriminatory manner;
- Take such other steps as may be required or warranted to be taken in such a situation.

❖ **District Disaster Management Advisory Committee(s):**

District level Disaster Management Advisory Committee(s) will be appointed by the District Disaster Management Authority to take advice on various subject specific fields within the overall context of disaster management. The committee will comprise disaster management experts, which may be from government departments, research institutes and NGO's.

XII. NGO'S ROLE IN DISASTER MANAGEMENT

NGOs are organizations that are non-profit making, voluntary and independent of government, engaged in activities concerning various societal and developmental issues. The DDMP would be implementable and effective only with the involvement of these institutes. The NGO sector has always been very vibrant in India, and is based on the concept of volunteerism and care for the fellow citizens. Many organizations also undertake DM activities, as a core area of on-going work in the case of some agencies while some others participate only in post disaster response when the communities they

work with face sudden emergencies. A very large number of NGOs, both international and national, have significantly large field presence that often extend across a number of states. They are well organized in terms of operations administration and finances. Their work is complemented by local and community based organizations, which are more spontaneous and informal in nature, and work at the grassroots levels often from within communities.

In any disaster situation the local community is the first and foremost responder to the situation. The effectiveness of first hour relief and rescue operation depends upon the skill, resources in any form, experience, human potential and system and structure rests with the community. Therefore, local community is the important and first actor or practitioner in managing the disaster situation. The local efforts act effectively due to the emergence of volunteer is apathy towards their own people. The notion of volunteerism grows at this hour of emergency, crisis, need and help. People from local area, outside community, from neighbouring area bestow for volunteering in such hour of need. These are the people who perform services out of their own free will, have an urge, zeal, dedication and perseverance to work for mankind. Volunteers have a specific role to help ensure a community's successful response to and recovery from the disaster's devastation. They are important part of any disaster's at all hours and aware of diversity in issues. They assist their communities in preventing, preparing for, responding to and recovering from disasters. They have an important role to play in strengthening the capacities of local communities to resist the effort of disaster. NGOs can play a very important role in mobilizing communities and in linking (Urban Local Bodies) ULBs with corporate sector entities for initiating DRR related activities.

- The strong linkages which NGOs have with grass root 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 bilateral and multi-lateral donors for implementing pragmatic and innovative approaches to deal with disaster risk and vulnerability, by effectively integrating and converging the various government programmes, schemes and projects to create the required synergy in transforming the lives of at-risk communities.

The strong field presence of many NGOs at the national, state, district and sub district levels, even extending to remote settlements in far flung areas indicate the high credibility and acceptability that they enjoy with local communities. The strong contact with local community groups like Self Help Groups(SHGs),farmers groups, youth groups, women's' groups, village health committees, watershed committees, etc. and their participation in the local level implementation of government's flag ship programmes and their innovative approaches in employment generation, income generation, poverty alleviation and natural resource regeneration and climate change adaptation/mitigation projects make them deal partners in mainstreaming disaster risk reduction (DRR) in development plans at various levels. NGOs not only work on their own but also work in partnership with other national and international organizations, UN agencies, community based organizations, local governments, self-help groups and government bodies. Over the years NGOs have also come together through networks, coalitions and alliances so as to offer value added humanitarian services, notable examples being Mountain Forum Himalayas(MFH), Voluntary Health Association of India (VHAI), Voluntary Action Network India (VANI), Sphere India, Alliance for Adaptation and Disaster Risk Reduction (AADRR), and Confederation of Voluntary Associations(COVA).During disaster preparedness, it is important to carry out risk assessment to identify potential areas vulnerable to disasters like floods or earthquakes. By involving Persons with Disabilities (PWDs) in risk mapping, the possible barriers they may face during an emergency situation can be understood and special measures can be designed to address such concerns through participatory and inclusive processes. For example, immediately after an earthquake, a person who is physically handicapped may not be able to negotiate over rubble to reach a temporary relief camp. When resource mapping is carried out, resources specific to PWDs should also be identified.

These may include accessible disabled friendly drinking water and sanitation sources, accessible disabled-friendly shelters, volunteers to provide physical and psychological support, rehabilitation centres, emergency healthcare and hospital services for injured persons, special schools or schools that include children with disabilities, etc. NGOs must address the specific needs of PWDs during the preparedness phase. They should prepare a resource inventory taking into consideration three areas of disability: physical, sensory (hearing, speech, vision) and mental or intellectual.

❖ **General Action Points for NGOs in Disaster Management:**

- Develop a database of NGOs at all levels working on disaster management focusing on geographic outreach and thematic capacities of the organizations.
- Establish meaningful engagement with concerned government bodies such as Planning Commission, Finance Commission, NDMA, nodal ministries, state level bodies, district level bodies, local level bodies and other stakeholders.
- Establishing inter-agency mechanisms for coordination and network activities (information and knowledge management, training and capacity building, collaborative advocacy, quality and accountability) at all levels.

CHAPTER-4

MITIGATION STRATEGY FOR DISTRICT KULLU

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

I. ACTION PLAN FOR EARTHQUAKE MITIGATION

The Main Features are mentioned below:-

- Revision and adoption of model building bye-laws for construction both in urban and rural area.
- Wide dissemination of earthquake-resistant building codes, the National Building Code 2005, and other safety codes.
- Training of trainers in professional and technical institutions.
- Training professionals like engineers, architects, and masons in earthquake resistant construction.
- Launching demonstration projects to disseminate earthquake-resistant techniques.
- Launching public awareness campaigns on seismic safety and risk reduction and sensitising all stakeholders to earthquake mitigation.
- Establishing appropriate mechanisms for compliance review of all construction designs submitted to ULBs.
- Undertaking mandatory technical audits of structural designs of major projects by the respective competent authorities.
- Developing an inventory of the existing built environment.
- Assessing the seismic risk and vulnerability of the existing built environment by carrying out structural safety audits of all critical lifeline structures.
- Developing seismic strengthening and retrofitting standards and guidelines for existing critical lifeline structures.
- Undertaking seismic strengthening and retrofitting of critical lifeline structures, initially as pilot projects and then extending the exercise to the other structures (as detailed in a phased manner.

- Preparation of DM plans by schools, hospitals, main buildings visited by large number of public etc., and carrying out mock drills for enhancing preparedness.
- Strengthening the EOC network and flow of information.
- Streamlining the mobilisation of communities, civil society partners, the corporate sector and other stakeholders.
- Preparing community and village level DM plans, with specific reference to management of earthquakes.
- Carrying out the vulnerability assessment of earthquake-prone areas and creating an inventory of resources for effective response.
- Introducing earthquake safety education in schools, colleges and universities and conducting mock drills in these institutions.
- Strengthening earthquake safety research and development in professional technical institutions.
- Preparing documentation on lessons from previous earthquakes and their wide dissemination.
- Developing an appropriate mechanism for licensing and certification of professionals in earthquake-resistant construction techniques by collaborating with professional bodies.
- Developing appropriate risk transfer instruments by collaborating with insurance companies and financial institutions.
- Operationalizing the local companies of Home Guards and Police for disaster response.
- Strengthening the medical preparedness for effective earthquake response, etc.
- Enforcement and monitoring of compliance of earthquake-resistant building codes, town planning bye-laws and other safety regulations.

II. ACTION PLAN FOR LANDSLIDE MITIGATION

The Main Features to be incorporated is mentioned below:-

- Revision of town planning bye-laws and adoption of model land use bye-laws in hilly areas.

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

III. ACTION PLAN FOR DROUGHT MITIGATION

Main features of mitigation plan includes:-

- Drought management plans for the entire season will be prepared by the Agriculture Department well in advance in the month of May, based on the long season forecast issued by IMD in April and also the previous season's rainfall.
- Drought management plans will be prepared block-wise.
- As the season progresses from June onwards, the DDMA will review the plans prepared earlier at the onset of the monsoon and revise the strategy if required.
- Weekly monitoring of these as on and crop condition from June onwards till the

end of the season and make necessary mid-season corrections as and when required.

- The DDMA will make use of the frontier techniques like remote sensing and GIS.
- A sound database will be created and updated regularly on weather, crop conditions, input supply, credit, insurance and market information, fodder supply etc.
- Awareness will be brought among the farmers on drought regulations and enforcement.

IV. MANAGING CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR EMERGENCIES CONTAMINATION OF WATER SUPPLY

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

- **Incident Reporting**

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

- **Site Characterization**

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

- **Preliminary Screening**

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

- **Risk Communication**

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

- **Alternate Supply**

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

- **Decontamination**

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

- **Restoration of supply**

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

V. PSYCHO-SOCIAL CARE AND MENTAL HEALTH SUPPORT (PSSMHS)

- Strengthening of District Counselling Centres under the Department of Social Welfare & Child Development.
- Integrating with DM mental health plans and Health/Hospital DM Plans.
- Integrating with all training in the area of Psychology, Social Work, Mental Health, Emergency Medical Response, Hospital Administration, Nursing and Paramedics.
- Inclusion in the CBDM Plan and training of PRI team members.
- Developing awareness material for the community.
- Evolve a mechanism for community outreach education programmes on PSSMHS.
- Creation of a core group of master trainers at district level.

VI. EARLY WARNING SYSTEM FOR FLASH FLOODS/GLOF'S

- Forecasting and early warning helps in mitigating the effects of disasters. The loss of life and property can be considerably reduced with accurate and timely warning. Climate-meteorological disaster such as flash floods, GLOF, avalanches etc. be predicted with certain degree of accuracy.
- A network of rain/snow gauges would be strengthened in the district.
- Tie-up with IMD, CWC would be strengthened so that EWS can be effectively communicated to the vulnerable community.
- Community networking would be done to communicate the EWS to the vulnerable sections.
- Modern media would be utilized to communicate the EWS.
- Tie-up for sharing of information would be done with the power projects.
- ICT tools need to be used for data receptions, forecasting and timely dissemination.

VII. MITIGATION STRATEGY FOR FIRES

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

VIII. TRAINING AND CAPACITY BUILDING

- Training and orientation of Government official would be carried out immediately and a time frame for the same would be prepared.
- Training would be carried out as per the training needs assessment of various departments.
- Regular refresher courses would be organized at regular intervals.
- The training would be practical in nature and would focus on skill up-gradation.
- The capacity of the departmental training institutes would be upgraded so that they can take up training on DM.
- The community, CBOs, NGOs would be targeted for training and capacity building.
- A Cadre of local volunteers would be created who would be trained in various aspects of DM such as SAR, MFA etc.
- The list of trained officials would be maintained and uploaded in the DDMA website and regularly updated.
- New entrants to the Government services would be trained and oriented to DM at the entry level training.
- Safe construction practices needs to be promoted and for this local masons, bar benders, carpenters, construction supervisors, contractors would be specifically trained and targeted.

IX. PUBLIC AWARENESS

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

X. INSTITUTIONAL STRENGTHENING

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

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

XI. CLIMATE CHANGE ADAPTATION

There are evidences to indicate that Himalayas are warming at a higher rate than the global average rate. It is a matter of great concern as the region has more snow and ice

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

XII. MEDICAL PREPAREDNESS AND MASS CASUALTY MANAGEMENT

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

dead bodies and animal carcasses deserves due weightage. Web-enabled database of blood donors will be prepared to facilitate arrangement of blood supply chains during emergencies. For this purpose networking with Red Cross and NGOs would be worked out.

XIII. COMMUNICATIONS AND INFORMATION TECHNOLOGY (IT) TOOLS FOR DM

Use of modern communication and information technology tools is crucial for effective and efficient disaster management. The communication and IT tools would be utilised for compiling of information, dissemination, and for spread of forecasting and early warnings. The digital mapping of resources would be done and the same would be hosted in web-based portals for easy access and retrieval. These tools can be used in the following areas:

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

XIV. SETTING UP AND STRENGTHENING OF THE EMERGENCY OPERATIONS CENTRES

In line with the national emergency communication plan and national disaster management information and communication system, emergency operation centres (EOCs) would be set-up at the district level. Provision of mobile emergency operation vehicles will also be made. The EOCs would have fail-safe communication network with multiple levels of built-in redundancy having communication to ensure voice, data and video transfer. Development of Ham Radios network in the district would be courage so that it can be utilised during emergency. For last mile connectivity and control of the

operations at the disaster hit areas, availability of portable platforms will be catered for. Use of community radios, FMC channels, bulk SMS system and voice messaging system would be made for the last mile connectivity.

XV. TRAINING, SIMULATION AND MOCK DRILLS

Efficacy of DDMPs are tested and refined through training, seminars and mock drills. The DDMA and Local Authorities in association with the SDMA and NDMA will also conduct mock drills in different parts of the district to test the efficacy of the plans so prepared. 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 DMPs.

Partnerships for Mitigation and Preparedness

XVI. COMMUNITY BASED DISASTER PREPAREDNESS

Communities are not only the first to be affected in disasters but also the first responders. Community participation ensures local ownership, addresses local needs, and promotes volunteerism and mutual help to prevent and minimize damage. The community participation for DM would be promoted on the moto of “self-help”, “help thy neighbour” and “help thy community”. The needs of the elderly, women, children and differently able persons require special attention. Women and youth will be encouraged to participate in decision making committees and action groups for management of disasters. Networking of youth and women based organisation would be done and they will be trained in the various aspects of response such as first aid, search and rescue, management of community shelters, psycho-social counselling, distribution of relief and accessing support from government/agencies etc. Community plans will be dovetailed into the Panchayat, Block and District plans.

XVII. MOBILISING STAKEHOLDERS' PARTICIPATION

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

XVIII. CORPORATE SOCIAL RESPONSIBILITY (CSR) AND PUBLIC-PRIVATE PARTNERSHIP (PPP)

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

XIX. MEDIA PARTNERSHIP

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

CHAPTER-5

RESPONSE PLAN

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

I. ROLE OF EMERGENCY OPERATION CENTRE (EOC) ON OCCURRENCE OF DISASTER

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

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

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

The disaster/emergency would be communicated to the following DM, SP, CMO, SDM, Commandant Home Guard, Fire Officer immediately on phone. A written report about the disaster/event would be sent in writing 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. All the messages received in and sent out of the EOC will be entered into the message register.

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

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

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

II. BRANCH OFFICERS/ NODAL OFFICERS

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

- i. The Branch/Nodal Officers for Operations, Services, Logistics, Communication and Information Management, Resource Branches will be from the Revenue Department.
- ii. For Health Branch, the officer will be from the Public Health Department.

- iii. For Public works and Engineering, the officer will be from the Public Works Department.
- iv. For adequate water supply, the officer will be from I & PH Department.
- v. For Food and Supply, the officer will be from Food and Public distribution department.
- vi. For Law and Order, the officer will be from police department.

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

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

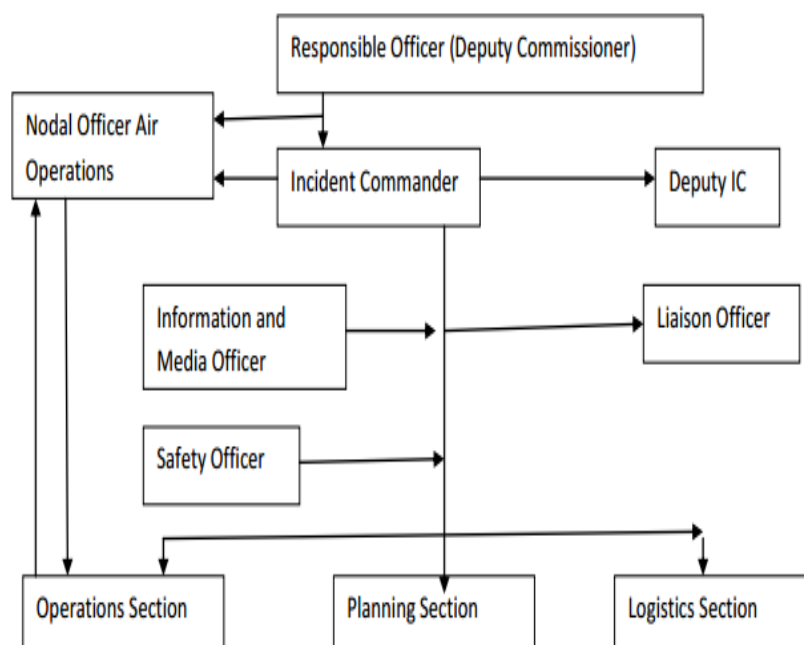
- a) Assimilation and dissemination of information.
- b) Liaise between Disaster site and State Head Quarter.
- c) Monitoring, coordinate and implement the DDMP.
- d) Coordinate actions and response of different departments and agencies.
- e) Coordinate relief and rehabilitations operations.
- f) Hold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

The DEOC would function through Emergency Support Functions (ESFs). The ESF Plan for the district has been prepared and placed at Annexure-L. The response for search and rescue, medical, arrangements for logistics, communication, temporary shelter etc. would be as per the ESF plan prepared for the district. The primary agency responsible for a particular ESF would act a coordinator and seek necessary assistance from the secondary agency. If the assistance of the secondary agencies involves the requisitioning from the Deputy Commissioners office, the primary agency would place are quest to this effect with the DEOC

III. RESPONSE STRUCTURE

The response structure would be based on Incident Response System (IRS) as per the Guidelines issued by the NDMA. The IRS system would work through various service divisions. The IRS system would contract and expand depending upon the nature and magnitude of emergency/disaster. The IRS structure would work at District, Sub- Division, Tehsil, Block level. IRS Structure for District level is given in Figure 9 Deputy Commissioner (Responsible Officer) works through Incident Commanders and Incident Response Teams.

Figure 9: THE STRUCTURE OF IRS

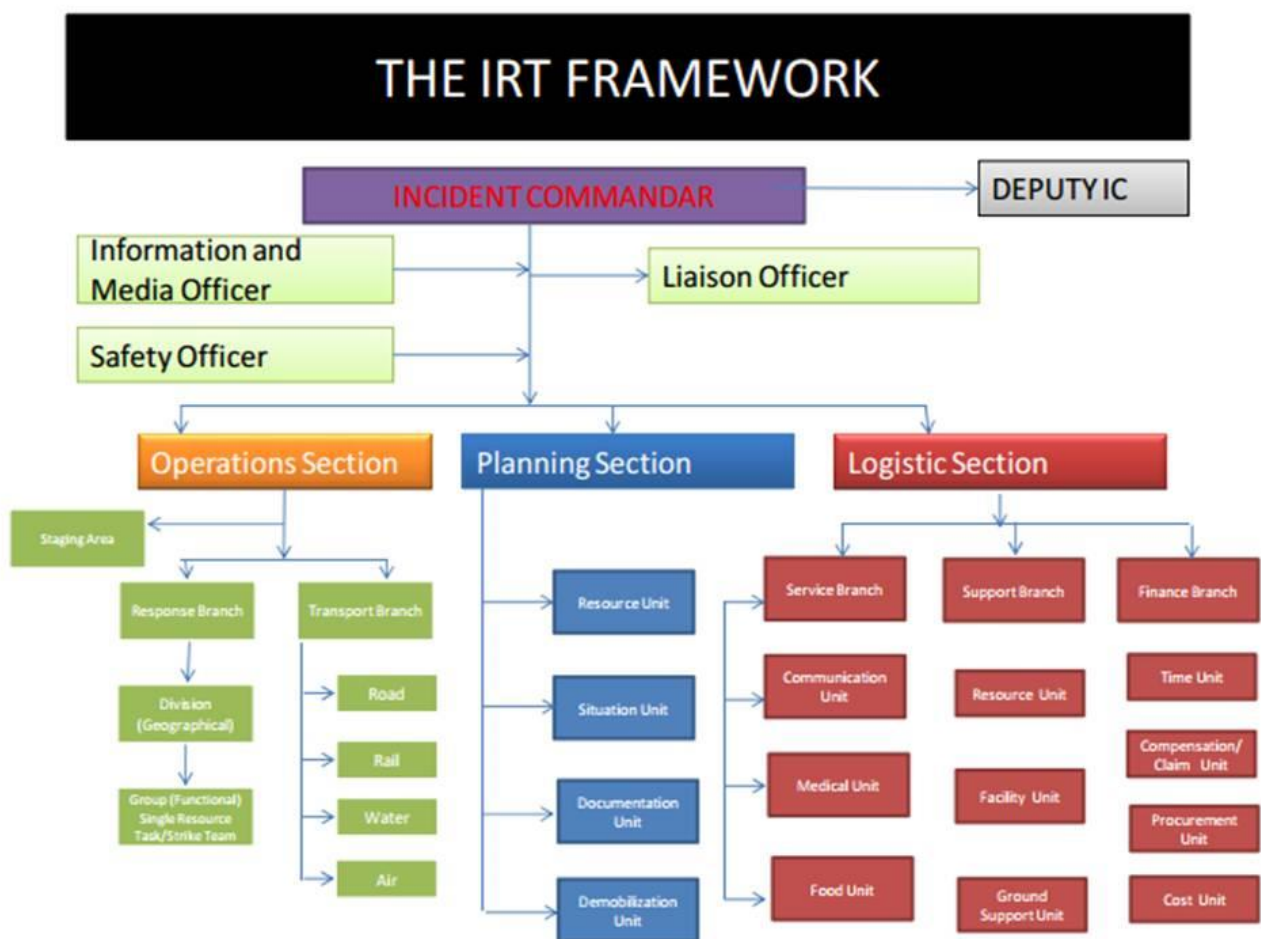


IV. INCIDENT RESPONSE STRUCTURE (IRS) LEADERSHIP

The Incident Commander would be assisted by various service divisions such as Operation Sections, Planning Section and Logistic section. These sections would work to the requirement of the emergency. Incident Commander would be assisted by the Incident Response Teams (IRTs) consisting of functionaries from various department depending upon ESF Plan and roles of

various departments. The DDMA would notify incharge for all positions as per the IRS system for the district, Sub-division and block level. A sample IRT framework is given in figure 10. The DDMA would also form IRTs for all divisions and notify them. All the functionaries of IRT and IRS would be trained to understand the IRS system.

Figure 10: THE IRT FRAMEWORK



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

at the MC level by the Chairman of the ULB and at the Panchayat level by the Panchayat Pradhan. The Officers/Officials of various departments would be provided the ESF at the appropriate level.

V. EMERGENCY WARNING AND DISSEMINATION

District Disaster management Committee (DDMC) is mainly responsible for coordinating early warning and ensuring information dissemination along with the relevant technical agencies and Technical Committees. The DDMC will be in constant coordination with all technical agencies responsible for natural and man-made hazards, and in instances of any imminent disaster it will take action to inform the responsible officers for onward communication to the sub-divisional levels and communities. The extent of the damage caused by a hazard is related not just to the severity of disasters, but also to the capacity of people living in disaster-prone areas to prepare for and resist it. Efforts to reduce disaster risk have therefore focused on developing early warning systems to provide timely and effective information that enables people and communities to respond when a disaster strikes. Early warning systems are combinations of tools and processes embedded within institutional structures, coordinated by international national agencies. EWS are composed of four elements mentioned below:-

- Knowledge of the risk.
- Technical monitoring and warning service.
- Dissemination of meaningful warnings.
- Public awareness and preparedness to act.

Key Responsibilities of District Disaster management Committee and Early Warning:-

- Regular maintenance of “Early Warning Towers” and “Early Warning Dissemination equipment’s”.
- Proper dissemination of early warning messages about an impending disaster and to ensure the receipt of information at remote places.

- Proper co-ordination of concerned departments to strengthen capacity for early warning.
- Working out strategy and policy in the given area of activity.
- Initiating awareness and preparedness activities related to early warning among the various agencies and local community.
- Guiding District Disaster Management Units in coordinating and implementing warning dissemination related activities in the Province, district, Local Authority, Gram Panchayat and at community level.
- Establish coordination with the local technical agencies responsible for forecasting different hazards.
- Establish a reliable communication system viz. telephones, radio communication, wireless system and Satellite Phones etc. from technical agencies to the Emergency Operating Centre (EOC) and to Provincial / District Control Rooms directly or through (EOC). Ensure alternative communication systems in place in case of breakdowns in the main system.
- To established warning system and information dissemination with media and ensure dissemination of information through same.
- Create awareness among communities and all concerned including Police on the communication system in use for early warning and what immediate actions to be taken, especially on rapid onset disasters.

Table: 34

Sr. No.	TECHNOLOGIES FOR MONITORING AND WARNING	
1.	<i>Forecasting and modelling technology</i>	• Seasonal to inter-annual climate forecast (based on using monitoring data, including temperature and rainfall values, and state-of-the art climate models. • Climatologists analyse the observations and model-based predictions to predict climate anomalies one or two seasons ahead)

2.	<i>Remote sensing and geographic information systems (GIS) applications</i>	• flood monitoring can be easily informed by remote sensing • Information on soil types, water resources, settlements, cropped areas and forests etc. can also be obtained.
3.	<i>Satellite communication technology</i>	• Improvements in satellite communication have helped decrease the lag time between data collection and warning.
4.	<i>Mobile phone technology</i>	• With the global spread of mobile phones and networks, this technology is now increasingly used to communicate warnings and coordinate preparation activities — particularly SMS alerts for disseminating mass messages. • For example, upon detection of p-waves that precede earthquake shaking, Japanese agencies send out SMS alerts to all registered mobile phones in the country. However, some obstacles can arise with this technology — phone pylons can be damaged or networks can be overburdened during hazards.
5.	<i>ICTs for crowd sourcing</i>	• The use of 'crowd sourced' data is gaining traction with increasing Internet connectivity and use of information and communication technologies (ICTs) such as mobile phones. • For Example: - Crowdsourcing was used extensively in the response to the 2010 Haiti earthquake, allowing local people, mapping experts and other stakeholders to communicate what they saw and heard on the ground, and to produce information that could be used by humanitarian workers. This was particularly useful in locating survivors who needed assistance, but it is increasingly recognised that crowdsourcing could also help with pre-disaster activities, specifically risk identification and early warning.

6.	<i>Crisis mapping</i>	• It can provide real-time information on an upcoming crisis in times of uncertainty and confusion. • The vast amount of data that can be produced from such systems can be analysed through networks of stakeholders like Crisis Mappers
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The EOC would utilize the ICT tools and various other modes available for early transmission of early warning to the vulnerable groups and also activate the responders.

The bulk group messaging services would also be utilized to alert the vulnerable groups and activate the SAR parties and all the responders. A model of early warning dissemination is given in fig 11. The timely flow of early warning system from the source to the targeted stakeholder is very important. The dissemination of early warning should be institutionalized so that it reaches the stakeholders in minimum possible time by recognized means of communication.

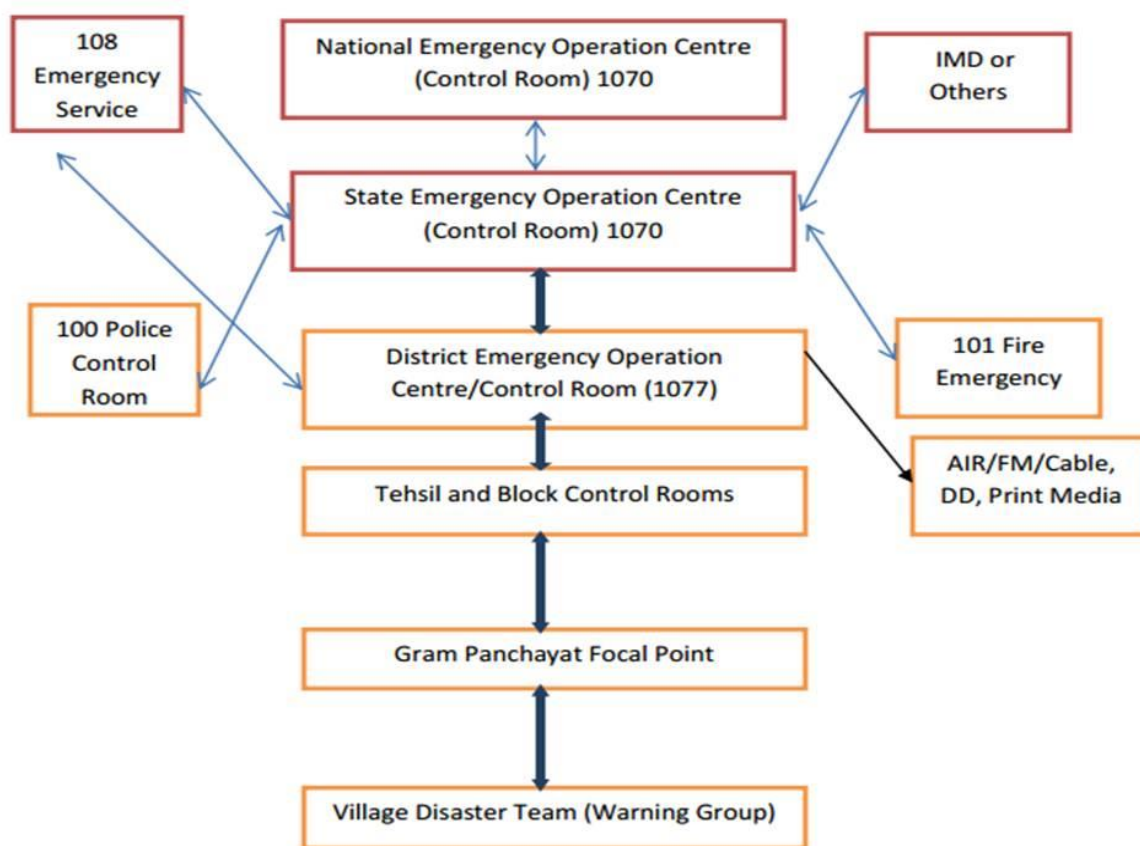


Figure 11:- Early Warning and Dissemination

VI. RAPID DAMAGEASSESSMENT AND REPORTING

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

RESPONSE VIS A VIS VARIOUS DISASTERS

1. Drought Response Action of Administration

- The DC shall ensure alling to tenders through advertisement in at least one in English and one vernacular newspaper by end of April for supply of potable drinking water throughout the district.
- The DC shall ensure identification of suppliers and fixation of rates for transportation of drinking water through tankers/tractors Sub-division wise by the first week of April in case of poor rainfall during the preceding winter and otherwise by end of May.
- The DC shall authorize the SDMs for issuing orders for supply of drinking water through tankers as per need.
- The DC shall identify nearest market in adjoining district/state from where fodder (Straw is easily available and direct SDMs to advise people to procure fodder from such place.
- The DC shall submit report to the Government regarding crop loss due to drought and seek funds for utilization in employment generation.
- The DC shall submit report to Government with regard to situation of drinking water supply.
- The DC in consultation with Animal Husbandry dept. shall assess requirement of fodder on the occurrence of drought and submit report to the Government.
- The DC shall constitute joint emergency Sub-Division level and Tehsil level

teams consisting of Executive Magistrate, Doctor, SDO (I&PH) for monitoring outbreak of water borne diseases.

- The DC shall issue direction regarding cleaning of Traditional water Bodies prior to onset of summer and succeed in grainy season.
- The DC shall review availability of stock in all fair price shops in view of crop failure.
- The DC shall issue prohibitory orders with regard to sale of overripe/ rotten fruits and vegetables.
- The DC shall ensure stocking of medicines for water borne diseases in all health institutions.
- The DC shall ensure availability of Chlorine tablets and bleaching powder at the village/Panchayats level.
- The DC shall converge various programmes and schemes of government for tackling drought situations.

Response Action of SDM

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

- SDM shall have the drinking water transportation bills verified through the I&PH dept. And release payment for the same.

Response Action by I & PH

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

Response Action by Agriculture Department

- ☐ The Agriculture Officer shall monitor the situation for impact of drought on crop growth and consequent yield.
- ☐ The Agriculture Officer shall submit weekly report starting from last week of May and first week of January regard to status of Kharif and Rabi crops.
- ☐ The Agriculture Officer shall prepare contingency plan for any crop failure due to drought and submit same to the Government and DC.

- The Agriculture Officer in view of drought shall organize extensive field camps to advise farmers on alternative crop and strategies.

Response Action by Horticulture Department

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

Response Action by Health Department

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

2. Road Accident

Response Action by SDM

- The SDM shall immediately inform the DC of occurrence of accident.

- The SDM shall immediately direct SHO concerned to rush Police personnel to the spot.
- The SDM shall immediately direct the Tehsildars/Naib-Tehsildar to rush to the spot.
- The SDM shall immediately put the Health Dept. on the alert by information CMO/BMO concerned.
- The SDM shall depend upon the magnitude of the accident request for assistance from Commandant Home Guard, PWD etc.
- The SDM shall depend upon the magnitude rush to the spot of the accident.
- The SDM shall arrange for search & rescue on the spot taking assistance of police, Home Guard, Fire Brigade, PRIs, NGOs and local population.
- The SDM shall evacuate people directly involved in the accident and also general public if it is deemed necessary.
- The SDM shall direct the health dept. to depute ambulance and paramedical and medical staff to the spot immediately for on the spot treatment and first aid.
- The SDM shall arrange for dead van if so required.
- The SDM shall coordinate between the Police, Health dept. Victims and their kith and kin for search and rescue, law and order, traffic management post shall coordinate with the health dept. For conduct of immediate post mortem and early handing over of dead bodies to kith and kin.
- The SDM shall ensure submission of a brief and comprehensive detailed report of the accident within 12 Hrs to the DC. The report shall contain the following information.

- ❖ Location and details of vehicle involved in the accident.
- ❖ Prima facie cause of accident.
- ❖ Detail of passengers with identification if any.

Response Action for Health Department

- The CMO on receiving information regarding the accident shall immediately put on casualty/emergency ward of District Hospital for referred cases.

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

Response Action of Police Department

- The SHO shall immediately inform the SDM, SP and DC regarding the incident with details of site.
- The SHO shall immediately depute a team of police personnel to the site
- Depending upon the magnitude, the SHO shall rush to the site and personally coordinate search and rescue, evacuation, traffic regulation, law and order.
- The SHO shall communicate factual information to the SP on reaching the spot on the following.
 - ☐ Exact location
 - ☐ Prima facie cause of accident
 - ☐ Vehicles involved, Transport Company
 - ☐ No. of injured
 - ☐ No. of fatalities
 - ☐ Status of driver and conductor
 - ☐ Status of injured

- The SHO shall arrange for search and rescue in consultation with the SDM.
- The SHO shall ensure smooth movement of traffic.
- The SHO shall divert the traffic if required in consultation with the SDM.
- The SHO shall arrange for a guard to protect the property of the victims at the site.

❖ Detail of relief provided in from of medicines and cash.

- The SDM shall keep the DC informed on action being taken on the spot from time to time.
- The SHO shall take necessary legal action as low and also initiate an inquiry into the causes of the accident.
- The SHO shall arrange for early post-mortem sand quick release of bodies to the Kith and kin.
- The SHO shall submit a brief and comprehensive report regarding the accident in consultation with the SDM to the SP with in 12 Hrs of the accident.

Response Action of PWD

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

Response Action of Home Guards

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

3. Landslide

Real Time Information on Assessment

- i. The GSI, the Nodal Agency, shall monitor landslides for identified sites and notify about the impending landslide to all the user agencies and departments of the state and district administration.
- ii. Earthquakes may trigger landslides and therefore, IMD shall communicate the occurrence of an earthquake magnitude and epicentre of the earthquake to GSI for initial assessment of earthquake induced landslide.
- iii. PWD, BRO, Forest Department shall notify the District EOC about the occurrence of the landslide along with preliminary information on location, magnitude, damage caused etc. The District EOC shall notify the SEOC and GSI if the magnitude of the landslide is huge and the assistance of the central agencies is required.

Landslide Response Planning

- i. The DEOC/Sub-Division control room will establish contact with the site and obtain information regarding deaths, injuries , damages to building/infrastructure , environment etc. and communicate the same to all designated , ESF departments /authorities for appropriate action.
- ii. District/local administration shall mobilize local SAR teams and further identify areas and assess the requirement of SDRF/NDRF teams for urban search and rescue operations. The priority for conducting these operations shall be established by the district administration.
- iii. The DC shall also send FIR to the State EOC and requisition for NDRF and other state/central resources. The SRC shall also coordinate and follow up with the Central Government for its assistance and resources.

Deployment of Search and Rescue (SAR) Teams of NDRF, Army etc

- i. The NDRF, Army etc. if requisitioned by the district will be deployed for search and rescue operations as per assessment of the situation.
- ii. The BRO by virtue of its capabilities and location will also be deployed for SAR

operations in the affected area.

- iii. The district administration shall arrange for transport (from railway station or airport) or NDRF teams and supply POL etc. for equipment, vehicles of NDRF.
- iv. DC/SRC will also coordinate with Joint Secretary MHA (DM Division) for deployment of Army, if required.

Emergency Logistics

- i. Specialised heavy earthmoving and SAR equipment will be required immediately after a landslide to clear debris and carry out search and rescue operations of trapped people in huge masses of debris.
- ii. The PWD will immediately move its machinery and men to the locations.
- iii. The equipment available with CPWD, power projects, and private sector would also be mobilised as per requirement.
- iv. SRC will Coordinate with JS (DM), MHA for mobilization of earthmoving equipment from SAIL, BEML etc. to the effected site, if need be.

Emergency Medical Relief

- i. The CMO will dispatch a team of medical specialists to the affected site with medicines etc. and prepare the nearest hospital for receiving the victims. 108 medical responses will be activated too.
- ii. NDRF teams are also trained in Emergency Medical Services (EMS) such as
- iii. Medical First Response techniques with basic knowledge of life saving of disaster victims. Each NDRF battalion has 9 doctors and 90 paramedics. NDRF teams, if deployed, shall provide EMS to the areas of their deployment during post disaster phase.
- iv. The Chief District Medical Officer at the District Level would coordinate with its counterpart at the State level for medical assistance required for the district.

Repair and Restoration of Road, Power, water and Telecommunications etc

- i. The PWD will repair and restore the affected roads immediately. The department may take assistance of secondary ESF agencies, if need be.

- ii. The damaged water supply, electricity and telecommunication lines will be stored by the respective departments forthwith.

Other Measures

- i. Environment Impact Assessment: - Department of Environment and Forest will get the environment impact assessment carried out for the affected area.
- ii. Technical Assistance: - The GIS will be requested to provide trained professionals, technical professionals, technical experts to district Government for geo-technical studies and remedial measures for stabilization of slopes.
- iii. Monitoring of Artificial Lakes: - The NRSC/ISRO/HP State Council of Environment, Science and Technology/CWC shall monitor through application of space technology and provide information regarding formation of any artificial lakes, if any, due to landslide in higher/inaccessible reaches.

4. Flood/Flash Flood Vulnerability of District

Likely Impact

- Extensive damage to structure
- Multiple injuries and deaths
- Major road closures
- Damage to public utilities – power, water, telecom etc.
- Loss of land

Early Warning System (EWS) and Preparedness

- i. Central Water Commission (CWC) is the nodal agency for issuing alerts and forecasts.
- ii. National Remote Sensing Agency (NRSA) also monitors landslides and blockages of rivers which may cause flooding. Tie up with the NRSC Hyderabad would be made by CWC once there is any information of blockage of river and threat of floods. The local administration would be kept updated on the situation.

- iii. The HP State Council of the Science, Technology and Environment will also monitor the potential dangerous lakes and keep the State Government abreast of any dangerous situation. The council shall also assist districts in assessing the severity of submergence due to release of excess water downstream the dams
- iv. The district EOC shall keep the public updated about the forecasts on heavy rains and early warning alerts on floods through electronic and other means.

Flood Response Planning and Impact Assessment

- i. EOCs/Control Rooms at district and local level shall be fully activated and response/ESF mechanism put into motion.
- ii. The district authorities will assess the impact of damage and organise response mobilising the local teams. The DM will also place requirements for State assistance. Requisitioning for NDRF or CPMFs/Army will also be done under intimation of the State Government.
- iii. District Administration, if need be, will conduct an aerial survey to determine the scope of damage, casualties, and the status of key facilities.
- iv. District Administration will identify areas and assess the requirement of NDRF teams for SAR operations. The priority for conducting these operations will be established by the District Administration.
- v. District Administration shall arrange for local transportation (from airport/railway station to the affected area) of NDRF teams and supplies of POL etc. for equipment /vehicles of the NDRF.
- vi. The DM will send FIR to the State EOC.
- vii. SRC will coordinate with JS (DM), MHA for central assistance and deployment of Army/Air Force including helicopters for SAR and relief operations.

Emergency Medical Relief

- i. The CMO of the District will dispatch a team of medical specialists to the affected site with medicines etc. and prepare the nearest hospital for receiving the victims. 108 medical responses will be activated too.
- ii. NDRF teams are also trained in Emergency Medical Services (EMS) such as Medical First

Response techniques with basic knowledge of life saving of disaster victims. Each NDRF battalion has 9 doctors and 90 paramedics. NDRF teams, if deployed, shall provide EMS to the areas of their deployment during post disaster phase.

- iii. The Chief Medical Officer at District Level would coordinate with its counterpart at the State for medical assistance required for the district.

Supply of Relief to the Affected Areas

- i. DDMA will assess requirement of relief material for the affected and mobilise the local reserves. It will also place its requirement for relief material with the SRC. It will also assess demand for helicopter for relief distribution, if access through road is cut off.
- ii. In case of deployment of helicopter for relief, a senior officer of the DA will be appointed as nodal officer to coordinate with the Air Force/Helicopter authorities.
- iii. Provision of temporary shelter will be made for those whose houses have been affected/damaged.

Repair and Restoration of Road, Power, water and Telecommunication etc

- i. The PWD will repair and restore the affected roads immediately. The department may take assistance of secondary ESF agencies, if need be.
- ii. The damaged water supply, electricity and telecommunication lines will be restored by the respective departments forthwith.

Other Measures

- i. Environment Impact Assessment: - Department of Environment and Forest will get the environment impact assessment carried out for the affected area.
- ii. Safety Assessment of Dams: - The CWC shall deploy structural engineers/experts for safety assessment of dams wherever necessary.

5. Earthquake Response Plan:-

Primary Effects

- Extensive damage to structures,
- Multiple injuries and deaths,
- Disruption to air operations,
- Major road closures,
- Disruptions in railway operations,
- Damage to public utilities-power, water, telecommunications etc.

Secondary Effects

- Dam Burst/Flash Floods,
- Urban/Wild Fire,
- Hazardous Material Incidents,
- Accidents-Road, railways

RESPONSE PLAN

Levels of earthquakes:

With the help of first-hand information or disaster communication system and remote sensing satellite information, the disasters have to be categorised into any of the following four levels.

L0 level disaster:

This is no disaster situation i.e. normal times when the disaster management system should be maintaining close watch over the district of preparedness. Mock drills at various levels have to be undertaken to check the preparedness. Earthquakes of magnitudes less than 5.0 may occur. Earthquakes of magnitude less than 5.0 and almost no area affected (generally non-damaging) and do not require much attention. However, effort should be made at local level to find out damage/loss if any and to take appropriate actions. This is the most important period of disaster prevention, mitigation and preparedness when these activities are taken up actively.

L1 level disaster:

The L1 level disaster is designated when earthquakes of magnitude greater than 5.0 and less than 6.0 occur. When reported from any quarter, necessary actions are set into action, without formal orders from anywhere, some basic initial management response steps alerting all concerned according to a predetermined procedure. Generally district administration should be able to manage earthquake disaster of this level.

L2 level disaster:

L2 level disaster is designated when earthquakes of magnitude greater than 6.0 and less than 6.7 occur. This should entail triggering of some basic initial management response steps, which would be set into motion without any formal orders from any quarters. The mitigation, relief and rescue operation would swing into action simultaneously. The State Government likely to be involved in relief and response measures.

L3 level disaster:

The L3 level disaster is designated when earthquakes of magnitude greater than 6.7 occur. Large scale deaths and destruction is likely to take place. The assistance of Central Government, its Agencies, NDRF and Armed Forces may be required to deal with the situation.

MEASURES TO BE TAKEN IN CASE OF EARTHQUAKE DISASTERS BY THE DISTRICTS

Real Time Information on Earthquake

The IMD has been designated to monitor seismic activity in and around the country and notify the user agencies including the district Governments about the magnitude and epicentre of the earthquakes as soon as it occurs. The district EOCs can also obtain information about occurrence of earthquake either directly contacting the IMD office or checking up with IMD website.

Impact Assessment

- EOCs /Control Rooms at the District and Sub-division and Tehsil level would be activated fully and response mechanism as per ESF Plan would be put into motion automatically on the basis of the information on the magnitude and epicentre of the earthquake.

- District Administration would gather information regarding the deaths, injuries and damages to the building/infrastructure.
- District Administration, if need be, will conduct an aerial survey to determine the scope of the damage, casualties, and the status of key facilities.
- District Administration will identify areas and assess the requirement of NDRF teams for urban search and rescue operations. The priority of conducting these operations will be established by the DDMA.
- The Deputy Commissioner (s) will send FIR as per SOPs to the State EOC and state EOCs would send consolidated FIR to the NEOC.

Deployment of Search and Rescue Teams

- As an immediate measure District Administration would deploy local SAR teams of Civil Defence/ Home Guards, Police, Local Volunteers etc.
- Requirement of Armed Forces- Army, Air Force, CPMFs and NDRF etc. would be worked out by the respective DDMA and requisitioning placed by the DM or the SRC/district Government as the case may be.
- The ESF Department/District Administration shall arrange for local transportation (from airport/railway station to affected site) of NDRF teams and supplies POL etc. for their equipment /vehicle of NDRF.
- District and Local authorities shall control traffic to ensure that NDRF teams /other SAR and relief teams could reach the affected areas without delay.
- ESF Department/District Administration shall provide access routes for transportation of NDRF, other SAR and Relief Teams to the affected sites. If need be, roads and bridges will be repaired or reinforced even on a temporary basis or emergency detours be provided.

Emergency Medical Relief

- Chief Medical Officer of the district in consultation of with Department of Health and Family Welfare and Ayurveda would activate their respective emergency medical plan forthwith.
- NDRF teams are also trained in Emergency Medical Services (EMS) such as Medical First Response techniques with basic knowledge of life saving of disaster victims. Each NDRF

battalion has 9 doctors and 90 parameters. NDRF teams shall provide EMS to the areas of their deployment during post disaster phase.

- Ministry of defence would be requested to provide QRMTs, mobile field hospitals, ARMVs and Heli-ambulances. They will be activated to reach the earthquake affected areas immediately along with dressing material, splints, portable X-ray machines, mobile operation theatres, resuscitation equipment and lifesaving drugs etc.
- Chief Medical Officer at the district level coordinates with the Department of Health and Family Welfare at the State Level for medical assistance required for the District.

Supply of Relief Materials to Affected Districts

- The DDMA's would assess requirements of relief items and material required for the affected areas. It would also project its demand to the State Government.
- The ESF departments both at the district and state level would arrange to supply relief material to the affected locations.
- The Revenue Department at the State Level would consolidate demands received from the districts and would coordinate with Central Relief Commissioner for central assistance, if any.
- The DDMA's/district would appoint nodal officers at airports / helipads to coordinate receipt and channelization of relief material. Adequate arrangement would be made the transportation of relief material to different parts of the district.
- A mechanism would be put in place for proper accounting for and distribution of relief material received in the district.

Establishment and Running of Relief Camps

- District Administration would establish relief camps as per requirement.
- ESF departments would responsible for the arrangement of all basic amenities in these camps.
- These relief camps would be run and managed by the PRIs and ULBs.
- Temporary shelters would be constructed as per requirement by the PWD, HIMUDA, UD and the RD.

Repair and Restoration of Roads, Communication, Electricity and Water Supply

- The Public Works Department would undertake repair, build temporary bridges, access ways and other temporary structures for restoration of National and State Highways and other roads.
- The PWD would also repair damaged helipads and make temporary helipads as per requirement.
- Communication network would invariably be damaged in an earthquake. The BSNL and other service providers would take immediate steps to restore communication in the affected areas.
- Secondary ESF departments/agencies for communication would also provide communication facilities for disaster communication and relief.
- NDRF, if called, would be requested to set-up mobile communication facility at site so that rescue and relief operations are conducted smoothly.
- HP SEB limited would take immediate steps for restoration of electricity supply to the affected areas.
- The I & PH Department would restore water supply to the affected areas and would also ensure supply of water through other means till water supply is not fully restored through pipelines.

Earthquake Damage Assessment of Public Building and Infrastructure and Individual Houses

All Departments would constitute teams of officers/technical persons to:-

- Inspect buildings and structures that are critical to emergency services operations and mass care activities. Designate those that may be occupied and identify/ mark those that are unsafe.
- Inspect buildings and structures that may threaten safety. Identify/Mark those that are unsafe and may not be occupied.
- Inspect less critical damage structures. Designated those that may be occupied and identify/mark those that are unsafe to occupy.
- District Administration shall constitute teams of qualified technical personnel for damage

assessment of individual houses. These teams shall also identify/certify those houses that are unsafe and may not be occupied.

- The district Government in consultation with the IITs and NITs develop guidelines for assessment of damaged individual housing units.
- The district Government in consultation with the IITs and NITs develop guidelines for repair/retrofitting of earthquake damages housing units.
- Criteria for damage and usability classification of houses would be per the table given here under:-

Table 35: Criteria for Damage and Usability Classification of Buildings

Damage Usability	Usability category	Damage State	Damage Degree	Damage Description	Note
I	Useable	None: Slight non-structural damage, very isolated or negligible structural damage	1	Non visible damage to structural elements. Possible appearance of fine cracks in the wall and ceiling mortar. Non-structural and structural damage barely visible.	Buildings classified as damage degree 1 and 2 are without decreased seismic capacity and do not pose a danger to human life. These buildings are immediately usable or usable after removal of local hazards such as cracked chimneys, attics and gable walls.
			2	Cracks in the wall and ceiling mortar. Displacement of large patches of mortar from wall and ceiling surfaces. Considerable cracks or partial failure of chimneys, attics and gable walls. Distribution, partial sliding, sliding or collapse of roof covering. Cracks in structural elements such as columns, beams and reinforced-concrete walls.	

II	Temporarily unusable	Severe: Extensive non-structural damage considerable structural damage yet repairable structural system.	3	Diagonal or other cracks in supporting walls, walls between windows and similar structural elements. Large cracks in reinforced structural elements such as columns, beams and reinforced concrete walls. Partially failed or failed chimneys, attics or gable walls. Disturbance, sliding and collapse of roof covering.	Building classified as damage degree 3 and 4 are of significantly decreased seismic capacity. Limited entry to the building is permitted, and it is usable before repair and strengthening. The needs for supporting and protection of the building and its surroundings should be considered.
			4	Large cracks with or without detachment of walls, with crushed material from walls between windows and similar elements of structural walls. Large cracks with small dislocation of reinforced concrete structural elements columns, beams and walls. Slight dislocation of structural elements and the whole building.	
III	Unusable	Total : destroyed or partially or totally collapse structural system	5	Structural elements and their connections are extremely damaged and dislocated. Large number of crushed structural elements. Considerable dislocation of the entire building and roof structure. Partially or completely failed buildings.	Buildings classified as damage degree 5 are unsafe and risk sudden collapse. Entry is prohibited. Protection of streets and neighbouring buildings or urgent demolition is required. Decision on demolition should be based on an economic study that considers repair and strengthening as one of the possible alternatives.

Information Management and Helpline

- District Administration shall set up Emergency Information Center (EIC) at the DEOCs level or other suitable location for release of consolidated information to all stakeholders including Media at the District level
- Helpline would be established at DEOCs or other suitable location for providing information about victims to the next of kin, friends and others.
- EIC shall maintain all records and document of all major actions taken in managing the incident.

Prevention of Human Trafficking of Windows/Orphans

District Program Officer (ICDS) shall set-up monitoring and coordination mechanism in the affected area for prevention of human trafficking of women and children.

Identification and Disposal of Dead Bodies

Superintendent of police shall deploy forensic teams and equipments for DNA Fingerprinting of victims in mass casualty case. The Department would also coordinate with Police Headquarters for assistance as per requirement. While disposing of unclaimed /unidentified dead bodies NDMA Guidelines shall be followed.

Psycho-Social Support

- Chief Medical Officer of the district shall arrange to provide psycho-social support to the victims of disaster and train volunteers for this job.
- Chief Medical Officer of the district shall assess the requirement of central assistance for providing psycho-social support to the victims and coordinate with state officer for the same.

Financial Assistance to the Victims of Disaster

- The victims/dependents of victims shall be provided disaster relief assistance as per the HP DM and Relief Manual, 2012 and as per additional guidelines issued by the Government in such cases.
- The damage and need assessment carried out by the District administration shall be sent to the State Government for seeking grants under SDRF or Chief Minister's Relief Fund.

The Atal Bihari Vajpayee Institute of Mountaineering and Allied Sports, Manali

- **Search & Rescue: -**

The search and rescue teams trained and prepared by the institute can play an effective role in the post-disaster management phase by response in the shape of organizing and conducting search and rescue operations. The Institute has evolved, developed and improvised search and rescue techniques especially for rescue of casualty from gorges, crevasses, rivers and cliffs and these are very useful in times of natural disaster of any magnitude like earthquakes, flashfloods, cloudbursts, landslides, avalanches in snowbound areas, road and fire accidents.

These improvised search and rescue techniques have proved to be very effective and potent in the hands of our defence and para military forces which play a very significant role in mitigating disaster and saving precious lives as members of rescue and relief teams. The institute has gained expertise and experience not only in parting search and rescue training but also in outsourcing the training for many government and non- government organizations including the elite National Disaster Response force (NDRF) and the Army of Bhutan. These techniques are also part of the training syllabus for Basic, Advance and Methods of instruction courses in mountaineering conducted by the Institute. The institute has successfully organized and conducted several rescue operations from time to time and extricated dead bodies and saved precious lives of people who were involved in accidents while climbing mountains, crossing rivers, driving automobiles or caught in landslides, avalanches, flashfloods and cloudburst.

The institute is already providing search & rescue facilities to the pedestrians crossing the Rohtang Pass in winter, when it is closed due to heavy snowfall, by establishing rescue posts on both sides of the Pass i.e. Marhi and Khoksar in two phases i.e. 15th November to 31st December and 1st March to 15th May annually. Thousands of pedestrians (about 8,000 to 15,000 persons annually) are benefitted by way of safe passage to either side. The establishments of these rescue posts in vogue since 1981. Similarly, the institute also provides search & rescue facilities during famous Mani Mahesh Yatra and Shrikhand Mahadev Yatra by sending rescue teams constituted by hiring trained youth who have done instructors courses from this institute. Definitely, the Institute which has limited

trained manpower has to hire trained manpower from outside. The search & rescue equipment's available with the institute is used for:-

- Conduct of training in the mountains and glaciers during scheduled regular courses of the Institute as well as customized based search and rescue courses on demand from different organizations and individuals.
- Conducting search & rescue operations during floods, landslides, avalanches, road and river accidents as and when required on the calls of district administration.

As there is an element of risk of life and limb in these adventure training courses, the search and rescue teams i.e. instructors have always to be on the toes and in case of any accident or mishap or disasters they have to first rescue the trainees who may get involved. Therefore, they cannot be available for disaster mitigation during such times as they are busy in conducting training courses. However, on the call of the District Administration in the event of a disaster, a rescue team comprising hired volunteer young men trained by the institute

- **Manpower:** - The institute has very limited manpower i.e. instructors who are experts and experienced in search & rescue work. But they have been recruited with the sole aim of imparting training in adventure sports which have search and rescue techniques as part of training syllabi. In fact search and rescue techniques are inbuilt in the training programmes. There are about 300 to 500 trainees in various courses conducted by the institute in different areas including mountains at a time.

CHAPTER 6

RELIEF, RECOVERY, REHABILITATION AND RECONSTRUCTION PLAN

I. APPROACH

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

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

II. RELIEF

The victims of disaster would need to be provided relief as per the relief code of the State. Displaced population may require to be housed in temporary shelters. The DDMA's would identify locations for setting up temporary camps and make an inventory in advance of them. Use of premises of educational institutions for setting up relief camps need to be discouraged as it hampers

early recovery. Relief camps will have adequate provision of drinking water, and bathing, sanitation and essential health care facilities. The PRIs, ULBs, CSOs and CBOs shall be trained in handling and running relief camps. The disaster affected population can also be roped in to manage community kitchens. Guidelines/SOPs for efficient governance of relief camps such as identification cards, rationing, entitlement, management of donations, procurement, packaging, transportation and storage etc. may be issued in advance. The stock- piling of essential relief material at suitable locations is also important. Pre-contracting of relief supplied with agencies is important during pre-disaster phase.

In case of devastating disaster extreme weather conditions can be life threatening or when the period of stay in temporary shelters is likely to be long and uncertain, construction of site specific be fitting the local environment, ecology and culture, immediate shelters with suitable sanitary facility will be undertaken to ensure are as on able quality of life to the affected people. The DDMA's in consultation with the SDMA will plan such shelters which are cost effective and as per the local needs with multi-use potential. Pre-identification of their availability, supply and testing in the local conditions will be done.

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

III. OWNER DRIVEN CONSTRUCTION

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

IV. RECONSTRUCTION OF SOCIAL INFRA STRUCTURE

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

V. SOCIO-ECONOMIC REHABILITATION

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

VI. LINKING RECOVERY WITH SAFE DEVELOPMENT/ RECONSTRUCTION – “BUILDING BACK BETTER”

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

CHAPTER 7

LINKING WITH DEVELOPMENT PLAN

The Disaster Management Act mandated us to take measures for prevention/mitigation of disasters and to ensure that appropriate preparedness measures for integration of disaster management in to 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 departmental one but of all departments hence mitigation concern must be addressed by the respective departments in all aspects of development. The issue of DRR integration is also contained in the National Policy on Disaster Management, 2009 and state policy, 2011.

I. DISASTER AND DEVELOPMENT

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

II. HOW CAN DEVELOPMENT INCREASE DISASTER RISK?

There are many examples of the drive for economic growth and social improvement generating new disaster risks. Rapid and unplanned urbanisation is an example. The growth of informal settlements and inner city slums, whether fuelled by international migration or internal migration from smaller urban settlements or the countryside, has led to the growth of unstable living environments. These settlements are often located in ravines, or steep slopes, along flood plains, sinking are as or adjacent to noxious or dangerous industrial or transport facilities. Rural livelihoods

are put at risk by the local impacts of global climate change or environmental degradation. Coping capacity for some people has been undermined by the need to compete in a globalising economy, which at present rewards productive specialisation and intensification over diversity and sustainability.

III. CAN DEVELOPMENT PLANNING INCORPORATE DISASTER RISK?

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

IV. THE LEGAL CONTEXT

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

The Act also prescribes for preparation of District Plan and for incorporation of measures suggesting as to how mitigation shall be integrated into development plans and projects. The Act states that the DMPs shall prescribe “the manner in which the mitigation measures shall be integrated with the development plans and projects”. The DMPs of departments at State and district level shall

also have provisions for prevention of disaster and mitigation of its effects or both in the development plans and programmes as provided for in the State DMP and as is assigned to the department or agency concerned.

V. MAINSTREAMING DRR INTO DEVELOPMENT

Mainstreaming has three purposes:-

- To make certain that all the development programmes and projects that originate from or funded by Government are designated with evident consideration for potential disaster risks to resist hazard impact.
- To make certain that all the development programmes and projects that originate from or are funded by Government do not in advertently 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.

VII. 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:

- On-going schemes and projects of the Ministries and Departments of GoI and State

Governments, as well as of all Government agencies and Institutions, including Public Sector Undertakings, will be selectively audited by designated government agencies for ensuring that they have addressed the disaster risk and vulnerability profiles of the local areas where such schemes and activities are being undertaken.

- At conceptualization or funding stage itself, the developments schemes will be designed with consideration of any potential hazardous impact associated with it and incorporate measures for mitigation of the same.
- All the development schemes will be pragmatic, incorporating the awareness of local disaster risk and vulnerability, and ensuring that the schemes have addressed these concerns and included specific provisions for mitigating such disaster concerns; and
- DDMA's will ensure that all the disaster relief and recovery programmes and projects that originate from or are funded by any agency satisfy developmental aims and reduce future disaster risks.

VIII. APPROACHES FOR MAINSTREAMING

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

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

Based on the suggested approaches the specification would involve:-

- a. Adopting a Sectoral approach and identification of Key sectors for mainstreaming.
- b. Within each sector, key programmes/projects would have to be identified.
- c. This has to be followed by identifying the entry points within the programmes/projects for integration.
- d. It would also involve work at the policy and planning level be it national, state and district level.
- e. It would also need a close coordination with State Planning Commission and Finance

Department for promoting DRR into all development programmes and involve working with different departments to mainstream DRR into the Departmental Plans and policies.

- f. Advocacy would have to be done for allocation of dedicated budget for DRR within the Departmental plans.
- g. Further appropriate guidelines for different sectors would have to be development and for it to be effective and sustainable it has DRR would have to be ultimately integrated to the development plans of various departments at the district and sub-district levels.

VIII. 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:-

Table 36:- Strategies for DRR Integration into flagship programmes

Sr. No.	Name of The Programme	Department/ Sector	Proposed Strategies for DRR Integration into the Flagship Programmes
1.	Indira Awas Yojana	Rural Development	• Inclusion of such measures like application of Hazard resistant design in construction of IAY houses, appropriate sitting of IAY housing in guideline of IAY • Development of model design for IAY houses which could be easily referred to by DRDAs at district level and used for community awareness depending on the geographic allocation. • 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 Guarantee Scheme	Rural Development	• 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. • Works which reduce disaster risk are given priority in plans-such as local mitigation works etc
3.	Pradhan Mantri Gram Sadak Yojana	PWD	• 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 to be upgraded on a priority basis. • The maintenance guidelines are modified to
4.	Sarva Siksha Abhiyaan	Education	• Development of a Policy paper of school safety. • Introducing school safety as a part of the guidelines of SSA which is currently focusing on inclusive development. • Developing model structurally safe designs for schools. • Introducing School Safety in the Teacher's Training Curriculum. • Training of Rural Engineers appointed under SSA Scheme as well as the SSA State Coordinators. • Training of masons in rural areas.

5.	Jawahar Lal Nehru Urban Renewal Mission	Urban Development	• 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 amending of building byelaws to ensure structural safety as a mandatory reform in the Mission cities to ensure safe habitat development. (Both structural safety and fire safety norms). • Inclusion of disaster management as a function of the Urban Local Bodies and allocate resources. • Inclusion of Disaster Resistant features in the houses being constructed under the BSUP component as well as promote development of safe habitat. • Inclusion of strategies for disaster management in the City Development Plans.
6.	Rajiv Awas Yojana	Urban Development	• Since Rajiv Awas Yojana is focusing on developing slum free cities and Capacity Building and Community Mobilization is also an important component of RAY, through this programme attempts can be made towards community level disaster preparedness as slum dwellers often become the most vulnerable community during such disasters as floods, fire and high wind speed. The 30 cities selected on a plot basis can be targeted to initiate community based disaster preparedness activities. • Also the Housing Programmes to be implemented in these selected cities can ensure incorporation of hazard resistant features and

7	National Rural Health Mission	Health & family welfare	• 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 centres in rural areas. • Ensuring structural safety of the CHC/PHC and other health care service delivery centres in rural areas. • Training of doctors and hospital staff on mass casualty management and emergency medicine. • Community awareness on disaster management.
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The list given in the above table is an indicative one and many more line departments can be added to it. DRR planning needs to be done at Municipal and Panchayat levels with the involvement of local community representatives; and simultaneously the resource and responsibility to manage would be in the domain of the local authorities. De-centralized planning can enhance local participation along with improved efficiency and equitable benefits.

IX. MAINSTREAMING DRR INTO DEVELOPMENT PLANNING– APPROACHES

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

Mapping of hazards, identification of elements at risk and exposure data assist in quantifying risk. Thereafter risk reduction initiatives can be taken. Mainstreaming DRR is a prerequisite for safe and sustainable development. Mainstreaming as a term is used to describe the consideration of DRR elements in national and regional decision making process (policy, planning and budgeting etc.). DRR integration leads to addition of specific measures to the development plans, programmes and strategies.

Some of the key sector where mainstreaming/integration of DRR can be done with illustrations is as under:-

Public Infrastructure:-

- i. Incorporate disaster risk impact assessment as a part of the planning process before the construction starts.
- ii. Site analysis and risk sensitive land-use planning (either avoid development in hazard prone areas or adopt treatment and mitigation measures)
- iii. Strengthen compliance to the various provisions of the codes–setup hazard safety cell for advice and monitoring
- iv. Disaster resistant technologies mandatory in case of all construction using public/corporate funds.
- v. Training and capacity building of the department and functionaries.

Housing–Rural &Urban

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

Health Sector

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

MGNRES- Scope of work- Some illustrations

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

Indira Awas Yojna

- i) Study IAY housing typology and develop hazard resistant model design (taking into consideration of available local materials and culture).
- ii) Training of DRDA officials and engineers.
- iii) Awareness generation among villagers and PRIs members and community mobilization campaign.
- iv) Construction of sample IAY units for promoting the technology.
- v) Training of Masons and community members on hazard resistant technology.

Chapter 8

GO-NGO and IAG Coordination

I. INSTITUTIONAL AND LEGAL FRAMEWORK

The DM Act 2005 recognises that sometimes the development patterns that do not recognise disaster risk and vulnerability in the specific geographic areas may induce disasters. The proactive approach in the DM Act 2005 to address disaster risk and vulnerability through pre-disaster preparedness and mitigation activities also envisions accountability and multi-stakeholder participation, including coordination of the activities of the NGOs at various levels. Sections 30(2) (xix) of the Act mandate the DDMA for collaboration with stakeholder agencies including NGOs for the purpose of improving the effectiveness of DM. Similarly the Act mandates NGOs to act in an equitable and non-discriminatory manner for the purpose of assisting or protecting the disaster affected communities or for providing relief to the affected communities or while dealing with any effects of threatening disaster situations and has fixed the responsibility to monitor this on DDMA vide section 34(1). The above provisions ensure that the concerned DM interventions being addressed are supported and facilitated by the civil society organisations working at the grassroots and also take care of the ground realities.

Section 30(2) (xix) of the Act stipulates that the DDMA shall “advise, assist and coordinate the activities of the Departments of the Government at the district level, statutory bodies and other governmental and non-governmental organisations in the district engaged in the disaster management” and Section 24(1) lays down that the DDMA shall “ensure that the non-governmental organisations carry out their activities in an equitable and non-discriminatory manner”. The Act also directs the State Government under Section 38(2) (a) to coordinate “actions of different departments of the Government of the State, the State Authority, District Authorities, local authority and other non-governmental organisations”.

Sections 35 and 38 specifically emphasise the coordination of actions with NGOs. The State Policy on Disaster Management also states the vision for community mobilisation and participation in

DM and aims to provide momentum and sustenance through the collective efforts of all government agencies and NGOs. There is emphasis on community based disaster management, including last mile integration of the policy, plans and execution and early warning dissemination. Promoting a productive partnership with NGOs is a prominent thrust area in the NPDM.

There is a large scope for improving the engagement of NGOs in DM and on efficiently utilising their unique advantages and core competencies by strengthening humanitarian coalitions, alliances and NGO networks. There is also need to strengthen public awareness, capacity building and knowledge management through CBOs and NGOs. Institutional mechanisms for the advocacy and engagement of NGOs with government agencies on DM concerns requires to be strengthened. Replication and scaling up of community level good practices has to be promoted.

II. ADVANTAGES OF INVOLVING NGOS

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

implementing pragmatic and innovative approaches to deal with disaster risk and vulnerability, by effectively integrating and converging the various government programmes, schemes and projects to create the required synergy in transforming the lives of at-risk communities.

III. ACTIONS TO BE TAKEN BY THE DDMA

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

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

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

7.	Mainstreaming of Disability Issues in DM	Support the most vulnerable groups through mitigation activities as well as disaster preparedness and response, with a particular focus on the special needs of the Persons with Disabilities (PWDs). (Action: DDMA,NGOs)
8.	Gender Mainstreaming	Make women's as well as men's concerns and Experiences an integral dimension in the design, implementation, monitoring and evaluation of policies and programs such that inequalities between men and women are not perpetuated through the routine operations of DM. (Action: DDMA)
9.	Focus on most vulnerable rather than only on epicentre	National level: Advocate with all actors to reach out to gap areas State level: Coordinate among actors to identify gap areas. District and Local level: Ensure targeting with equity and outreach to all excluded areas. (Action: District NGO Task Forces in DM)
10.	Rural-urban diversity	Develop the capacities of NGOs or specialised civil society agencies at all levels to manage urban as well as rural disasters and accordingly make investments. (Action: DDMA)
11.	Adherence to standards	National level: Develop minimum standards for India State level: Develop minimum standards for the State District and Local level: Develop capacities for adherence to minimum standards through collective and coordinated efforts of all stakeholders (Action: DDMA, NGOs, CBOs)
12.	Transparency and accountability	Develop an agreed framework of accountability for all levels and mechanisms to bring in transparency. (Action: DDMA)
13.	Do No Harm	Advocacy at all levels on Do No Harm through disaster response a development interventions. (Action: District NGO Task Forces in DM)

14.	Exit strategy	Ensure that the NGO programmes have an exit strategy to link with long term recovery/rehabilitation/development programs of other NGOs or the government. (Action: District NGO Task Forces in DM)
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(Source: NDMA Guidelines on the Role of NGOs in Disaster Management)

IV. COORDINATION OF ACTIONS OF OTHER ACTORS

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

CHAPTER-9

FINANCIAL MECHANISM

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

I. DISASTER RESPONSE AND MITIGATION FUNDS

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

II. RESPONSIBILITIES OF THE STATE DEPARTMENTS AND AGENCIES

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

various disasters may be consulted while preparing mitigation projects.

III. 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.

Chapter 10

KNOWLEDGE MANAGEMENT

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

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

I. DOCUMENTATION OF BEST PRACTICES

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

Chapter-11

Monitoring and Evaluation

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

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

- The DEOC would assist the DDMA in keeping the plan in updated form and collecting, collating and processing the information.
- The DDMP would be comprehensively reviewed in the year 2013 latest by March and incorporating feedback from the departments and field officers.

ANNEXURES

Annexure –A

IMPORTANT TELEPHONE NUMBERS (DISTRICT ADMINISTRATION)

DISTRICT ADMINISTRATION					
Sr.No.	Designation	Name	Office No.	Residence	Fax No.
1.	Deputy Commissioner	Sh. Rakesh Kanwar (IAS)	01902-222727,	01902-222726 9418718787	01902-225396
2.	ADM	Sh. Vinay Singh	01902-222226	01902-222321 9418067223	01902- 222226
POLICE DEPARTMENT					
3.	S.P.	Sh. Surinder Kumar Verma	01902-224700	01902-224800	-
4.	Addl. Superintendent of Police	Sh. Nihal Chand	01902-225589,	94181-02324	-
PWD DEPARTMENT					
5.	Ex.Engineer,Div.-1	Sh. Jitender Gupta	01902-222426	-	01902-222299
6.	Ex. Engineer, Div- II	Sh. Vinod Anand	01902-222561	-	01902-222561
HPSEBL					
7.	Superintending Engineer	Er. Pravesh Kumar	01902-225425	-	-
IPH					
8.	SE,IPH	Er. P. V. Vaidya	01902-222533	01902-222475	01902-223160
9.	Executive Engineer	Er. Opender Vaidya	01902-222496	01902-222582	0192-223160
10.	EE (FC-Div.)	Er. Bhajan Lal Gupta	01902-253339	01902-260365	01902- 260975
HEALTH & FAMILY WELFARE					
11.	C.M.O.	Dr. Baldev Thakur	1902-223077,	94180-66199	
12.	Senior Medical Officer	-	01902-222350,	94183-33300	-
	Medical Officer (Health)	Dr. Susheel Chander	01902-225299,	94181-18018	-
EDUCATION					
13.	Dy. Director, Higher Education	Sh, Jagdish	01902-222545	94180-52186	01902-222545
14.	Dy. Director, Elementary Education	Sh. Ashok Sharma	01902-222679	-	-
15.	Principal Degree College	Sh. Yash Pal Mahant	01902-222568	-	-

16.	PrincipalDIET	Sh. Naresh Kumar Chopra	01902-265561	-	-
AGRICULTURE/HORTICULTURE DEPARTMENT					
17.	Dy. Director, Hort	Sh. B.C. Rana	01902-222407		-
18.	Dy. Director, Agri	Dr. B.L. Sharma	01902-222215,	94182-69127	-
OTHER OFFICERS					
19.	Commandant Home Guards (7 th Battalion)	Sh. Hari Sukh Saukta	01902-222512	94180-05633 (Mobile)	-
20.	DFO Seraj	Sh. B.S. Yadav	01903-221226,	94184-57101	-
21.	DFO Kullu	Sh. Bansi Lal Negi	01902-222510	94184-76840	
22.	DFO Parvati	Sh. Sandeep Sharma	01902-265041	94184-90070	
23.	DFO Luhari	Sh. Rajeev Kumar Bhalla	01904-243874	94184-50152	
24.	Regional Manager, HRTC	Sh. Pawan Kumar	01902-222728	-	-
25.	Fire Officer	-	01902-222345		
26.	Associate Vice President (AD Hydro Power Ltd.)	Sh. Suryakant Chehal	9816002883		
ITBP					
27.	Commandant ITBP 2 nd Bn	Sh. Lakshman Yadav	01902-230031 9418057301		
Sashastra Seema Bal					
28.	Commandant SSB Shamshi.	Sh. Arvind Ranjan (IPS)	01902-260121		
BRO					
29.	Commander (HQ 38 BRTF , Manali)	Lt. Col Maulis Chandra	09418650106		

Annexure - B

IMPORTANT CONTACT DETAILS FOR DISASTER RESPONSE, DISASTER MANAGEMENT DIVISION, MINISTRY OF HOME AFFAIRS

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

Name of Officer/Designation	Tel(Office)	Tel (Residence)	EPABX	E-mail id
Shri Anil Goswami HOME SECRETARY	23092989 23093031 23093003(Fax)	24103058	215	hshso@nic.in
Smt. Sneha Lata Kumar SECRETARY(Border Management)	23092440 23092717(Fax)		369	secybm@nic.in
G.V.V. Sarma Joint Secretary (Disaster Management)	23438087	24677927	790	jsdm@nic.in
Dev Kumar Director(Disaster Management-I)	24642853	26266708		
Ashok Shukla Director(DM-II)	23438071	26265646	708	
Sanjay Aggarwal Director(DM-III)	24642381			
Control Room (Disaster Management)	23093563, 23093564 23093566	23093750(Fax)		
Toll FreeNo. (MHA, C/R)	011-1070			

NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA)

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

Name of Officer/Designation	Tel(Office)	Fax	Mobile No.	Email id
Sh. R.K. Jain (IAS), Secretary	011-26701710			secretary@ndma.gov.in
Smt. Neelkamal Darbari (IAS), JS (Admn& CBT)	011-26701817			jsadm@ndma.gov.in
Shri. A.K. Sanghi, ITS & JS (Mitigation)	011-26701718			mitigation@ndma.gov.in
Smt. Anita Bhatnagar Jain, (IAS), JS (Policy &Plan)	011-26701816			anita.bhatnagar@nic.in
Control Room	011-26701728, 730	011-26701729	09868891801 09868101885	controlroom@ndma.gov.in , ndmacontrolroom@gmail.com

CONTACT DETAILS OF NDRF OFFICERS

(For Specialized Response during Disasters)

NDRF Head Quarter

Name	Designation	Address	Tele.	Fax.	Mobile	E-mail
Shri O.P. Singh, (IPS)	DG	Directorate General, National Disaster Response Force (NDRF) Sector-1 R K Puram, New Delhi- 66	011-26712851, 011- 26161442	011- 26715303		dg.ndrf@nic.in
Shri Sandeep Rai Rathore (IPS)	IG	Directorate General, National Disaster Response Force (NDRF) Sector-1 R K Puram, New Delhi- 66	011-26160252	011- 26105912		lg.ndrf@nic.in

Shri Muneesh Kumar	Dy Commandant (Proc)	Directorate General, National Disaster Response Force (NDRF) Sector-1 R K Puram, New Delhi-66	011-26107921	011-26105912		dc.proc.ndrf@nic.in
Shri Sudhir Thapa	Inspector Control Room	Directorate General, National Disaster Response Force (NDRF) Sector-1 R K Puram, New Delhi-66	011-26107953	011-26105912	9711448595	

NDRF BNS

Name	Designation	Address	Tele.	Fax.	Mobile	E-mail
Sh. Jaideep Singh	Commandant	7th Bn NDRF, Bibiwala Road, Bhatinda (Punjab)	0164-224193	0164-2246570	09417802032	comdt.27thbn@itbp.gov.in 7thbnndrfbathinda@gmail.com
Sh. P.K. Srivastava	Commandant	8th Bn NDRF, KamlaNehru Nagar, Gaziabad, U.P., Pin-201002	0120-2351101, 0120-2351087	0120-2766013	09968610014	eighthndrf@yahoo.com ndrf.108@gmail.com

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

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

(For snow avalanche early warning and related issues)

Name of Officer/Designation and Location of Deployment	Tel (Office)	Tel (Residence)	Mobile No.	Email id
Ashwagosh Ganju Director	2699804-806	2705990	09872083177	director@sase.drdo.in
Rajesh Chand Thakur, T.O(B)			09417049754	

GEOLOGICAL SURVEY OF INDIA

(For landslide related issues)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	Mobile No.	Emailid
Director, Geological Survey of India Plot No 3, Dakshin Marg Sector 33B Chandigarh- 160020	0172-2622529 0172-2621945 (Fax)	0172-2661002		gsichd@sancharnet.in
Deputy Director General, Geological Survey of India, Plot No-3, Dakshin Marg, Sector 33 B, Chandigarh, 160020	0172-2624702	0172-2613759		gsichd@sancharnet.in ukbassi@yahoo.com

INDIAN METEROLOGICAL DEPARTMENT (SHIMLA)

(For weather related early warning and data)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	Mobile No.	Email id
Manmohan Singh, Director	0177-2626211/ 0177-2629724/ 0177-2624976	0177-2626490	9816127668	mm_sandhu@yahoo.co.in
Bui Lal, Asstt Meteorologist	0177- 2624976		9418932167	
Ranvir Kumar	0177- 2624976	0177-2633462	9418422462	ranvinderkumar_60@yahoo.co.in
Harminder Dutta, Scientific Assistance	0177- 2624976		9857135181	dutta_harminder@yahoo.co.in

CENTRAL WATER COMMISSION (SHIMLA)

(For floods/ flashfloods and early warning there of)

Name of Officer/Designation and Location of Deployment	Tel(Office)	Tel(Residence)	MobileNo.	Emailid
Director (M&A) CWC, Block 10, FirstFloor CommercialComplex,Kasumpti Shimla 171009	0177-2624036 0177-2624224 (Fax)	0177-2625307	-	-
Ex, Engineer, Snow Hydrology Divn CWC, Block 9,First Floor Commercial Complex, Kasumpti Shimla 171009	0177- 26230260 0177-2623026 (Fax)	0177-2628247	-	-

ARMY HQR (EXCHANGE NOS- 23010131/ 23018197)

(For requisition of army during disasters)

Name of Officer/Designation and Location of Deployment	Tel (Office)	Tel (Residence)	Mobile No.	Email id
DGMO	23011506 E-33170 Fax23011506	23011506 E-33172		
ADGMO(A)	23011611 E-33174 Fax23011617	24615208 E-35251		
ADGMO(B)	23014891 E-33176 Fax23011617	26142269 E-39124		
Dir MO-6	23018034 E-33220 Fax23011617		9818106439	
GSO-I MO-6	23019739 E-33221 Fax23011617		E-39823 9810431696	
DirOL-2	23335218 23018530 E-35221	23339055		

ARMY TRAINING COMMAND (SHIMLA)

(For Army assistance)

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

AIR HQR (EXCHANGE NO-23010231)

(For requisition of Air force in disasters)

Name of Officer/Designation and Location of Deployment	Tel (Office)	Tel (Residence)	Mobile No.	Email id
ACAS (Ops)	23014424 23010231/7528 Fax 23017627	24672974	9871213393	
PDOps (Off) (T&H)	23110231/7559 23016354 Fax23016354	24642195	9871097909	
Dir Ops(T)	23010231/7545 2305857	23098030		
Dir Ops(H)	23010231/7551 Fax23016354	25674906		
JDOps (LS)	23010231/7546 Fax23016354		9818220586	
JDOps (H)	13010231/7552 Fax23792973		9868468583	

CIVIL MILITARY LIASON FOR DISASTER RELIEF OPERATION (AIR)

CONTACT DETAILS OF AIR FORCE STATIONS ARSAWA, SAHARANPUR, UTTAR PRADESH

(For Requisition and Deployment of Helicopters in Disasters)

Name	Designation	ContactNo.	Address
Mr. Bhanu Johri	Group Captain and Station Incharge	Tel No.01331 244919- 207 Fax No. 01331-244822	AFStn, Sarsawa Saharanpur (UP), PIN - 247232
Mr. Vineet Sharma	Wing Commander, Chief Operations Officer	As Above Cell No.+91 7599342240	As Above

CENTRAL CRISIS GROUP (National Level)

(For industrial and chemical disasters)

Name of Officer/Designation and Location of Deployment	Tel (Office)	Tel (Residence)	Mobile No.	Email id
Sh. Ashok Lavasa, Secretary, Ministry of Environment & Forests, Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi-110003.	011- 24695262 011-24103440 (Fax)			
Sh. Ajay Tayagi, Joint Secretary, Ministry of Environment & Forests, Paryavaran Bhavan, CGO Complex, Lodi Road, New Delhi-110003.	011-24695268 011-24695268 (Fax)			a.tyagi@nic.in

All India Radio

(For broad casting services)

Name of Officer/Designation and Location of Deployment	Tel (Office)	Tel (Residence)	Mobile No.	Email id
Mr. TK Tawal Station Director Ambedkar Chowk, Shimla-4	0177 2801899 Fax 0177 2801899	0177- 2831281		airshimla@yahoo.com
Mr. Devinder Mahindru Programme Executive Ambedkar Chowk, Shimla-4	01772563038	01772831748		

HQ, CE (P) DEEPAK

(For Boarder Roads)

Name	Designation	Contact No.	Address
Brig. S.K. Kataria	Chief Engineer	0177 2830986 (Office); 0177 2831850 (Residence)	Minto Court, Shimla- 4
Col.A.K. Sharma	Director, Works	0177 2633602–(Office); 0177 2831748	As Above

INDO-TIBETAN BORDER POLICE, TARA DEVI, SHIMLA- 10

(For Requisition and Deployment in Disasters)

Name	Designation	Contact No.	Address	Exchange
Sh. S.K. Chaudhary	DIG	0177 2830601(O); 0177 2830602 (Resi) Email– dighpitbp@sancharnet.in	Taradevi, Shimla- 10	0177-2832886

BHARAT SANCHAR NIGAM LIMITED, HP CIRCLE SHIMLA-10

(For communication related issues)

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

INDIAN OIL CORPORATION

(For POL and LPG)

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

CENTRAL PUBLIC WORKS DEPARTMENT

(For road clearance, machinery and manpower)

Name	Designation	Contact No.	Address
Mr. Gurba Singh	SE	01772657531(O); 2804696 (R), Cell- 9418004466 2652476 (Fax);email– sescshimla@yaoo.com	CPWD,Kennedy Cottage,Shimla - 4
Mr. J K Goel	XEN Planning	01772658131(O),Cell- 09318050506	As Above
Mr. MP Singh	XEN	01772652830(O),2652412 (R)	As Above

ANNEXURE –C

TELEPHONE NUMBERS OF PUBLIC REPRESENTATIVES

LIST OF ZILA PARISHAD MEMBERS of KULLU DISTRICT

Sr.No	Ward No. and Name	Name	Designation	Contact No.
1	1- Vashisht	Sh. Hari Chand	Chairman ZilaParishad	98160-25925
2	14-Nasogi	Smt. Dhaneshwari Thakur	Vice- chairman	94183-80777
3	2-Neuli	Smt. Reshma Devi	Member	98053-24122 98053-393051
4	3- Barshaini	Sh. Om Prakash	Member	94180-66426
5	4-Jaishtha	Sh. HiteshwarSingh	Member	94180-05756
6	5-Plahch	Smt. Nirmla Devi	Member	94180-63142
7	6-Arsu	SMt. Sheela	Member	89880-40531
8	7-Poshna	Smt. Pama Devi	Member	94599-34389
9	8-Buchher	Sh. Tej Ram	Member	94187-62300
10	9-Kungash	Smt. Chand Kumari	Member	88941-37042
11	10- Kothichaihni	Smt. Kirti Devi	Member	94184-55393
12	11-Khokhan	Sh. Budhi Singh	Member	94185-81086
13	12-Balh	Smt. Prem Lata Thakur	Member	98160-02221
14	13-Mandal Garh	Sh. DineshSen	Member	94180-04700

Gram Panchayat Pradhan/ Up-Pradhan, Naggar Block in Distt. Kullu				
Sr. No.	Name of Panchayat	Name	Designation	Contact No.
1	Palchan	Sh. Singhi Ram	Pradhan	98171-37629
2	--do--	Sh. Bhagat Ram	Up-Pradhan	98167-55212
3	Vashisht	Sh. Gobardhan	Pradhan	98161-51523
4	--do---	Sh. Mani Ram	Up-Pradhan	94182-64855
5	Ryara	Smt.Lachhmu Devi	Pradhan	98167-29602
6	--do--	Sh. Mehar Chand	Up-Pradhan	98054-43507
7	Pichhalihar	Smt. Jaimani	Pradhan	98057-48253
8	---do--	Sh. Kalu Ram	Up-Pradhan	98828-44068
9	Hallan-II	Sh. Rajeev	Pradhan	98170-96142
10	--do--	Sh. Ses Ramm	Up-Pradhan	94182-05739
11	Shaleen	Sh. Om Prakash	Pradhan	94186-60448
12	--do--	Sh.Ashok Kumar	Up-Pradhan	98164-43099
13	Raison	Sh.RandheerThakur	Pradhan	98163-80677
14	--do--	Sh. Mool Chand	Up-Pradhan	94184-29857
15	Chansari	Smt. Shashi Devi	Pradhan	98161-84444
16	--do--	Sh. Khem Chand	Up-Pradhan	98179-12796
17	Puid	Smt. Devki Devi	Pradhan	01902-223941
18	--do--	Sh. Gupt Ram	Up-Pradhan	98571-28107
19	Archhandi	Smt.Aruna Thakur	Pradhan	98171-69331
20	--do--	Sh. Jai Chand	Up-Pradhan	98053-43936

21	Prini	Sh. Thkur Dass	Pradhan	98160-02756
22	--do--	Sh. Prem Chand	Up-Pradhan	98170-73180
23	Naggar	Sh. Jindu Ram	Pradhan	97365-38230
24	--DO--	Jeet Ram	Up-Pradhan	98052-05737
25	Malana	Smt. Mogo Devi	Pradhan	98162-91522
26	--do--	Sh. Chuhru	Up-Pradhan	9816695575
27	Burua	Smt. Pushpa Devi	Pradhan	96256-20108
28	Burua	Sh. Prem Chand	Up-Pradhan	98166-22904
29	--do--	Sh. Shiv Ram	Pradhan	93185-02020
30	Nasogi	Sh. Mangal Chand	Up-Pradhan	93189-29595
31	Pangan	Smt. Anita Devi	Pradhan	98054-44204
32	--do--	Sh. Chhape Ram	Up-Pradhan	94187-08803
33	Hurang	Sh. Man Chand	Pradhan	91168-77977
34	--DO--	Sh. Veer Singh	Up-Pradhan	98168-70117
35	Shiradh	Smt.Chiter lekha	Pradhan	01902-245138
36	--do--	Sh. Hari Chand	Up-Pradhan	98173-32924
37	Katrain	Sh. Satish Chand	Pradhan	98166-40201
38	--do--	Sh.Rakesh Upadhyaya	Up-Pradhan	98163-04608
39	Bran	Smt. Seema	Pradhan	93188-30637
40	--do--	Sh. Chuni Lal	Up-Pradhan	98167-01053
41	Benchi	Smt. Sarla Devi	Pradhan	98168-24242
42	--do--	Sh. Bhag Chand	Up-Pradhan	94187-06544
43	Seugi	Smt. Asha Devi	Pradhan	97361-82824
44	--do--	Sh. Sher Singh Rana	Up-Pradhan	98170-64998

45	Neuli	Smt. Sevati Devi	Pradhan	98177-82079
46	--do--	Sh. Bishal Mahant	Up-Pradhan	98171-66857
47	Kayas	Sh. Paras Ra	Pradhan	94187-76329
48	--do--	Sh. Mohar Singh	Up-Pradhan	98162-01053
49	Jagat Sukh	Sh. Jog Raj Rana	Pradhan	98161-39866
50	--do--	Sh. Dharm Chand	Up-Pradhan	98053-70256
51	Nathan	Smt. Nirmla Devi	Pradhan	01902-200097
52	--do--	Sh. Ganga Rsm	Up-Pradhan	98170-05332
53	Shanag	Sh Ved Ram	Pradhan	94181-33805
54	--do--	Sh.Dina Nath	Up-Pradhan	98057-60594
55	Manali	Sh. Hukam Ram	Pradhan	98161-18208
56	--do--	Sh. Chuni Lal	Up-Pradhan	88949-64241
57	Baragarn	Sh. Chet Ram	Pradhan	98162-14275
58	--do--	Sh. Sunder Singh	Up-Pradhan	98164-17814
59	Duara	Smt. Pushpa Devi	Pradhan	88949-18481
60	--do--	Sh. Nihal Chand	Up-Pradhan	98057-59234
61	Dev Grah	Sh. Man CHand	Pradhan	88944-64568
62	--do--	Sh. Kehar Chand	Up-Pradhan	98168-13150
63	Mandalgrah	Sh, Keshav Ram	Pradhan	98164-64316
64	--do--	Sh. Ramehs Kumar	Up-Pradhan	98168-90262
65	Talogi	Sh. Dipan Kumar	Pradhan	98051-20741
66	--do--	Sh.Ranjeet Singh	Up-Pradhan	98170-83334
67	Kradsu	Smt. Shiv Dassi	Pradhan	96258-18485
68	--do--	Sh. Khekh Ram	Up-Pradhan	98164-18119

69	Gaher	Smt. Omi Devi	Pradhan	98574-90916
70	--do--	Sh. Om Prakash	Up-Pradhan	98053-65873
71	Gojra	Smt. Sapna	Pradhan	94183-14684
72	--do--	Sh. Ram Nath	Up-Pradhan	98821-00098
73	Jana	Sh. Lal Chand	Pradhan	98164-15326
74	--do--	Sh.Devender Singh	Up-Pradhan	88041-74017
75	Hallan-I	Smt. Meens Kumari	Pradhan	94185-43152
76	--do--	Sh.Suresh Kumar	Up-Pradhan	98820-79155
Gram Panchayat Pradhan/Up-Pradhan, Kullu Block in Distt. Kullu				
1	Buai	Sh. Mohar Singh	Pradhan	94181-21240
2	--do--	Sh.Balbant Singh	Up-Pradhan	98161-56956
3	Bandrol	Sh. Take Singh	Pradhan	94593-40916
4	-do-	Sh. Jagat Singh	Up-Pradhan	98162-51118
5	Peej	Smt. Ishra Devi	Pradhan	98166-78122
6	--do--	Sh. Prem Singh	Up-Pradhan	98161-18202
7	Pini	Smt. Meena Devi	Pradhan	98165-40629
8	--do--		Up-Pradhan	--
9	Bashona	Sh. Amar Nath	Pradhan	98167-11964
10	--do--	Sh.Nidhi Singh	Up-Pradhan	98175-32260
11	Nieul	Smt. Chaitnya Thakur	Pradhan	98176-08893
12	--do--	Sh.Beli Singh	Up-Pradhan	94594-11434
13	Dughi lag	Sh. Sunder Singh	Pradhan	98160-15968
14	--do--	Sh. Yash Pal	Up-Pradhan	98161-90095
16	--do--	Sh. Narayan Singh	Up-Pradhan	98170-78707

17	Shili Rajgeeri	Smt. Lata Devi	Pradhan	98167-45665
18	--do--	Sh. Ram Lal	Up-Pradhan	98163-55122
19	Raila	Sh. Pritam Singh	Pradhan	98821-52111
20	--do--	Sh. Balmukand	Up-Pradhan	98052-71161
21	Sachani	Sh. Budhi Singh	Pradhan	98170-84240
22	--do--	Sh. Mahender Singh	Up-Pradhan	98166-65472
23	Bhulang	Smt. Smitra Devi	Pradhan	98050-15332
24	--do--	Sh. Karam Chand	Up-Pradhan	98169-64360
25	Banogi	Sh. Ram Nath	Pradhan	98161-38256
26	--do--	Sh. Heera Lal	Up-Pradhan	98163-44257
27	Shilihar	Smt. Pushpa Devi	Pradhan	98166-68815
28	--do--	Sh. Ghameer Dass	Up-Pradhan	98162-03089
29	Parli	Sh. Pawan Kumar	Pradhan	98167-42588
30	-do-	Sh. Tek Ram	Up-Oradhan	98053-02780
31	Ratocha	Sh. Utam Chand	Pradhan	98052-73366
32	--do--	Sh.Davinder Kumar	Up-Pradhan	98164-59625
33	Bhallan-II	Sh. Tikam Ram	Pradhan	98160-39225
34	--do--	Sh. Puran Chand	Up-Pradhan	98171-08725
35	Barshaani	Sh. Puran Chand	Pradhan	98164-04075
36	--do--	Sh. Yan Singh	Up-Pradhan	98053-88917
37	Bradha	Smt. Toli Devi	Pradhan	98164-72514
38	--do--	Sh. Shadi Lal	Up-Pradhan	98162-19019
39	Fallan	Smt. Bimla Devi	Pradhan	94187-19013
40	--do--	Sh. Nand Lal	Up-Pradhan	98170-54900

41	Khokhan	Smt.Koshalya Devi	Pradhan	96252-47026
42	--do--	Sh. Ses Ram	Up-Pradhan	98058-64617
43	Bhalyani	Smt. Sheela	Pradhan	94180-34242 98160-14242
44	--do--	Sh. Harish Chand	Up-Pradhan	96251-02901
45	Jashtha	Smt. Thakari Devi	Pradhan	98170-60311
46	--do--	Sh.Jaswant Singh	Up-Pradhan	96254-07871
47	Mangrah	Smt. Bimla Devi	Pradhan	94594-37511
48	--do--	Sh. Ram Singh	Up-Pradhan	88940-13325
49	Dunkhrigahar	Smt. Radha Devi	Pradhan	98054-93433
50	--do--	Sh. Sher Singh	Up-Pradhan	98941-04282
51	Jindour	Smt. Pinki	Pradhan	88942-87660
52	--do--	Sh. Ram Singh	Up-Pradhan	98173-10294
53	Choparsa	Sh. Seeta Ram	Pradhan	94184-42309
54	--do--	Sh. Hem Singh	Up-Pradhan	94183-18652
55	Hat	Smt. Raj Kumari	Pradhan	98055-70840
56	--do--	Sh. Nime Ram	Up-Pradhan	98160-65562
57	Rot	Sh. Beru Ram	Pradhan	94184-87887
58	--do--	Sh. Subhash	Up-Pradhan	98168-83352
59	Bhumteer	Smt. Kamla Devi	Pradhan	98176-50702
60	--do--	Sh. Raj Krishan	Up-Pradhan	98160-39935
61	Barahar	Smt. Nirmla Devi	Pradhan	98175-25045
62	--do--	Sh. Paras Ram	Up-Pradhan	98057-38446
63	Manjhali	Smt. Tarna Devi	Pradhan	98166-05336
64	--do--	Sh. Hem Singh	Up-Pradhan	94595-17807

65	Punthal	Sh. Gopal Krishan	Pradhan	98161-05053
66	--do--	Sh. Moti Lal	Up-Pradhan	98164-25467
67	Devgarhgohi	Smt. Brinda Devi	Pradhan	98162-92110
68	--do--	Sh. Prem Chand	Up-Pradhan	98823-10979
69	Majhat	Sh. Ruhani Ram	Pradhan	98173-26781
70	--do--	Sh. Binder Singh	Up-Pradhan	98161-38657
71	Bajoura	Smt. Mohini Devi	Pradhan	98170-63924
72	--do--	Sh. Chaman Prakash	Up-Pradhan	98171-31045
73	Manikran	Sh. Thakur Chand	Pradhan	98051-46452
74	--do--	Sh. Narender Kumar	Up-Pradhan	98163-54658
75	Nalhach	Sh. Tara Chand	Pradhan	98160-30500
76	--do--	Sh. Amar CHand	Up-Pradhan	98179-92095
77	Danogi	Sh. Tirth Ram	Pradhan	98170-90088
78	--do--	Sh. Tulsi Ram	Up-Pradhan	98167-44445
79	Chhianwar	Smt. Asha Devi	Pradhan	98160-74010
80	--do--	Sh. Om Prakash	Up-Pradhan	98164-70954
81	Mohal	Smt. Ishra Devi	Pradhan	98166-78122
82	-do-	Sh. Devi Singh	Up-Pradhan	98570-8328
83	Balh	Smt Durga Devi	Pradhan	97363-90441
84	-do-	Sh. Chander Prakash	Up-Pradhan	98179-75210
85	Talpini	Smt. Banti Devi	Pradhan	98165-95999
86	-do-	Sh. Mohar Singh	Up-Pradhan	98160-06610
86	--do--	Sh. Mohar Singh	Up-Pradhan	98160-06610
87	Bhallan-I	Sh. Mehar Chand	Pradhan	98170-63721

88	--do--	Sh. Naresh Kumar	Up-Pradhan	98171-80601
89	Shamshi	Sh. Krishan Singh	Pradhan	98050-60727
90	--do--	Sh. Chharing Dorje	Up-Pradhan	98172-01001
91	Mashgan	Sh. Sher Singh	Pradhan	98173-47244
92	--o--	Sh. Amar Singh	Up-Pradhan	98050-15857
93	Hurla	Sh. Jagdish	Pradhan	98171-40209
94	--do--	Sh.Dhanveer Singh	Up-Pradhan	98172-51788
95	Chong	Smt. Kiran Kumari	Pradhan	98576-42390
96	--do--	Sh. Inder Jeet	Up-Pradhan	98161-38613
97	BaraBhuin	Sh. Jagat Ram	Pradhan	98161-48286
98	--do--	Sh. Shyam Sunder Dass	Up-Pradhan	98053-39078
99	Bhuin	Smt. PunamKanwar	Pradhan	98160-65827
100	--do--	Sh. Virender	Up-Pradhan	98163-16311
101	Shat	Smt. Toli Devi	Pradhan	88944-75441
102	--do--	Sh. Prem Chand	Up-Pradhan	98053-52681
103	Talara	Sh. Narender Kumar	Pradhan	98162-50580
104	--do--	Sh. Ramesh Kumar	Up-Pradhan	98172-25277
105	Jari	Smt. Vidya Devi	Pradhan	98054-15400 98053-39122
106	--do--	Ch. Chaman Lal	Up-Pradhan	98163-60343
107	Jalugran	Sh. Tikam Ram	Pradhan	98575-51551
108	--do--	Sh. Lalit Sharma	Up-Pradhan	98164-71605
109	Jia	Smt. Ganeshu Devi	Pradhan	97365-78145
110	-do-	Sh. Balam Kund	Up-Pradhan	98160-93848
111	Braman	Smt. Banti Devi	Pradhan	94186-13575

112	-do-	Sh. Tikam Ram	Up-Pradhan	94186-60732
113	Mashna	Sh. Manchand	Pradhan	98161-24633
114	--do--	Sh. Jai Chand	Up-Pradhan	98162-00213
115	Kasol	Sh. Tehal Singh	Pradhan	98057-30415
116	--do--	Sh. Take Chand	Up-Pradhan	98051-58163
117	Naresh	Smt. Prem Lata	Pradhan	88942-74169
118	--do--	Sh. Sanjay Kumar	Up-Pradhan	94180-66207
119	Garsa	Sh. Chuni Lal	Pradhan	98171-87638
120	--do--	Sh. Gambhir Chand	Up-Pradhan	98164-73655
121	Bastori	Smt. Nirmla Devi	Pradhan	98169-23070
122	--do--	Sh. Vinod Kumar	Up-Pradhan	98168-49333
123	Tegu Behar	Sh. Kram Chand	Pradhan	98166-90972
124	--do--	Sh. Chura Mani	Up-Pradhan	98173-52864
125	Kharihar	Smt. Neelam Sharma	Pradhan	98162-52679
126	--do--	Sh. Moti Ram	Up-Pradhan	98164-84875
127	Kaliahli	Smt. Phoola Devi	Pradhan	98050-73622
128	--do--	Sh. Jagdish	Up-Pradhan	97361-04190
129	SheelNal	Sh. Bhagat Ram	Pradhan	98054-16668
131	Jarad Colony Bhutii	Sh. Jaswant Sharma	Pradhan	98161-11193
132	--do--	Sh. Chhaju Ram	Up-Pradhan	94185-55297
133	Kothi Sari	Smt. Koshalya Devi	Pradhan	94185-50445
134	-do-	Sh. Onkar Dutt	Up-Pradhan	98057-98672
135	Diyar	Sh. Ram Lal	Pradhan	98163-70270
136	-do-	Sh. Chand Kishor	Up-Pradhan	98163-70535

137	Bashing	Sh. Balak Ram	Pradhan	98164-84284
138	-do-	Sh. Yuv Raj	Up-Pradhan	98163-70186
139	Shurad	Sh. Hukam Ram	Pradhan	98572-10070
140	-do-	Sh. Joginder Singh	Up-Pradhan	94180-75772
Gram Panchayat Pradhan/Up-Pradhan, Banjar Block in Distt. Kullu				
1	GaraParli	Sh. Budh Ram	Pradhan	94596-62836
2	--do--	Sh. Likhat Ram	Up-Pradhan	
3	SHansher	Smt. Meera Devi	Pradhan	98164-18013
4	--do--	Sh. Dole Singh	Up-Pradhan	--
5	Deuri dhar	Smt. Nirmla Devi	Pradhan	98059-55871
6	--do--	Bhagat Ram	Up-Pradhan	--
7	Shangar	Sh. Ghungar Mal	Pradhan	98164-37310
8	--do--	Sh. Shripat	Up-Pradhan	--
9	Suchain	Sh. Ravti Ram	Pradhan	88940-11537
10	--do--	Sh. RavinderSingh	Up-Pradhan	98826-35202
11	Banogi	Smt. Javiti Devi	Pradhan	98166-71507
12	--do--	Sh. Yan Singh	Up-Pradhan	98824-38002
13	Dushahar	Sh. Moti Ram	Pradhan	98052-66669
14	--do--	Sh. Jeewan Singh	Up-Pradhan	98052-18466
15	Dhaugi	Smt. Bimla Devi	Pradhan	98051-20472
16	--do--	Sh. Daleep Singh	Up-Pradhan	--
17	Kanon	Sh. Chuni Lal	Pradhan	80911-81746
18	--do--	Smt. Pingla Devi	Up-Pradhan	98053-70130
19	Larji	Smt. Padma Devi	Pradhan	97360-87746

20	--do--	Sh. Hem Raj Sharma	Up-Pradhan	98166-10021
21	Kotla	Sh. Take Singh	Pradhan	94180-65373
22	--do--	Sh. Bheem Sen	Up-Pradhan	98173-32708
23	Chakurtha	Sh. Diwan Chand	Pradhan	96251-79134
24	-do-	Sh. Subhash Chand	Up-Pradhan	98170-77978
25	Gopalpur	Smt. Prema Devi	Pradhan	98160-75159
26	--do--	Sh. Dola Singh	Up-Pradhan	--
27	Thatibeer	Smt. Neeta Devi	Pradhan	98058-59784
28	--do--	Sh. Diwan Singh	Up-Pradhan	98057-20790
29	Manglore	Sh. Chaman Lal	Pradhan	94598-83667
30	--do--	Sh. Hardyal Singh	Up-Pradhan	--
31	Chanon	Smt. Phoolma Devi	Pradhan	98176-20338
32	--do--	Sh. Bhawani Singh	Up-Pradhan	94183-69629
33	Deutha	Smt. JaiBanti	Pradhan	98174-45025
34	--do--	Sh. Beli Ram	Up-Pradhan	94187-22091
35	Plachh	Smt. Indra Devi	Pradhan	94186-95651
36	--do--	Sh. Kamlesh Thakur	Up-Pradhan	98176-20434
37	Kalwari	Sh. Dabe Ram	Pradhan	94186-12613
38	--do--	Sh. Mohar Singh	Up-Pradhan	94180-61114
39	Shrikot	Sh. Budh Ram	Pradhan	94596-62836
40	--do--	Sh. Nirat Singh	Up-Pradhan	98179-67040
41	Nohanda	Sh. Sawran Sinfh	Pradhan	94181-49896
42	--do--	Sh. Prem Singh	Up-Pradhan	98252-12135

43	Tung	Sh. Hukami Ram	Pradhan	94188-89863
44	--do--	Sh. Moti Ram	Up-Pradhan	94590-17513
45	Mashyar	Smt. Kanta Devi	Pradhan	94189-71702
46	--do--	Sh. Prakash Chand	Up-Pradhan	94598-87689
47	Shilli	Sh. Noye Ram	Pradhan	94181-58926
48	-do-	Sh. Kabali Ram	Up-Pradhan	94184-27802
49	Sharchi	Sh. Hari Singh	Pradhan	94186-39127
50	-do-	Sh. Puran Chand	Up-Pradhan	
51	Kandhidhar	Sh. Gian Chand	Pradhan	94181-49155
52	-do-	Sh. Devinder	Up-Pradhan	94186-23250
53	Kothi Chehani	Km. Rameshwari Sharma	Pradhan	98179-73113 98170-82299
54	--do--	Sh. Sher Singh	Up-Pradhan	94182-82269
55	Kharagar	Smt. Leena Kumari	Pradhan	94184-98466
56	--do--	Sh. Heera Lal	Up-Pradhan	94599-88503
57	Tandi	Sh. Het Ram	Pradhan	94182-70942
58	--do--	Sh. Jaswant Singh	Up-Pradhan	94184-34185
59	Bahu	Smt. Kanta Devi	Pradhan	94180-49492
60	--do--	Sh. Bhagat Ram	Up-Pradhan	98164-84570
61	Teel	Smt. Meena Devi	Pradhan	98167-61747 98162-19311
62	--do--	Sh. Prem Singh Ngi	Up-Pradhan	--
63	Seraj	Smt. DyaBanti	Pradhan	88949-44503
64	--do--	Sh. Heera Lal	Up-Pradhan	98168-40515
65	Mohani	Sh, Balak Ram	Pradhan	94183-19505

66	--do--	Sh. Beli Ram	Up-Pradhan	94592-48115
67	Khabal	Smt. Bimla Devi	Pradhan	94186-12744
68	--do--	Sh. Masat Ram	Up-Pradhan	94185-51520
69	Shikarighat	Sh. Vijay Kumar	Pradhan	94186-95794
70	--do--	Sh. Dinesh Kumar	Up-Pradhan	--
71	Balagar	Smt. Meenakshi	Pradhan	94186-39160
72	--do--	Sh. Sunil Bhardwaj	Up-Pradhan	94183-15098
Gram Panchayat Pradhan/Up-Pradhan, Anni Block in Distt. Kullu				
1	Karshaigar	Sh. Foji Lal	Pradhan	98053-80277 94183-67759
2	--do--	Sh. Paras Ram	Up-Pradhan	88943-86603
3	Fanotti	Smt. Urmila Devi	Pradhan	98054-21258
4	-do-	Sh. Dhyan Singh	Up-Pradhan	98053-87095
5	Lagothi	Smt. Dharmi Devi	Pradhan	94183-60007
6	-do-	Sh. Krishan Chand	Up-Pradhan	88943-04673
7	Takrasi	Smt. Joban Dassi	Pradhan	98056-91533
8	-do-	S.Jalam Dev	Up-Pradhan	98179-94847
9	Vishladhar	Smt. Javitra Devi	Pradhan	98052-71235
10	--do--	Sh. Chaman Lal	Up-Pradhan	98166-40133
11	Muhan	Smt. Punam Devi	Pradhan	96257-14946
12	--do--	Sh. Heera Lal	Up-Pradhan	98165-13225
13	Karad	Smt. Gudi Devi	Pradhan	94595-61502
14	--do--	Sh. Ashoke Kumar	Up-Pradhan	98166-42204
15	Pokhari	Sh. Khyal Chand	Pradhan	98179-11431

16	--do--	Sh. Chaman Lal	Up-Pradhan	98172-14127
17	Ropa	Sh. Rattan Chand	Pradhan	98178-13782
18	--do--	Sh. Karam Chand	Up-Pradhan	94592-46883
19	MundDarh	Smt. Chanda Devi	Pradhan	91296-43564
20	--do--	Sh. Budhi Singh	Up-Pradhan	98175-88472
21	Kungash	Sh. Bihari Lal	Pradhan	98179-73180
22	--do--	Sh. Suresh Kumar	Up-Pradhan	98173-04334
23	Karana	Sh. Jalap Ram	Pradhan	94182-32700
24	--do--	Sh. Var Chand	Up-Pradhan	88941-31608
25	Khanag	Sh. Mangat Ram	Pradhan	94181-50167
26	--do--	Sh. Ramesh Chand	Up-Pradhan	98053-50753
27	Lajheri	Sh. Beli Ram	Pradhan	94181-90570
28	-do-	Sh. Jawahar Lal	Up-Pradhan	88941-47184
29	Khani	Smt. Sandhya Devi	Pradhan	94598-88011
30	-do-	Sh. Milap Chand	Up-Pradhan	94181-31273
31	Kamand	Sh. Hukam Singh	Pradhan	94181-90392
32	-do-	Sh. Kishori Lal	Up-Pradhan	98170-89506
33	Kohilla	Sh. Duni Chane	Pradhan	94182-43767
34	--do--	Sh.Surender Kumar	Up-Pradhan	98576-64366
35	Buchher	Sh. MahinderSingh	Pradhan	98056-78087
36	--do--	Sh. Kehar Singh	Up-Pradhan	98058-04714
37	Deuthi	Sh. MahinderKumar	Pradhan	98178-75190
38	--do--	Sh. Roop Chand	Up-Pradhan	94186-22757

39	Shilli	Smt. Geeta Devi	Pradhan	96257-46486
40	--do--	Sh. Seeta Ram	Up-Pradhan	96257-46486 94181-71105
41	Chowai	Sh. Atma Ram	Pradhan	94189-66021
42	--do--	Sh. Om Prakash	Up-Pradhan	94181-70493
43	Bakhnow	Smt. Shanti Devi	Pradhan	96252-34895
44	--do--	Sh.Karam Chand	Up-Pradhan	98052-80032
45	Anni	Sh. Vinod Kumar	Pradhan	98054-25001
46	--do--	Sh.Kapoor Chand	Up-Pradhan	98173-85857
47	Taluna	Sh. Chaman Lal	Pradhan	98163-56005
48	--do--	Sh. Vivek	Up-Pradhan	98165-12320
49	Behna	Sh. Yashpal	Pradhan	98172-70846
50	--do--	Sh. Dyal Singh	Up-Pradhan	94181-50173
51	Dingidhar	Smt.Parvati Devi	Pradhan	98573-88959
52	--do--	Sh. Prem Chand	Up-Pradhan	94183-23664
53	Dalash	Smt. Indu Sharma	Pradhan	94185-23664
54	--do--	Sh. Yashwant Singh	Up-Pradhan	98167-11692
55	Biungal	Smt. Indu Bala	Pradhan	94590-86778
56	--do--	Sh. Shadi lal	Up-Pradhan	94182-71986
57	Kuthehed	Smt. Geeta Devi	Pradhan	94180-72784
58	-do-	Sh. Bihari Lal	Up-Pradhan	98162-91708
59	Palehi	Sh. Dev Raj	Pradhan	98172-53758
60	-do-	Sh. Hira Lal	Up-Pradhan	94180-68181

Gram Panchayat Pradhan/Up-Pradhan, Nirmand Block in Distt. Kullu				
1	Dehra	Sh. Girdhari Lal	Pradhan	98171-14846
2	--do--	Sh. Jitender Pal	Up-Pradhan	98172-50956
3	Nither	Smt. Chamelu Devi	Pradhan	94180-59717
4	--do--	Sh. Bahdur Singh	Up-Pradhan	96256-37153
5	Lot	Sh. Lal Chand	Pradhan	98173-44005
6	--do--	Smt. Toya Ram	Up-Pradhan	98171-61401
7	Durah	Smt. Veena Devi	Pradhan	94595-79467
8	--do--	Sh. Gurmale Singh	Up-Pradhan	94181-97333
9	Gamog	Sh. Jai Pal	Pradhan	94592-62448
10	--do--	Sh. Jai Pal	Up-Pradhan	94181-20704
11	Rahnu	Smt. Pushp Lata	Pradhan	94595-62442
12	--do--	Sh. Heera Lal	Up-Pradhan	88941-96346
13	Shilli	Smt. Kanta Bhardwaj	Pradhan	94592-68612
14	--do--	Sh. Virender Singh	Up-Pradhan	94181-90391
15	Nor	Smt. Sumitra Devi	Pradhan	94595-79467
16	--do--	Sh. Ashok Kumar	Up-Pradhan	94185-24913
17	Srahan	Smt. Chaderkanta	Pradhan	98050-10769
18	--do--	Sh. Padam Dogra	Up-Pradhan	94184-33818
19	Deem	Sh. Puran Chand	Pradhan	94591-29297
20	--do--	Sh. Sewa Ram	Up-Pradhan	94181-71743
21	Chail	Sh. Sadev Thakur	Pradhan	94186-45294
22	--do--	Sh. Narote Singh	Up-Pradhan	94187-19964
23	Arsu	Sh. Sohan Lal Bansal	Pradhan	94184-07587

24	-do-	Sh. Bar Chand	Up-Pradhan	88941-31608
25	Khanag	Sh. Mangat Ram	Pradhan	94181-50167
26	-do-	Sh. Ramesh Chand	Up-Pradhan	98053-50753
27	Lajheri	Sh. Beli Ram	Pradhan	94181-90570
28	--do--	Sh. Padam Bisht	Up-Pradhan	94185-25047
29	Nishani	Sh. Param Ram	Pradhan	96251-31148
30	--do--	Sh. Anil	Up-Pradhan	94182-24254
31	Tawar	Sh. Nandlal	Pradhan	94182-08425
32	--do--	Sh. Mohar Singh	Up-Pradhan	98055-22469
33	Bhalsi	Smt. Radha Devi	Pradhan	94598-82873
34	--do--	Sh. Sat Pal	Up-Pradhan	94181-64506
35	Nirmand	Sh. Ram Krishan Sharma	Pradhan	98170-36124
36	--do--	Sh. Pritam Dev	Up-Pradhan	98174-15666
37	Bahba	Smt. Mamta Devi	Pradhan	98051-74269
38	--do--	Sh. Daya Nand Shukla	Up-Pradhan	94181-57481
39	Gadej	Smt. Minakshi Devi	Pradhan	94180-66211
40	--do--	Sh. Heera Singh	Up-Pradhan	98172-99735
41	Poshna	Sh. Ranveer Rathour	Pradhan	94591-94319
42	--do--	Sh. Chhaya Ram	Up-Pradhan	94182-04982
43	Bari	Sh. Tikam ram	Pradhan	94180-07949
44	--do--	Sh. Om Prakash	Up-Pradhan	94181-52391
45	Sarga	Smt. Shakuntla Thakur	Pradhan	94181-65166
46	--do--	Sh. Jeevan Chauhan	Up-Pradhan	98050-57373
47	Tunan	Sh. Puna Ram	Pradhan	94180-34056

48	--do--	Sh. Paras Ram	Up-Pradhan	94181-69422
49	Kharga	Smt. Bijali Devi	Pradhan	98166-50552
50	--do--	Sh. Bhupender Singh	Up-Pradhan	94181-69542
51	Kushwa	Smt. Sumitra Devi	Pradhan	94186-23227
52	-do-	Sh. Dyal Singh	Up-Pradhan	94186-00155

ANNEXURE –D

LIST OF DISASTER YOUTH VOLUNTEERS IN KULLU DISTRICT

Sr. No.	Name	Father/Husband	Sex	Age	Edu.	Contact
1.	Beli Ram Negi		M	30		98165-34031
2.	Krishna Devi	Sh. Neel Chand	F	24	B.A.	98175-87765
3.	Surender	Sh.Chape Ram	M	22	+2	98168-02920
4.	Dev Raj	Sh.Tot Ram	M	26	+2	
5.	Ramesh	Sh.Rangi Lal	M	26	+2	
6.	Vidhai		M	24		98170-09966
7.	Manju Lata		F			
8.	Prem Chand		M			
9.	Raju		M			
10.	Pushpa Devi		F			
11.	Uttami Devi		F			
12.	Naresh Kumar	Sh. Jeet Ram	M	25		94597-80840
13.	Singhi Ram	Sh. Gehru Ram	M	43		98170-92584
14.	Tej Ram	Sh. Tikam Ram	M	25	+2	94590-13184
15.	Nainu Ram	Shi. Kewal Ram	M	37		98170-92312
16.	Gopal Krishan	Sh. Pune Ram	M	30	B.A.	98165-84481
17.	Puran Chand	Sh. Kewal Ram	M	37	+2	98166-03923
18.	Roshan Lal	Sh. Nirat Ram	M	36	B.A.	98164-12250
19.	Pushpa Thakur	Sh. Dule Ram	F	32		94591-05182
20.	Khub Ram	Sh. Ram Singh	M	31		98174-11964
21.	Giri Raj	Sh. Ram Chand	M	26	+2	98172-29978
22.	Om Prakesh Negi	Sh. Gurdyal Singh	M	29	B.A.	98160-09591

23	Sohan Lal Thakur	Sh. Ved Ram	M	37		98163-93485
27	Kamlesh Kumar	Sh. Hari Chand	M	27	B.A.	97365-81247
28	Km. Dimple	Sh. Nirat Ram	F	24	B.A.	94182-66654
29	Ankush Thakur	Sh. Shyam Lal	M	20	+2	86268-14511
30	Gopal	Sh. Tikam Ram	M	23	+2	98823-12686
31	Chander Sen	Sh. Puran Chand	M	32		98163-83234
32	Roshan Lal	Sh. Bhop Ram	M	28		98164-37665
33	Pana Lal	Sh. Pyare Ram	M	31		94180-02163
34	Mani Ram	Sh. Lot Ram	M	38	B.A.	98162-79184
35	Kishori Lal	Sh. Man Chand	M	30		98166-81885
36	Dinesh	Sh. Tek Ram	M	37		98164-91374
37	Om Prakash	Sh. Dhalu Ram	M	40	+2	98161-66067
38	Chaman Lal	Sh. Rewat Ram	M	29		98820-97954
39	Amit Thakur	Sh. Jugat Ram	M	24	B.Com.	98170-14332
40	Km. Shalika Thakur	Sh. Subhash Thakur	F	22	B.A.	94597-20136
41	Mangal Chand	Sh. Moti Ram	M	17	+1	98160-74651
42	Surender Thakur	Sh. Chhape Ram	M	28	B.A.	98168-02920
43	Hari Chand	Sh. Mohar Singh	M	27	+2	98171-37584
44	Thakur Dass	Sh. Poune Ram	M	34	+2	98174-37098
45	Yog Rag	S. Bodh Ram	M	27	+2	98166-16194
46	Vijay Thakur	Sfh. Tej Ram	M			98056-41142
47	Tarzan	Sh. Puran Chand	M	29	+1	98161-16474
48	Puran Chand	Dambu Ram	M	31	+1	98168-46990
49	Km. Punam	Sh. Uttam Chand	F	25	B.A.	94598-31230
50	Vinod Kumar	Sh. Ram nath	M	34	B.A.	94590-14872
51	Vishal	Sh. Mani Ram	M	23	B.Com.II	98821-62308

52	Om Prakesh	Sh. Kundan Lal	M	37		98162-37878
53	Charan Singh	Sh. Jagat Ram	M	34		98058-88860
54	Puran Chand	Sh. Karam Chand	M	42	+2	98161-91202
55	Rajesh Rana	Sh. Tot Ram	M	36		98163-69466
56	Yog Raj	Sh. Dharam Chand	M	38		98161-83518
57	Vikram Katoch	Sh. Amar Nath	M	30	B.A.	98162-38023
58	Ram Lal	Sh. Man Dass	M	28	+2	98164-26207
59	Umesh Raina	Sh. Ishwer Dass	M	35	+2	98160-79334
60	Smt. Maya Raina	Sh. Umesh Raina	F	21	B.A.	94184-79334
61	Suresh Kumar	Sh. Rajesh Kumar	M	26	B.A,	98821-55335
62	Khekh Ram	Sh. Balak Ram	M	27	B.A.	98053-72143
63	Pushpender	Sh. Tara Chand	M	22	B.A.	94599-90125
64	Minander	Sh. Roop Singh	M	27	+2	98168-25733
65	Pitamber	Sh. Girdhari	M	22	+2	98059-62630

ANNEXURE –E

LIST OF NODAL OFFICERS FOR DISASTER MANAGEMENT

Sr. No.	Name	Designation	Department	Conatct No.
1	Sh. Vinay Singh	ADM	Revenue	94180-67223
2.	Sh. Buta Suman	Second-in- Command	ITBP, 2 nd Battalion	94180-57301
3.	Dr. Om Prakash Thakur	Lecturer	Govt. College, Kullu	094180-66651, 01902- 222568, 94182-81999
4.	Sh. Maulis Chandra	Lt. Col.	BRO	094186-50106
5.	Sh. Brij Mohan	Senior Manager	Parabati-III Power Station, NHPC	98160-45987
6.	Sh. F. Badaik	Addl. General Manager (P&A)	Rampur Hydro Electric Project, SJVN Ltd.	01782-275202, 94180- 27980
7.	Dr. Sushil Chander	MOH	Health and family Welfare	01902-223077, 94180- 66199
8.	Sh. Meher Chand	Traffic Manager	H.R.T.C.	
9.	Er. M.P. Sharma	Sr. XEN (C/W)	HPSEBL Operation Circle	01902-225425, 94180- 18034, 01902-225212, 94180-20594
10.	Dr. Lal Singh		Nehru Yuva Kendra (GOI)	94180-25662, 01902- 222203
11.	Sh. Ram Thakur	S.F.O.	Fire Station	94180-222345, 98174- 58997

12.	Sh. Pradeep Sharma	Director	Elementary Education	01902-222679, 94183-47082
13.	Sh. Amar Prakash Kapoor		Horticulture	94180-78623
14.	Sh. Naresh Kumar Chopra		Elementary Education (DIET)	01902-265561
15.	Sh. Ajay Vats		BSNL	94180-00212
16.	Er. P.L. Anand	Assistant Engineer	H.P.P.W.D. (NH division Pandoh)	01902-240289, 94184-98891
17.	Sh. Dharam Singh Kaundal	A.C.F. Seraj at Banjar	Forest Department	
18.	Sh. Nihal Chand	Addl. Superintendent of Police	Police	01902-225589, 94181-02324
19.	Dr. Deepak Tikoo	Manager (EHS&S)	AD Hydro Power Limited	098161-03346
20.	Er.S.K. Soni	Engineer	H.P. State Electricity Board	01905-228311, 94180-71266
21.	Er. Jitender Kumar Gupta	Engineer	HPPWD, 6 th circle	01902-222426, 94184-60160
22.	Sh. Man Chand	Coy Commandant, 7 th Battalion	Home Guard	01902-222512, 94185-30411
23.	Bahadur Singh	-	Higher Education	01902-222545, 94180-52186

ANNEXURE -F

KEY OFFICIALS AT THE TIME OF DISASTER EMERGENCY

ITBP			
Regt. No.		Rank	Name / Designation
900231253		HC/GD	Saranbir Singh
910010213		HC/GD	Suresh Chandra
920220068		HC/GD	Alam Singh
047020414		HC/GD	Anil Kumar
Sashastra Seema Bal (SSB), MHA			
Contact Details			
Office	Fax	Mobile	
01902-260543	01902-260121	9736535500	Sh. Sanjeev Yadav
01902-260084		8988002020	Sh. A.K. Pathania
		8988388656	Dr. Rajeev Ranjan
		9459252406	Sh. Shiv Ram
		9736766088	Sh. Devi Chand
		9736286678	Ms. Sonam Dolma
Revenue Department			
01904-253344	01904-253344	9418181160	Sh. Neeraj Gupta SDM, Anni
01904-253344		88940-03797	Sh. Suraj Negi Tehsildar Nirmand
		94186-37904	Sh. Suresh Kumar Naib Tehsildar , Neethar

01904-253387		94185-30739	Sh. Jagdish Chand Naib Tehsildar , Anni
		94181-29699	Sh. Jagdish Chand Supdt O/O SDM Anni.
		98172-50688	Sh. Kanshi Ram Suman SDK O/O SDM Anni.
		94188-44710	Sh. Med Ram Office Kanungo O/O NT, Anni
		94187-22615	Sh. Hira Lal Office Kanungo The. Nmd
01902-222596		94185-00321	Dr. Suresh Chand Jaswal SDM Kullu.
01902-222696		94180-11118	Sh. Surender Pal Jaswal Tehsildar Kullu.
01902-265044		98177-61456	Sh. Manohar Lal Tehsildar Bhunter
		94180-35315	Sh. Ram Chand O.K. O/o Tehsildar Kullu.
01902-254100		94180-39526	Sh. Vinay Dhiman SDM Manali
01902-252286		94182-62809	Sh. Padma Chhering Tehsildar Manali.
		98163-73119	Sh. Amar Chand O.K. O/o Tehsildar Manali
		98160-37357	Sh. Gun Prakash PLR O/o SDM Manali
01903-221253		98055-97569	Sh. Prashant Sirkek SDM Banjar.
01903-221572		94185-50133	Sh. Raman Gharsangi Tehsildar Banjar
		98599-95628	Sh. Beli Ram SDK O/o SDM Banjar.
		98051-23069	Sh. Sher Singh O.K.O/o Tehsildar Banjar
Parbati-III Power Station, NHPC Ltd.			
-	-	-	Sh. Chandra Bali Singh (General Manager) phepstage3@rediffmail.com
-	-	9816045987	Sh. Brij Mohan (Senior Manager, Civil) Nodal Officer
01903-235101 O), 01903-235120 (R)	01903-235102	8894291959	Sh. Chandra Bali Singh (General Manager)

01905-209128 (WLL), 01903-235127 (R)	-	9805507585	Sh. A. K. Ghosh (Chief Engineer)
01905-209385	-	9816633505	Sh. Nirmal Singh (Chief Engineer {C})
01903-235104		9816611566	Dr. P. Mohan (CMO)
01903-235107		8894724241	Sh. K.K. Goswami (Sr. Manager {HR})
	-	9816501931	Sh. K.K. Sharma (Sr. Manager, C)
01905-209209 (WLL)	-	9805012485	Sh. Lakhmi Chand (Sr. Manager, C)
-	-	9816663055	Sh. D. K. Singh (Manager, E)
-	-	9816683575	Sh. S. K. Guha (Manager, E)
-	-	9816654889	Sh. Rajesh Kumar (Manager, M)
-	-	9805087137	Sh. Jaipdeep Khurana (Sr. DCMO)
01903-235108	-	8894339572	Sh. Abhay Kumar Singh (Manager PR)
Rampur Hydro Electric Project , SJVN Ltd.			
01782-275202		9418027980	Sh. Kranti Kumar Gupta (General Manager)
01782-275202	-	9418027980	AGM (P&A)
01782-275043	-	9418482200	DGM(Infra)
01782-275790	-	9418136497	Sr. Manager (PP&M/Workshop, Transport & Store)
01782-275921	-	9418053338	Sr. Manager (Project Coordination) and EIC Pkg-1 & Pkg-2
01904-265365	-	9418095010	Sr. Manager Power House Operation
01782-275959	-	9418095030	Sr. Manager Env't./Safety
01904-265260	-	9816647365	CMO, Project Hospital Banyal
01904-265261	-	9418451053	Addl. CMO, Project Hospital Banyal
Health and Family Welfare Department			
01902-223077	-	94180-66199	Dr. Baldev Thakur (CMO), cmokullu@gmail.com

01902-225299	-	94181-18018	Dr. Sushil Chander (MOH Kullu) Nodal officer
01902-222350	-	94183-33300	Senior Medical Officer I/C
HRTC Kullu			
			Sh. Pawan Kumar (Regional Manager), rmkullu@gmail.com , roklu@hpmail.gov.in
			Sh. Mehar Chand (Traffic Manager) Nodal Officer
		9418074284	Sh. Amar Chand (Inspector, Adda Incharge)
		9418118525	Sh. Baldev Raj (Adda Incharge)
		9418270245	Sh. Nageshwar Dutt (Adda Incharge, CBA, Banjar)
HPSEBL Operation Circle			
			Er. Pravesh Thakur (Superintending Engineer), seopkullu@gmail.com
01902-225425, 01902-225212	-	94180-18034, 94180-20594	Er. M.P. Sharma (XEN, C/W)
01902-222651	-	94180-03900	Er. Harinder Thakur (Sr. XEN ED Kullu)
01902-252306	-	94180-34288	Er. Parveen Bhardwaj (Sr. XEN ED. Manali)
01902-222411	-	94180-39543	Er. Vikas Gupta (AEE ESD, Kullu-1)
01902-265063	-	94184-58852	Er. G.S. Kaundel (AEE. ESD. Bhunter)
01905-287224	-	88943-54461	Er. Virender Sharma
01903-222236	-	94181-10757	Er. N.K. Manchanda
-	-	98160-03619	Er. Jagdish Kumar (ESD. Larji)
01902-276135	-	94180-80044	Er. Shanti Lal (ESD. Jari)
01902-240135	-	94184-24877	Er. Room Singh Thakur
01902-248246	-	94180-11026	Er. Narinder Thakur (ESD. Naggar)
01900-222291	-	94180-46515	Er. Tashi Dawa (Sr. XEN ED. Keylong)
01902-254294	-	94181-66221	Er. Anil Kumar

NEHRU YUVA KENDRA (GOVERNMENT OF INDIA)			
01902-222203	-	94180-25662	Dr. Lal Singh (Dyc Cum Commandant), nyksrachp@gmail.com
		94180-35709	Sh. Kewal Giri
		94180-25664	Sh. Gurdev Singh
		94180-33505	Sh. Dharam Singh
		94180-43076	Sh. C.R. Thakur
		8091329158	Ms. Nirmal
FIRE STATION			
222345 (Office), 222570 (Residence)		98174-58997	Sh. Ram Thakur (S.F.O.)
Agriculture			
01902-222215		94182-69127	Dr. B.L. Sharma (Deputy Director), 127ddakullu@gmail.com
		94180-54784	Specialist Kullu
		94188-93880	Specialist Naggar
		94181-06064	Specialist Banjar
		94180-71244	Specialist Anni
		94180-06922	Specialist Nirmand
Elementary Education			
			Sh. Ashok Sharma (Director)
		94183-47082	Sh. Pardeep Sharma (Dy. Director) Nodal Officer
Horticulture			
		94180-78623	Sh. Amar Prakash Kapoor
		94184-85981	Sh. Ramesh Thukral (HDO)
		9418095318	Sh. K.L. Katoch (HDO)

		94180-94245	Sh. Bhinda Singh (HDO)
		94180-12036	Sh. Baldev Bhardwaj (SMS)
		94185-00876	Sh. Roshan Anand
Elementary Education; DIET			
01902-265561		94184-50588	Naresh Kumar Chopra (Principal cum D.P.O.), ssakullu@rediffmail.com , dpokullu@gmail.com (Nodal Officer)
		94180-24463	Sh. Ajay Kamboj
		94184-87244	Sh. Kamal Kant
		94180-31600	Sh. Hem Raj
		94189-54133	Sh. Chaman Prakash
		94180-83015	Sh. Sunil Verma
		94180-17826	Sh. Surender Kumar
		94181-83744	Smt. Savita Devi
BSNL			
01902-223500	-	94180-61213	Sh. L.D. Negi (T.D.M.), ldnegi@gmail.com
-	-	94180-00212	Sh. Ajay Vats (SDEC, NWP/O-CFA)
01902-225300	-	94180-06600	Sh. Naresh Thakur
01902-222990	-	94180-29500	Sh. Ranjeet Singh
01902-251500	-	94180-51500	Sh. Sudershan Kumar
H.P.P.W.D.			
01902-240289	-	94184-98891	Er. P.L. Anand (Assistant Engineer)
01902-240289	-	98170-66432	Sh. Hukam Chand (Junior Engineer)
01902-240289	-	94187-75127	Sh. Ses Ram (Junior Engineer)
01902-240289	-	94184-88088	Sh. Duni Chand (Junior Engineer)
01902-240289	-	94180-22938	Sh. Sushil Kapoor (Junior Engineer)

Food and Civil Supplies & Consumer Affairs			
			Director, dfsc-kul@hp.gov.in
01902-222535	-	94181-62566	District Controller (Food Civil Supplies & Consumer Affairs)
-	-	94189-81075	Sh. Suresh Kumar (Kullu)
-	-	94188-17623	Sh. Dabe Ram (Naggar)
-	-	94181-29661	Sh. Ram Singh (Anni)
Forest Department			
01903-221226	-	94184-57101	Sh. B.S. Yadav (D.F.O. Seraj)
-	-	94184-66026	Sh. Dharam Singh Kaundal (A.C.F.)
-	-	94186-91764	Sh. Ram kumar R.O. Banjar
-	-	94184-50056	Sh. Geeta Ram R.O. Tirthan
-	-	94180-32341	Sh. Hem Chand R.O. Sainj
H.P. Police			
01902-225589	-	94181-02324	Sh. Nihal Chand (Addl. Superintendent of Police)
01902-224701	-	94180-74009	Sh. Sanjay Sharma (Dy. S.P.)
01902-253400	-	94180-18600	Sh. Puran Chand (Dy. SP Manali)
01904-253410	-	94184-73367	Sh. Sunil Negi (Dy. SP Ani)
01902-222775	-	94181-06026	Inspr. Neel Chand, SHO Kullu
01902-252326	-	94180-36103	Inspr. Firoj Khan, SHO Manali
01903-221227	-	94184-81327	SI Chint Ram, SHO Banjar
01904-253310	-	94184-80848	SI Rohit Mirgpuri, SHO Ani
01782-232516	-	94594-19087	SI Santosh Kumar , SHO Brow
01904-255126	-	94185-41222	SI Gambhir, SHO Nirmand
01902-265412	-	94180-55978	SI Lal Chand, SHO Bhuntar

01902-230714	-	-	Police Lines
01902-240800	-	98574-53510	SI Sanjeev Kumar, I/C PP Patlikuhal
01902-222008	-	94180-53935	SI Shiv Singh , I/ CPP City
01902-276074	-	94181-95072	ASI Dharam Chand, I/C PP Jari
01902-209366	-	94595-15461	SI Raj Kumar, I/ CPP Manikaran
01903-220065	-	94182-77442	ASI Yeshwant I/CC PP Sainj
01904-243850	-	94184-380 41	ASI Dilu Ram , I/CC PP Luhari
-	-	98051-78179	ASI Roop Lal, I/CC PP Neuli
01902-224455	-	98164-80256	SI Inder Dev, i/C Control Room
H.P. State Electricity Board			
01905-228311 (Office), 94180-71266 (Residence)	-	-	Er. S.K. Soni
01902-267153 (Office), 01902-267152 (Residence)	-		Superintending Engineer Sarabai
01905-228311 (office), 01905-209375 (Residence)			Resident Engineer ,Thalout
01905-228238	-	9418543098	Sr. Executive Engineer, Thalout
Kullu Division No. 1 , HPPWD Kullu			
01902-222426	-	94184-60160	Er. Jitender Kumar Gupta
-	-	94184-88991	Er. Suresh kumar Dhiman , Bhunter
-	-	94184-66312	Er. Vinod Sharma, Manikaran
-	-	94180-14806	Er. Ravi kumar , Larji
		94180-25013	Er. R. P. Sharma , Banjar
01902-222561	-	94180-23561	Er. Vinod Anand (Nodal Officer), Kullu Division No. II, ee-kul2-hp@nic.in
-	-	94184-82029	Er. Chaman Singh Thakur

-	-	94180-60500	Er. Vinay Hazri
-	-	94180-31780	Er. H.R. bhardwaj
		94184-77287	Er. B.S. Negi
AD Hydro Power Limited			
-	-	9816002883	Sh. Surya Kant Chehal
-	-	9816103302	Sh. R.K. Khaitan
-	-	9816109818	Sh. Arvind Sharma
-	-	9816102343	Sh.MP Joshi
-	-	9816103336	Sh. B.S. Thakur
-	-	9816103315	Sh. Deepak Kashyap
Malana Power Company Limited			
-	-	098160-99174	Sh. Aditya Pratap Singh (Nodal Officer)
-	-	09816063574	Sh. H.S. Beshtoo
-	-	09816461588	Sh. G.S. Sanyal
-	-	09816099649	Sh. M.A. Rafiq
-	-	09816099640	Sh. H.C. Sharma
-	-	09805099655	Sh. Sunny Thakur
-	-	09816099174	Sh. Aditya P Singh
Home Guards 7th Battalion			
01902-222512		94185-30411	Sh. Man Chand

Control Rooms

Revenue Department		01902-222486/ 1077
Sashastra Seema Bal		01902-260084 (office), 01902-260121 (fax)
BRO		01902-230031
Parbati-III Power Station, NHPC Ltd.		98160-85391
HRTC	Bus Stand , Banjar	01903-221243
	Bus Stand , Kullu	01902-225660, 01902-222728
	Bus Stand , Manali	01902-252323
Horticulture		01902-222407
H.P. Police		01902-224455/100, 01902-225589 (fax)
H.P. State Electricity Board		01905-2282237(Office), 94184-60106(Mobile) {Barrage Site}
		Power House – 94180-28311
Malana Power Company Limited		09816099653
		09816099647
Home Guard 7th Battalion		01972-222512

ANNEXURE –G

LIST OF NGOs in KULLU DISTRICT

Sr.No	Voluntary Organization	Address	Contact No./ email	Regn No.	President/ Secretary
1.	Himalayan Education Cum Arts and Cultural Society	Post Office Kalath Teh. Manali, Himachal Pradesh		181	
2.	Kumerdan HL. & HC Weavers ICS Ltd.	H. No. 47, Near Hpseb,Dhalpur, Kullu,Himachal Pradesh	01902-222682	592	Sh. Munish Sharma
3.	Tripura HC & HL Welfare ICSLtd	Vpo. Naggur, Kullu, Himachal Pradesh	94182047 47, 01902-47735	796	Sh. Ajay Sharma
4.	Dhobi Orchard Wool Workers ICS Ltd.	Village Dawara, Po Dhobi, Kullu, Himachal Pradesh	40320	227	Sh. Prem Lal
5.	Snow View Tribale Women HC & HL Cooperative Society	Dhalpur, The Kullu, Kullu, Himachal Pradesh		06/05/02 688	Sh.Yogesh Chand Thakar
6.	The Jai Siri Phugni H&H Cooperative Society Ltd.	Po Shallauq, Kullu, Himachal Pradesh	94181-49172	597	Sh.Chande Ram
7.	The Katrain ST/SC Women HL & HC Development Cooperative Society Ltd.	Village Chhani Po Katrain, Kullu, Himachal Pradesh		505	Smt. Sawita
8.	YC, NYK		222203		
9.	Vashisht Reshi Sanstha				
10.	Social Welfare Society for Water	Alice Manali, Kullu, Himachal Pradesh			
11.	Society for Advancement of Village Economy	Dhaman P.O. Larji, Kullu, Himachal Pradesh	savengo@redif fmail.redif fmail	129	Iqbal Singh Koundal

12.	Himalayan Buddhist Cultural Association	Pb. No 98, Club House Road, Manali, Kullu, Himachal Pradesh			Shri Soman Pon
13.	Mamta Khadi Gram Udyog Sanstha	Diyar, Distt Kullu, Kullu, Himachal Pradesh		N/G of 1111003	
14.	Sh. Jeet Ram Sood	Village Dhungri, P.O Manali, Kullu, Himachal Pradesh		Individual	Sh. Jeet Ram Sood
15.	Sadprayas	Raghu nathpur, Kullu, Himachal Pradesh	94181-58359, 01902-25190		Sh. Lal Chand Dhillon
16.	ASHIANA, Association for social hygiene, Interest and national awareness	Mahila Bhawan Sarwari, Kullu H.P.			Smt. Madhu
17	Himalayan Buddhist Cultural Association				
18	H.P. Mahila Kalyan Mandal	Mahila Kalyan Bhawan, Sarwari Bazar, Kullu.	01902-224849		Mrs. Madhu Bina
19.	Himachal Pradesh Handloom Weavers Apex Body	Dist. Kullu H.P			
20.	Society for Health and Social Transformation RehabilitationAid	(SHASTRA) Society General Hospital, Guruhorh Larankelo, kullu			
21.	Aid to Tibetan Children	1st Floor Beas More Akhare Bazar Kullu, H.P	222283		
22.	Jagriti	341, Ward 12, Shishamati kullu, H.P.			
23	National Association for BlindHP State Branch	Chander Abha Mahila Kalyan Bhawan Mahila Bhawan, Sarwari, kullu			
24	Layul Tribals Welfare Association	112/7, Police Station Road, Town/City: Ma nail, Dist.H.P	94180-53309		Mr. Sher Singh Yamba

25	Kullu Rotary Association	Dimpu Tyres, Mall Road Dhalbour. Kullu	94180-06611		
26	Dhagpo Shedrup Ling Monastic Cultural Society	Vill. & PO-Kais, Kothi-Kais, Kullu			
27	Ananda-Sustainable Development for the welfare of Nature and Society	The Krishna Temple, Thawa Nagar, Kullu			
28	Institute For Development Programme Anni Project	1st Floor, Hreitage Handloom and Handicrafts Complex, Badah			
29	Socio Economic Development Programme Anni Project	Dist. Kullu, H.P			
30	Lady Willingdon Hosnital	Manali Dist. Kullu, H.P	01902-252379		
31	Him Queen Handloom & Handicrafts Cooperative				Sh. Shiva Kausal
32	JJ HL & HC Welfare & Tourism Development Indl. Societies Ltd.	Seiberh P.O. Shamshi Kullu, Himachal Pradesh		421	Ms. Manorama Devi
33	Delek Hospital			632	
34	His Holiness Delai Lama's Central Tibetan Relief Committee				
35	Snow Fruit Processing Society			N/G of 1102001	
36	Himachal Academy of Art Culture & Language			N/G of 1102002	

37.	Society for Theatre Education Production and Cultural Organization				
38	Swami			135/98	
39	Manav Kalyan Kendra				
40	HP Jail Employees Welfare and Prevention of Crime Society				

41	H.P. Human Welfare Society	Opposite Nehru Park, 1 st Floor, Shyam Sunder Shop, Manali, Distt Kullu-175131			
42	Dwarca Mahila Group Bandarole	Vill & PO. Bandarole, Block Kullu Distt. Kullu (HP)175128			
43	Society for Reassamblent of Western Himalayan Ecology,	(BUG)Ramshila,akh Ara Bazar, Kullu Distt. Kullu (HP) 175101	98160 02518		Dr. Baldev Krishan
44	Dev Bhumi Vikas Parishad	Anni, Kullu-172026 Himachal Pradesh	98171-76723		Parasram Chauhan
45	Green Himalyan Welfare Society	Nr. forest office Bara Bhuin (Bhunter) Kullu-175125	9817287340		Sudershan Thakur Thakursudershan@gmail.com
46	Gurukul Bahumukhi ShikshaSanstha	Bhutti Colony Shamshi Kullu - 175126 HimachalPradesh	9318802389		Ganesh Bhardwaj gurukul_ng@rediffmail.com
47	H.P. Human Welfare Organisation	Bhajogi Gurudwara Road Kullu - 175131 Himachal Pradesh	93189-95777		RajKumar Hphwo @rediffmail.com
48	Heaven on Earth	Kullu Manali - 175131 HimachalPradesh	1902-251151		Anant Shankar Kshetry heavenonearth.ngo@gmail.com
49	Ankur Welfare Association	C/o Triloki Nand Sood,Village B#Naggar,block Naggar,Kullu	94180-63482		Mr Surinder Sharma
50	CREATERS	C/o Pawan Kumar, VPO Mangloor, Tehsil Banjar,Distt.Kullu, H.P	9418114528		Mr Rajinder Kumar
51	Chanderabha Mahila Kalyan bhawan,	SarwariBazar, KulluH.P	224869, 9418239369		Ms. Madhur veena

52	Cure	Vill.Dashal.Po.Haripur, Distt. Kullu (H.P)175136	257235, 9816053997,		Mr.Harish Thakur Cure_harish@ yahoo.co.in
53	Maa. Shakti N.G.O.Kullu	Vill. Chansari.Po.Puid. Distt.Kullu.(H.P)	233724, 9418429837		Mr. Hem Raj
54	Sehyog Research Group	Vill.Dashal.P.o.Hari pur	9816004833		Mr.Ben Heson benheson@ ecosse.net
55	CSK	C/O CASA PAT Unit Kullu, Near SSB Gate Shamshi, Distt. Kullu (H.P)	01902- 260278		Mrs. Oma Sharma
56	CASA	R/C Pat Unit Shamshi,Kullu (H.P)175126	01902- 260278 9816005215		Ms.Apolin B.Tigga apolintigga@ yahoo.co.in
57	The Ananda Society	VPO.Naggar, Distt. Kullu.(H.P)			Neeraj Acharaya pappu@ananda project.co.in
58	Jagriti	Vill Badah,.O Mohal Distt. Kullu 175126	226537 .		Ms. Mamta Chander jagritiorg@ Sancharnet.in
59	Shara	Top Floor P.o. Building Banjar- 175123, Distt. Kullu	9418133427		Mr.Chuni Lal
60	SHARE	C/O MANUSHI NCA Market Chowk No.13,Manali Distt.Kullu.H.P. 175131	01902- 253753 9816043130		Ms S.S.Madan
61	Human Welfare Society	VPO Gojra Distt. Kullu H.P.	01902- 248290		Mr. Deepak Sharma
62	SAATH	VPO Jagatsukh Teh.Manali,Distt. Ku llu	9816152850		Mr. Mohan Lal
63	SHASTRA SOCIETY	C/O Sabhla General Hospital Vill. Ghordaud P.O Laran kello Distt. Kullu H.P.	9816048133		Dr. Mother Wangnu

64.	Dar-ul Fazal Children Resi (DUF)	Manali Vill Shuru PO. Prini The.Manali Distt. Kullu	01902- 251633		Ms. Mohate
65.	Harijan & Backward Class Sudhar Sabha (HBCSS)		9816301778		Mr. Hair Das Sangam
66.	IRMT	Hall Estate Nagger Distt. Kullu H.P.	01902248290		Ms. Alena Adamkova
67.	HEACS	Kullu Upper Bala Behar wards no-10 Dhalpur Kullu. (H.P)			Mr. Dev.B.Rana
68.	Devas	Katrain Kullu.(H.P)			Mr.Y.S Guleria
69.	Janjatiya Sashaktikaran Sansthan Triloknath	Distt Lahul Spitti (H.P)	01909245009		
70.	SAHARA Eductional & Society Welfare Society Bajogi	P.O. Box Manali	9816024242		Mr. Hem Raj
71.	Gayatri Pariva	V.Sharan, P.o Box Laran Kelu Distt.Kullu	245309		Mr. Hira Lal

ANNEXURE –H

IMPORTANT CONTACT NUMBERS (IN CASE OF EMERGENCY)

NAGWAIN			
SR. No	Name	Designation	Contact nos.
1	V.Satyanarayana	General Manager	01905- 287771 280101(O), 01905- 287774(R)
2	S.K.Yadav	Chief Engineer (Civil), HQ	01905-280105(O), 01905-280218(R), 9805049302(M)
3	Dr Binoda Nand Jha	Chief Medical Officer	01905-280235(O), 01905-280241(R), 9816685240(M)
4	Anurag Bhardwaj	Sr. Manager(HR), HR Department, Nagwain	01905-280146(O), 01905-280217(R), 9816130492(M)
5	Dr MS Lakra	Dy.Chief Medical Officer	01905-280236(O), 01905-280219(R), 9816046325(M)
6	R.B. Gupta,	Manager(Civil), P&C Complex, Nagwain	01905-280112(O), 01905-280207(R), 9816034798(M)
7	Karam Chand	Manager(Civil), Township/Environment, Nagwain	01905-280243(O), 01905-280212(R), 9816660613(M)
8	Dr.Binit Shekar	Senior Medical Officer	01905-280237(O), 01905-280165(R), 9805504338(M)
9	Vinod Modgil	Public Relation Officer	01905-280238(O), 01905-280157(R), 9816070269(M)
10	Vir Singh	Project Dispensary, Ambulance Driver	01905-280238(O), 9816102211(M)
11	Rashwant Singh	Project Dispensary, Ambulance Driver	01905-280238(O), 9817137652(M)

NAGWAIN			
SR. No	Name	Designation	Contact nos.
1	V.Satyanarayana	General Manager	01905- 287771 280101(O), 01905- 287774(R)
2	S.K.Yadav	Chief Engineer (Civil), HQ	01905-280105(O), 01905-280218(R), 9805049302(M)
3	Dr Binoda Nand Jha	Chief Medical Officer	01905-280235(O), 01905-280241(R), 9816685240(M)
4	Anurag Bhardwaj	Sr. Manager(HR), HR Department, Nagwain	01905-280146(O), 01905-280217(R), 9816130492(M)
5	Dr MS Lakra	Dy.Chief Medical Officer	01905-280236(O), 01905-280219(R), 9816046325(M)
6	R.B. Gupta,	Manager(Civil), P&C Complex, Nagwain	01905-280112(O), 01905-280207(R), 9816034798(M)
7	Karam Chand	Manager(Civil), Township/Environment, Nagwain	01905-280243(O), 01905-280212(R), 9816660613(M)
8	Dr.Binit Shekar	Senior Medical Officer	01905-280237(O), 01905-280165(R), 9805504338(M)
9	Vinod Modgil	Public Relation Officer	01905-280238(O), 01905-280157(R), 9816070269(M)
10	Vir Singh	Project Dispensary, Ambulance Driver	01905-280238(O), 9816102211(M)
11	Rashwant Singh	Project Dispensary, Ambulance Driver	01905-280238(O), 9817137652(M)

ANNEUXRE - I

RESOURCE INVENTORY (Equipment/Machinery)

Resource Inventory (Department-wise)

2nd Battalion, ITBP Police

- Basic instruments/ equipments for disaster mitigation and management

Sr. No.	Name	Quantity
1.	Raft Outre	01
2.	Raft Outre Dolphin	01
3.	Raft Pedal	06
4.	Carlisal Guide Pedal 1520 NRS	04
5.	Carcile STD Pedal 1505	16
6.	Bats Shoe Padal	22
7.	Barraz Pump NRS-5''	02
8.	Life Jacket	24
9.	Rescue Bag	04
10.	White water kayak	02
11.	Helmet Protec B2	02
12.	Helmet Protec Full Cut 2030	22
13.	Kayak Pedal	06
14.	Kayak Skirt	06
15.	Power Quick Ascender	01
16.	Crash Helmets	30
17.	Climbing	22

18.	Rappling Ropes	18
19.	Seat Harness	06
20.	Avalanche Cord	41
21.	Avalanche Rod with Screw	17
22.	Combination Harness	33
23.	Aluminum Ladders	03
24.	Carabineer Screw Type	44
25.	Carabineer Plain Type	61
26.	Pitton all Types	204
27.	Rock Hammers	12
28.	Nylon Sling	03
29.	Rappling Gloves	05
30.	Rock Hammer Piton	02
31.	Ice Axe	47
32.	Rope Manila	01
33.	Rucksack Nylon	04
34.	Rapling Mitton	07
35.	Sling Nylon 9'	24
36.	Ski Mitton	23
37.	Hammer Pitton	12
38.	A.V.D.	25
39.	Knife all Purpose	12
40.	Wire Cutter	03

Revenue

SDM Anni

- Basic instruments/ equipments for disaster mitigation and management

Sr. No.	Name of Item	Numbers
1.	Gum Boot	14
2.	Rain Coat	15
3.	Stretcher single fold	06
4.	Stretcher double fold	06
5.	Power Chain (Hitachi)	01
6.	Roap ladder	01
7.	Sleeping bag	18
8.	Alpine Tents	10
9.	Aluminium ladder	01
10.	Pulling and lifting Machine	01
11.	Blankets	30
12.	Water proof Tents 10x10	12
13.	RCC couuter	01
14.	Nylon Roaps	100 mtrs.
15.	Bath Toilet	04
16.	Roape ladder	50 mtrs.
17.	Water proof Dress	10
18.	Hand Saw	02
19.	Globes 11000 volts	02
20.	Face Mask	02

21.	Life Jacket	03
22.	Life Boug	02
23.	Water proof dress	15
24.	Stretcher center folder	06
25.	Mega Phone	02
26.	Torch 3 cell	12

SDM Banjar

Sr. No.	Name of Item	Numbers
1.	Alpine tents	02
2	Sleeping Bags	04
3	Wind proof jackets	02
4	Rucksack	02
5	Rubber Globes	02
6	Pepelader	01 pair
7	2 AA cellmasl lite	01
8	Stretcher (folding)	01
9	Compass	02
10	Pick axe	02
11	Helmet with head light	01
12	Noise Mask with Filia	10
13	Replling Roaps	01

SDM Manali

Sr. No.	Name of Item	Numbers
1.	Highankle Shoe	05
2	Rain Pant black	05
3	Rain Jacket Black	05
5	PE Bottle (Squeeze)	05
6	Snow Globes	03
7	Gaiters Orange	04
8	Wild Craft fire starter	01

SDM Kullu

Sr. No.	Name of Item	Numbers
1.	Electrical Globes	02
2	Fire Helmet	05
3	Fire Beater	05
4	Face Mask	10
5	Life Jacket	10
6	Search Light	10
7	Stretcher centre folder	15
8	Petrol Operated Powa 5 AW	01
9	Demolition Hammer	01
10	RCC Cutter	01
11	Pulling Lifting Machine	01
12	Roaps	06

BRO

(a) Men

- GREF : 772 Nos (all along Manali-Sarchu, Sansari –Killar- Thiro-Tandi and Sumdo-Kaza –Grampoo Roads)
- Mazdoor : 5795 Nos

(b) Machine

- Eqpts on Manali-Sarchu Road :-

Sr. No.	Instruments/Equipments	Quantity
1.	BD-80	04
2.	BD-50	06
3.	Hyd Ex 20/30 Ton	08
4.	Hyd Ex 7-8 Ton	03
5.	Exc cum loader	08
6.	Wheel Loader	03

- Eqpts on Sansari-Killar-Thirot-Tandi Road :-

Sr. No.	Instruments/Equipments	Quantity
1.	Dozer BD - 80	02
2.	Dozer BD-50	03
3.	Hyd Exc 20 Ton	02
4.	Hyd Exc 7/8 Ton	01
5.	Exc cum loader	04
6.	Road Roller	04

- Eqpts on Sansari-Killar-Thirot-Tandi Road :-

Sr. No.	Instruments/Equipments	Quantity
1	Dozer BD - 80	02
2	Dozer BD-50	01
3	Hyd Exc 20 Ton	02
4	Exc cum loader	01

PARBATI –III POWER STATION, NHPC Ltd.

- Basic instruments/ equipments for disaster mitigation and management

Sr. No.	Instruments/Equipments	Used for
1.	Siren/Hooters	For alerting the staff/locals
	Airtel Mobile Signal Availability in underground areas of Power House	
	Walkie Talkie	For emergency communication in Power House
2.	JCB (1 No.)	For rescue operation
3.	Loader (1 No.)	
4.	Tipper (2 No.)	
5.	Water Tanker (1 No.)	
6.	Ambulance (1 No.)	
7.	Light Vehicle (30 Nos.)	
8.	Truck (1 No.)	
9.	Dispensary (5 Beds)	OPD Purpose

- Man and Machine Available

Sr. No.	Man and Machine	Quantity
1.	Doctors	3
2.	Paramedical Staff	2
3.	Beldar/Helper	36
4.	HEM Operator	2

Health and Family Welfare Department

- Basic instruments/equipments for disaster mitigation and management

Sr. No.	Resources
1.	Fully Equipped Operation Theatre
2.	24×7 Emergency Services with 10 Beds
3.	CT Scans, X-ray Machines
4.	200 ds Available

Man Power and Bed Strength

Sr. No.	Man Power	Hospital	Private Hospital					
		RH Kullu	Kullu Valley Hospital Kullu	Life Line Hospital	Bias Hospital	Hair Har Hospital	Mission Hospital	Oasis Medical Center Dobhi Dwara
1.	General Surgeon	02	01	0	01	01	01	01
2.	Medical Specialist	01	03	0	0	01	01	0

3.	Gynaecologist	02	01	01	01	01	01	0
4.	Radiologist	02	01	0	01	01	01	01
5.	Orthopaedic Surgeon	02	01	0	0	01	0	0
6.	Eye surgeon	01	0	0	0	0	0	0
7.	ENT Specialist	01	01	0	0	01	0	0
8.	Bed strength	200	37	08	10	40	100	08

HRTC

- Basic instruments a/ equipments for disaster mitigation and management

Sr. No.	Resources
1.	Buses for evacuation
2.	Necessary tools and equipments related with the repair or transport vehicles etc.

- Man and Machine
 - (Total buses=127+10=137)

NEHRU YUVA KENDRA (GOVERNMENT OF INDIA)

- Man and Machine
 - "50" Volunteers

BSNL

- Equipments
 - Automatic fire detectors and alarm system along with fire extinguishers.

HIMACHAL PRADESH STATE ELECTRICITY BOARD

- Man and Machine

Sr. No.	Resources	Quantity
1.	Emergency Rescue Light	02 Nos
2.	Safety Nets	01 No
3.	Rope Ladder	01 No
4.	Aluminium Ladder and Steps	01 No
5.	Safety Belts and Helmets	03 and 10
6.	Electric Hand Gloves	08 Pairs
7.	Fire Extinguishers	10 Nos
8.	Hand Light Torches	05 Nos

Kullu Division No. 1, HPPWD Kullu

- Man and Machine

Sr. No.	Resources	Quantity
1.	Man	761
2.	JCB	03 Nos
3.	Dozer	02 Nos
4.	Tipper/Truck/Canter/Tata (409)	09 Nos
5.	Air Compressor	07 Nos

Kullu Division No. II, HPPWD Kullu

- Man and Machine

Sr. No.	Resources	Quantity
1.	Man	497
2.	JCB	04 Nos
3.	Dozer	02 Nos
4.	Tipper/Truck	05 Nos
5.	Air Compressor	04 Nos

AD Hydro Power Limited

- Basic instruments / equipments for disaster mitigation and management

Sr. No.	Name of Equipment	Quantity
1.	Loaders	01
2.	Welding Set	01
3.	Bob Cat	01
4.	Snow Blower	01
5.	Dewatering Pump	01
6.	Temporary Shelter facility	May be Provided in Need

- Man and Machine

Sr. No.	Staff/Medical Equipment	Item No.
1.	Qualified Doctor	01
2.	Paramedics	03
3.	Ambulance	01

4.	Dispensary	01, Loacted at Prini Village
5.	First Aid Box (Set)	04
6.	Loader	01
7.	Tractor	01
8.	Diesel Compressor	01
9.	Chain Blocks (5 ton capacity)	02
10.	Welding Set	01
11.	Gas Cutter	01
12.	Electric Drill	01
13.	Chipping Hammer	02
14.	Mech. Jack with 5 ton lift	04
15.	Gloves-Rubber tested upto 2500 Volt	02
16.	Fire Extinguishers ABC type	04
17.	Extension Ladder	01
18.	Fire Extinguishers CO2 type	02
19.	Fire Extinguishers Foam type	01
20.	Water Tank	01
21.	Wheel Drive Vehicle	01
22.	Vehicle for Oxygen and DA Cylinder	01
23.	Safety Halmet	05
24.	Life Jacket	03
25.	Safety Belts	08
26.	Gumboot (Pairs)	03
27.	Pick Axes	06

28.	Shovels	06
29.	Jumper	02
30.	Rope	02
31.	Search Toarch	02
32.	Fluorescent Jacket	06
33.	Empty Cement Bags	100
34.	Fire Blankets	02
35.	Starchier	01
36.	Fire Escape Gear Box	01

Home Guard

- Man and Machine
 - 593 Home Guards (male) volunteers are enrolled in District Kullu in which 479 HGs are deployed for various duties and remaining HGs are also available during any emergency time at Company level. One truck and One Bus of Home Guards stand at BTC Sharabai are also available.

- Detail of Vehicle Fire Station Kullu

Sr. No.	Resources	Quantity
1.	Small Water Tender HP-48-0738	3000 Ltr
2.	Water Bouser HP-34-4639	9000 Ltr
3.	Fire Water Tender HP-66-3107	4500 Ltr
4.	Moter Cycle HP-43-4642	-
5.	QRV HP-66-3480	300 Ltr

- Detail of Vehicles Fire Station Manali

Sr. No.	Resources	Quantity
1.	Water Tender HP-07-2142	4500 Ltr
2.	Water Bouser HP-58-3918	9000 Ltr
3.	Cresh Tender HP-34-1772	4500 Ltr
4.	Motor Cycle HP-24-0568	-
5.	QRV HP-58-5438	-

Annexure - J

FLOW CHART FOR DISPOSAL OF DEAD BODIES AT DISTRICT LEVEL

1. Activate the DM Plan
2. Nodal Officer in the incident Response System will activate all other stake-holders associated with Disposal of the Dead.
3. Establish an information Centre at the site of Disaster/District HQ.
4. Inform all other Stake-holders, both in government and Non-Governmental sector, including the elected, Panchayati Raj functionaries and the community.
5. Activate search and Rescue teams of Fire & Emergency Services, Police, SDRF, Civil Defence, NDRF and NGOs for the retrieval of the injured and the dead.
6. The injured will get the priority for First Aid and evacuation to hospital.
7. Prepare cord of details of the bodies retrieved in the Dead Body Inventory Record Register; allocate individual Identification Number, photographed, and then Dead Body Identification Form initiated.
8. Associate relatives and community members for the identification of the bodies.

9. Handover the identified bodies to the relatives or the community, and if necessary after cross-matching Dead Body Identification Form with that of the Missing Person Form, for the last rites as per local, cultural and religious denomination.
10. Unidentified or unclaimed dead bodies/body parts shall be transported to the mortuaries for proper preservation and storage at the designated sites.
11. Consult relatives, legal and forensic experts for positive identification.
12. Final disposal of unidentified bodies/body parts shall be done by District authorities after applying all the possible means of identification as per the legal provisions.
13. The bodies of foreign nationals shall be properly preserved either by embalming or chemical methods and then placed in body bags or in coffins with proper labeling. Handing over and transportation of such bodies shall take place through the Ministry of External Affairs, in consultation with the Consular offices of the concerned countries and other actors such as International Committee of the Red Cross, if necessary and possible.

Annexure-K

GUIDELINES FOR DISPOSAL OF ANIMAL CARCASSES

1. Guidelines for Burial

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

2. Guidelines for Composting

- 2.1 Select site that is well drained, atleast 300 feet from water sources, sinkholes, seasonal seeps or other landscape features that indicate hydrological sensitivity in the area.
- 2.2 Lay 24-inch bed of bulky, absorbent organic material containing sizeable pieces 4 to

6 inches long. Wood chips or hay straw work well. Ensure the base is large enough to allow for 2-foot clearance around the carcass.

- 2.3 Lay animal in the centre of the bed. Lance the rumen to avoid bloating and possible explosion. Explosive release of gases can result in odour problem and it will blow the cover material off the composting carcass.
- 2.4 When disposing large amounts of blood or body fluid, make sure the replacement of material to absorb the liquid. Make a depression so blood can be absorbed and then cover, if a blood spill occurs, scrape it up and put back in pile.
- 2.5 Cover carcass with dry, high-carbon material, old silage, saw dust or dry stall bedding (some semi-solid manure will expedite the process). Make sure all residuals are well covered to keep odours down, generate heat or keep vermin or other unwanted animals out of the window.
- 2.6 Let it sit for 4 to 6 months, then check to see if carcass is fully degraded.
- 2.7 Reuse the composted material for carcass compost pile, or remove large bones and land apply.
- 2.8 Site cleanliness is the most important aspect of composting; it deters scavengers, and helps control odours and keeps good neighborly relations.

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

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

FLOW CHART FOR DISPOSAL OF ANIMAL CARCASSES AT DISTRICT LEVEL

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

Annexure –L

DISTRICT DISASTER MANAGEMENT AUTHORITY KULLU, HP

Emergency Support Functions (ESFs) Plan at District Level

In the aftermath of a natural disaster wherein District Administration's over all coordination is needed the command, control and coordination will be carried out under the ESFs Plan.

District EOC shall activate the ESFs and the concerned Department/Agency of each ESF shall identify requirements in consultation with their counterparts in affected districts, mobilize and deploy resources to the affected areas of the district. The District EOC shall maintain a close link with the State EOC.

ESFs shall be responsible for the following:

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

Primary and Secondary Agencies

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

Agency for Each Emergency Support Functions and Roles to be performed

ESF No.	ESF	Primary Agency	Secondary Agency	Responsibilities of Primary Agency	Activities for Response	Role of Secondary
1.	Communication	BSNL	Police Units of Armed Forces in the area	Coordination of national actions to assure the provision of telecommunication support the state and district; Coordinate the requirement of temporary telecommunication in the affected areas.	Responsible for coordination of national actions to assure the provision of telecommunication support the state and district; Coordinate the requirement of temporary telecommunication in the affected areas.	Make available police wireless network at the affected locations; Coordinate for the other networks available such as Ham Radios or HPSEB network etc.; The units of armed forces in the area would provide communication network on the request of the competent

2.	Public Health	Department of Health and Family Welfare (CMO/MSZH)	Department of Ayurveda (DAMO)	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; To prepare and keep ready Mobile Hospitals and stock; To network with private health service providers; To provide for mass decontamination; Check stocks of equipment and drugs.	Provide systematic approach to patient care; Perform medical evaluation and treatment as needed; Maintain patient tracking system to keep record of all patients treated; Mobilization of the private health services providers for emergency response. In the event of CNBR disaster to provide for mass decontamination of the affected population; Maintain record of dead and arrange for their postmortem.	To perform the same functions as assigned to the primary agency; Provide manpower to the primary agency wherever available and needed; Make available its resources to the primary agency wherever needed and available.
3.	Sanitation/ Sewerage Disposal	Urban Development and Rural Development	Irrigation and Public Health	Make arrangement for proposal disposal of waste in their respective areas; Arrange adequate material and manpower to maintain cleanliness and hygiene.	Ensure cleanliness and hygiene in their respective areas; To arrange for the disposal of unclaimed bodies and keeping record thereof; Hygiene promotion with the availability of mobile toilets; To dispose off the carcass.	Repair the sewer leakages immediately; Provide bleaching powder to the primary agencies to check maintain sanitation.

2.	Public Health	Department of Health and Family Welfare (CMO/MSZH)	Department of Ayurveda (DAMO)	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; To prepare and keep ready Mobile Hospitals and stock; To network with private health service providers; To provide for mass decontamination; Check stocks of equipment and drugs.	Provide systematic approach to patient care; Perform medical evaluation and treatment as needed; Maintain patient tracking system to keep record of all patients treated; Mobilization of the private health services providers for emergency response. In the event of CNBR disaster to provide for mass decontamination of the affected population; Maintain record of dead and arrange for their postmortem.	To perform the same functions as assigned to the primary agency; Provide manpower to the primary agency wherever available and needed; Make available its resources to the primary agency wherever needed and available.
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4.	Power	HPSEBLtd. (SE/XEN)	Himurja	Provide and coordinate State support until the local authorities are prepared to handle all power related problems; Identify requirements of external equipment required such as DG sets etc; Assess damage for national assistance.	Support to Local Administration; Review the total extent of damage to the power supply installations by a reconnaissance survey; To provide alternative means of power supply for emergency purposes; Dispatch emergency repair teams equipped with tools, tents and food; Hire casual labour for the clearing of damaged poles etc.	Make arrangement for and to provide the alternative sources of lighting and heating to the affected populations and for the relief camps.
5.	Transport	Department of Transport (RTO)	HRTC, Civil Aviation. (RM,HRTC, DTDO)	Overall coordination of the requirement of transport; Make an inventory of vehicles available for various purposes; Coordinate and implement emergency related response and recovery functions, search and rescue and Damage assessment	Coordinate arrangement of Vehicles for transportation of relief supplies from helipads/airports to the designated places; Coordinate arrangement of vehicles for transportation of SAR related activities.	Make available its fleet For the purpose of SAR, transportation of supplies, victims etc; Act as stocking place for fuel for emergency operations; Making available cranes to the Distt. Administration; To coordinate for helicopter services etc. required for transportation of injured, SAR team, relief and emergency supplies.

6.	Search Rescue	Civil Defence, Home Guards, Fire and Emergency Services (Commandant HG)	SDRF, Armed And Para military forces, Police, Red Cross, VOs, Volunteers and 108.	Establish, maintain and Manage state search and rescue response system; Coordinate search and rescue logistics during field operations; Provide status reports of SAR updates throughout the affected areas.	GIS is used to make an estimate of the damage area and the deployment of the SAR team in the area according to the priority; Discharge all ambulatory patients for the first aid which has the least danger to health and others transported to safer areas.	108 and Red Cross to make available ambulances as per requirement; SDRF, VOs and Volunteers to assist the primary agency in SAR; Armed and para military forces to provide assistance to civil authorities on demand; Police to arrange for the transportation and Post mortem of the dead.
7.	Public Works and Engineering	HPPWD (SE/XEN)	CPWD, National Highways Authority of India, MES, BRO	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 equipments •Cranes etc. Construct temporary roads; Keep national and other main highways clear from disaster effects such as debris etc.; Networking with private services providers for supply of earth moving equipments etc.	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; 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.	Making machinery and Manpower available to the PWD and to keep national highways and other facilities in functional state.

8.	Information and Communication	District Collectorate (AC/ADM)	Department of IT/NIC (DIO, NIC)	Operate a Disaster Welfare Information (DWI) System to collect, receive, and report and status of victims and assist family reunification; Apply GIS to speed other facilities of relief and search and rescue; Enable local authorities to establish contact with the state authorities; Coordinate planning procedures between district, the state and the centre; Provide readyformats for all reporting procedures as a standby.	Documentation of response/ relief and recovery measures; Situation reports to be prepared and completed every 3-4 hours.	Render necessary assistance in terms of resources, expertise to the primary agency in performing the assigned task.
9.	Relief Supplies	Collectorate (AC/ADM)	Department of Food and Civil Supplies (DFSC, AM CSC)	To collect, process and disseminate information about an actual or potential disaster situation to facilitate the overall activities of all responders in providing assistance to an affected area in consultation; Coordinate activities involved with the Emergency provisions; Temporaryshelters; Emergency mass feeding; To coordinate bulk distribution of emergency supplies; To provide logistical and resource support to local entities In some instances, services also may be provided to disaster workers; To coordinate damage assessment and post disaster needs assessment.	Support to Local Administration; Allocate and specify type of requirements depending on need; Organize donation (material) for easy distribution before entering disaster site.	To assist the primary agency in arranging and supplying relief supplies; To assist the primary agency in running the relief camps.

10.	Food & Supplies	Department of Food and Public Distribution (DFSC)	Department of Cooperation (ARCS)	Requirement of food and clothing for affected population; Control the quality and quantity of food, clothing and basic medicines; Ensure the timely distribution of food and clothing to the people; Ensure that all food that is distributed is fit for human consumption.	Make emergency food and clothing supplies available to population; Ensure the provision of specific nutrients and supplementary diet for the lactating, pregnant women and infants.	Ensuring the distribution of food supplies to the affected population through the PDS network etc.
11.	Drinking water	Department of I & PH (SE/XEN)	Department Of Urban Development (Secretary SADA)	Procurement of clean drinkingwater; 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.	Supportto local Administration; Water purification installation with halogen tablets etc.	To assist the primary agency wherever ULB is associated in the distribution of potable water.

12. Shelter	Collectorate (AC/ADM)	HIMUDA, HP PWD,UD and Panchayati Raj	Provide adequate and appropriate shelter to all population; Quick assessment and identifying the area for the establishment of the relief camps; Identification of public buildings as possible shelters; Identifying the population which can be provided with support in their own place and need not be shifted reallocated; Locate relief camps close to open traffic and transport links.	Support to Local Administration; Locate adequate relief camps based on survey of damaged houses; Develop alternative arrangements for population living in structures that might be affected even after the disaster.	HIMUDA and HP PWD would assist the primary agency in establishing temporary shelters of larger dimensions; Department of Panchayati Raj through local Panchayats would assist the primary agency in establishing shelters of
13. Media	Department of Public Relations (DPRO)	Local DD and AIR	To Provide and collect reliable information on the status of the disaster and disaster victims for effective coordination of relief work at state level; Not to intrude on the privacy of individuals and families while collecting information; Coordinate with DOCs at the airport and railways for required information for international and national relief workers; Acquire accurate scientific information from the ministry of Science and Technology; Coordinate with all TV and radio networks to send news flashes for specific needs of Donation; Respect the socio-cultural and emotional state of the disaster victims while collecting information for dissemination.	Use and place geographical Information to guide people towards relief operation; Use appropriate means of disseminating information to victims of affected area; Curb the spread of rumours; Disseminate instructions to all Stakeholders.	To assist the primary agency in discharge of its role.

14.	Help lines	Collectorate (AC/ADM)	Department Of Public Relations	To receive distress calls from the affected people and coordinate with the control room; To facilitate the optimization of donations received in kind; Co-ordinate, collect, process, report and display essential elements of information and to facilitate support for planning efforts in response operations; Co-ordinate pre-planned and event-specific aerial reconnaissance operations to assess the overall disaster situation; Pre-positioning assessment teams headed by the State coordinating officer and deployment of other advance elements; Emergency clearing of debris to enable reconnaissance of the damaged areas and passage of emergency personnel and equipment for life saving property	One of the most critical needs will be having an implied way of identifying and tracking victims and providing assistance; Identify locations for setting up transit and relief camps, feeding centres and setting up of the Help lines at the nodal points in the state and providing the people the information about the numbers.	To assist the primary agency in performing its job effectively and provide its manpower and resources for the purpose.
15.	Animal Care	Department Of Animal Husbandry (ADAH)	Department of Panchayati Raj (DPO)	Treatment of animals; Provision of vaccination; Disposal of dead animals.	To arrange for timely care and treatment of animals in distress; Removal of dead animals to avoid outbreak of epidemics.	To assist the primary agency in performing its role.

16.	Law and Order	Police (SP)	Home Guards (Commandant Home Guards)	Having sound communication and security plan in place to coordinate law and order issues; Training to security personnel in handling disaster situations and issues related to them.	To maintain law and order; To take measure against looting and rioting; To ensure the safety and security of relief workers and material; To take specific measure for the protection of weaker and vulnerable sections of the Society. To provide safety and security at relief camps and temporary shelters	To assist the primary agency by making available manpower.
17.	Removal Of trees and fuel wood	Forest (DFO)	Forest Corporation (AMFC)	Removal of fallen trees; To provide fuel wood for the relief camps and public; Have adequate storage of fuelwood and make arrangement for distribution thereof; To provide fuel wood for cremation.	Arrange for timely removal of trees obstructing the movement of traffic; Arrange for timely removal of tress which have become dangerous; Make arrangement for fuel wood for the relief camps and for general public; Provide fuel wood for mass cremation etc.	To support and Supplement the efforts of the primary agency.

STANDARD OPERATING PROCEDURES FOR PERFORMING ESF

**BY
VARIOUS DEPARTMENTS**

OPERATING PROCEDURE GUIDELINES FOR FOREST DEPARTMENT

Planning Assumptions

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

Action Plan Objective in a Disaster Situation

- Forest protection

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

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.

- Establish communications with District control room and your departmental offices within the division.
- Appoint one officer as “NODAL OFFICER–Forest” at district level.
- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Fill departmental vehicles with fuel and park them in protected area.
- Check available stocks of equipments and materials which are likely to be most needed after disaster.
- Provide information to all concerned, about disasters, likely damages, and information about ways to protect the same.
- All valuable equipments and instruments should be packed in protective covering and stored in room the most damage-proof.
- Establish work schedules to ensure that the adequate staffs are available

Relief and Rehabilitation

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

- Establishment of public information center with a means of communication, to assist in providing an organized source of information. The department is responsible for keeping the community informed of its potential and limitations in disaster situations.
- The NGOs and other relief organizations should be aware of the resources of the department.
- Ensure availability of fuel and fodder for disaster effected people.

OPERATING PROCEDURE GUIDELINES FOR POLICE DEPARTMENT

Planning Assumptions

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

NORMAL TIME ACTIVITY

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

Action Plan Objective in a Disaster Situation

- Maintain Law and order

Activities on Receipt of Warning or Activation of DDMAP

- Within the district, all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officers or those on leave may be recalled.
- All personnel required for disaster management should work under the overall supervision and guidance of District Disaster Manager.
- Establish radio communications (and assist in precautionary evacuation Activities) with
 - State Emergency Operations Center
 - District control room
 - Departmental offices
- All district level officials of the department would be asked to report to the DDM
- Appoint one officer as “Officer-in-Charge-Police” at the district level
- The DDM shall provide “Officer-in-Charge- Police” or the field staff as the need be, with all needed authorizations with respect to
 - Recruiting casual labourers.
 - Procuring locally needed emergency tools and equipment and needed materials.
 - Expending funds for emergency needs.
- The “Officer-in-Charge-Police” will ensure that all field staff and other officers submit the necessary reports and statement of expenditure in a format as required by DDM
- Provide guards as needed for supply depots such as cooperative food stores and distribution centers.
- Identify anti-social elements and take necessary precautionary measures for confidence building.

Evacuation

- All evacuations will be ordered only by the DC, SP, and Fire Brigade.
- For appropriate security and law and order, evacuation should be undertaken with assistance from community leaders.

- All evacuations should be reported to DC or District Superintendent of Police immediately.

Relief and Rehabilitation

- Immediately after the disaster, dispatch officers to systematically identify and assist people and communities in life threatening situations.
- Help identify the seriously injured people, and assist the community in organizing emergency transport of seriously injured to medical treatment centers.
- Ensure that the police stations are functioning immediately after the disaster at all required locations, as may be requested by the district control room, and that staff are available for the variety of needs that will be presented.
- Assist and encourage the community in road-clearing operations.
- Identify roads to be made one-way, to be blocked, alternate routes, overall traffic management and patrolling on all highways, and other access roads to disaster site.
- Provide Security in transit and relief camps, affected villages, hospitals and medical centers and identify areas to be cordoned off.
- Transport carrying transit passengers (that is, passengers traveling through buses and passing through the district), should be diverted away from the disaster area.
- Provide security arrangements for visiting VVIPs and VIPs.
- Assist district authorities to take necessary action against hoarders, black marketers and those found manipulating relief material.
- In conjunction with other government offices, activate a public information center to:
 - Respond to personal inquiries about the safety of relatives in the affected areas
 - Compile statistics about affected communities, deaths, complaints and needs
 - Respond to the many specific needs that will be presented
 - Serve as a rumor control center
 - Reassure the public

- Make officers available to inquire into and record deaths, as there is not likely to be time nor personnel available, to carry out standard postmortem procedures.
- Monitor the needs and welfare of people sheltered in relief camps.
- Coordinate with military service personnel in the area.

OPERATING PROCEDURE GUIDELINES FOR HEALTH DEPARTMENT

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

ACTION PLAN OBJECTIVE IN A DISASTER SITUATION

- Providing efficient and quick treatment
- Preventing outbreak of epidemics

ACTIVITIES ON RECEIPT OF WARNING OR ACTIVATION OF DDMP

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officers or those on leave may be recalled.
- All personnel required for disaster management should work under the overall supervision and guidance of District Disaster Manager.

- Ensure that personnel working within the district come under the direction and control of the DDM.
- Appoint one person as “NODAL OFFICER”
- Review and update precautionary measures and procedures, and review with staff, the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Stock emergency medical equipment which may be required after a disaster.
- Determine type of injuries/illnesses expected and drugs and other medical items required, and accordingly ensure that extra supplies of medical items be obtained quickly.
- Provide information to all hospital staff about the disasters, likely damages and effects, and information about ways to protect life, equipment and property.
- Discharge all ambulatory patients whose release does not pose a health risk to them. If possible, they should be transported to their home areas.
- Non-ambulatory patients should be relocated to the safest areas within the hospital.

The safest rooms are likely to be:

- On Ground Floor
- Rooms in the center of the building away from windows
- Rooms with concrete ceilings.
- Equipment supplies such as candles, matches, lanterns and extra clothing should be provide for the comfort of the patients.
- Surgical packs should be assembled and sterilized. A large enough number should be sterilized to last four to five days. The sterilized surgical packs must be stored in protective cabinets to ensure that they do not get wet. Covering the stock with polythene is recommended as an added safety measure.
- All valuable instruments, such as surgical tools, ophthalmoscopes, portable sterilizers, CGS, dental equipments, etc., should be packed in protective coverings and store rooms considered to be the most damage-proof.
- Protect all immovable equipment, such as x-ray machines, by covering them with tarpaulins or polythene.
- All electrical equipments should be unplugged when disaster warning is received.

- Check the emergency electrical generator to ensure that it is operational and that a buffer stock of fuel exists. If an emergency generator is not available at the hospital, arrange for one on loan.
- All fracture equipment should be readied.
- If surgery is to be performed following the disaster, arrange for emergency supplies of anesthetic gases.
- Check stocks of equipments and drugs which are likely to be most needed after the disaster. These can be categorized generally as:
 - Drug used in treatment of cuts and fractures, such as tetanus oxoid, analgesics and antibiotics.
 - Drugs used for the treatment of diarrhea, water-borne diseases and flu (including oral rehydrating supplies).
 - Drugs required for treating burns and fighting infections.
 - Drugs needed for detoxication including breathing equipments.
- Assess the level of medical supplies instock, including:
 - Fissure materials
 - Surgical dressing's
 - Splints
 - Plaster rolls
 - Disposable needles and syringes
 - Local antiseptics.
- Prepare an area of the hospital for receiving large number of casualties.
- Develop emergency admission procedures (With adequate record keeping).
- Orient field staff with DDMAP, standards of services, procedures including tagging.
- Hospital administrators should
 - Establish work schedules to ensure that adequate staff are available for in-patient needs.
 - Organise in-house emergency medical teams to ensure that adequate staff are available at all times to handle emergency casualties.
 - Set up teams of doctors, nurses and dressers for visiting disaster sites.

RELIEF AND REHABILITATION

- Transport should be arranged for the transfer of seriously injured patients from villages and peripheral hospitals to general hospitals. If roads are blocked, a method should be established to request helicopter transport.
- Establish health facility and treatment centres at disaster sites.
- The provision of medical services should be coordinated by the CMO with district control room.
- Procedures should be clarified between
 - Peripheral hospitals
 - Private hospitals
 - Blood banks
 - General hospitals and
- Health services established at transit camps, relief camps and affected villages.
- Maintain checkpoints and surveillance at Transport depots and all entry and exit points from the affected area, especially during the threat or existence of an epidemic.
- An injury and disease monitoring system should be developed to ensure that a full picture of health risks is maintained.
- Monitoring should be carried out for epidemics, water and food quality and disposal of waste in transit and relief camps, feedings centers and affected villages.
- Plan for emergency accommodations for auxiliary staff from outside the area.
- Information formats and monitoring checklists should be used for programme monitoring and development and for reporting to Emergency Operations Center. This is in addition to existing reporting system in the department.
- Seek security arrangements from district police authorities to keep curious persons from entering hospital area and to protect staff from hostile actions.
- Establishment of a public information center with a means of communication to assist in providing an organized source of information. The hospital is responsible for keeping the community informed of its potential and limitations in disaster situations.
- The Local Police, rescue groups, and ambulance teams should be aware of the resources of each hospital.

STANDARDS OF SERVICE

Tagging

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

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

Red Tag

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

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

Green Tag

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

1. Second-degree burns covering more than 30 percent of the body.
2. Third-degree burns covering 10 percent of the body.
3. Burns complicated by major lesions to soft tissue or minor fractures.
4. Third –degree burns involving such critical areas as hands, factor face but with no breathing problems present.
5. Moderate loss of blood*(500-1000cc)
6. Dorsal lesions, with or without injury to the spinal column.
7. Conscious patients with significant cranio cerebral amage (serious enough to cause asubdural hematoma ormental confusion). Such patients will show one of the following signs:
 - a. Secretion of spinal fluid through ear or nose
 - b. Rapid increase in systolic pressure
 - c. Projective vomiting
 - d. Change in respiratory frequency
 - e. Pulse below 60 ppm
 - f. Swelling or bruising beneath the eyes
 - g. Anisocoric pupils
 - h. Collapse
 - i. Weakor no motor response
 - j. Weak reaction to sensory stimulation (Profound stupor)

Yellow Tag

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

1. Minor Lesions
2. Minor fractures (fingers, teeth, etc).

3. Other minor lesions, abrasions, contusions.
4. Minor burns:
 - Second-degree burns covering less than 15% of the body
 - Third degree burns covering less than 2% of the body surface
 - First-degree burns covering less than 20% of the body, excluding hands, feet, and face.
5. Fatal Injuries
 - Second and third degree with burns over more than 40 % of the body with death seeming reasonably certain.
 - Second and third degree burns over more than 40% of the body with other major lesions, as well as major cranio-cerebral lesions etc.
 - Cranial lesions with brain tissue exposed and the patient unconscious.
 - Cranio-cerebral lesions where the patient unconscious and has major fractures.
 - Lesions of the spinal column with absence of sensitivity and movement.
 - Patients over 60 years old with major lesions.

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

Black Tag

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

Evacuation Procedure under the following conditions

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

Vector Control Standards

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

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

Suggested Vector Surveillance Equipment and Supplies

- Collecting Bags
- Collecting forms
- Mouth or battery powered aspirations
- Tea strainer
- Flashlight and spare batteries
- Grease pencil
- Memo pad

- Sweep net
- Pencil
- Tweezers
- White enameled dipper
- Keys and other references
- Labels
- CDC lighttraps (Optional)
- Collecting vials
- Aedesaegypti Ovi trap (Optional)
- Bulbsyringe or medicine ropper
- Fly grill
- Mirror

Suggested Rodent Surveillance Equipment and Supplies

- Teaching aids
- Transfer bags
- Plastic bags
- Vials
- Plastic cups
- Alcohol
- Rubber bands
- Forceps
- Scissors
- Insecticidedusting pan
- Snap traps
- Formal dehyde
- Live Traps
- Acuter odenticides
- Gloves
- Anti Coagulantrodenticides
- Flashlight sand batteries

Materials and equipment

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

1.	Equipment for pediatric intravenous use	36
2.	Tensiometers for children and adults	12
3.	Assorted ferrules Boxes	2
4.	Tracheal cannulae	36
5.	Set of laryngos copes for infants, children And adults	1 each
6.	Endotracheal tubes, No.7 Murphy	36
7.	Endotracheal tubes, No.8	36
8.	Nasogastric probes	36
9.	Oxygen masks, for adults and children	2
10.	Large scissors for cutting bandages	3
11.	Plastic linings	60
12.	Phonendo scopes	15

Sterilization Unit Supplies

1.	Tracheotomy set	6
2.	Thorachotomy set	6
3.	Venous dissection set	6
4.	Set for small sutures	1
5.	Bottles for drainage of thorax	1
6.	Hand scissors No.4	6
7.	Syringes(disposables)x2cc	6
8.	Syringes(disposables) x10cc	9
9.	Syringes(disposables)x50cc	6

Ambulance Fleet

The ambulances will carry the following equipment:

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

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

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

Power sprayers	2
Hand-pressured sprayers, capacity 20-30 litres	50
Dusters(hand-operated,plunger type)	50
Dusters(power-operated)	2
Space sprayer	1

Adequate supply of accessories and spare parts for the above equipment

o Insecticides:

DDT, technical powder	0.5 tons
DDT, 75% water wettable	1-2 tons
DDT, 10% powder	1 ton
Dieldrin, 0.625 – 1.25 % emulsifiable concentrates	
Or wet table power	100 Kg
Lindane, 0.5 % emulsifiable concentrates	
Or wet table power	100 Kg

Chlordane, 2% emulsifiable concentrate	
Or wet table power	100 Kg
Malathion, 1% emulsifiable concentrates	
Or wet table power	100Kg
Dichlorvos emulsion	100litres
Rodenticides, anticoagulant type (warfarin, etc.)	1-2Kg
Rodent traps	100
Screen for fly control	10rolls
Garbagecans, capacity 50-100 litres	300-500
<i>a*Quantity depends on availability and on distribution points</i>	

OPERATING PROCEDURE GUIDELINES FOR IRRIGATION AND PUBLIC HEALTH DEPARTMENT

Planning Assumptions

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

Normal Time Activity

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

Action Plan Objective in a Disaster Situation

- Restoration of water supply to the affected area
- Monitor flood situation
- Monitor and protect irrigation infrastructure
- Restore damaged infrastructure

Activities on Receipt of Warning or Activation of DDMP

- Within the affected district/sub-division all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with Emergency operations Centre at State HQ, District
- Control Room and your departmental and field offices within the division.
- Appoint one officer as “Officer-in-Charge–Water Supply and Irrigation” at district level.

- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Fill departmental vehicles with fuel and park them in protected area.
- Make sure that the hospital storage tank is full and hospital is conserving water.
- Inform people to store an emergency supply of drinking water.
- Organize on the receipt of disaster warning continuous monitoring of
 - Wells
 - Intake structures
 - Pumping stations
 - Buildings above ground
 - Pumping mains
 - The treatment plant
 - Bunds of Dams
 - Irrigation Channels
- The inlet and outlet to tanks should be inspected to ensure that water ways are unobstructed by trees and vegetation.
- Any repairs/underconstruction activity should be well secured with sand bags, rock falls, etc.

Relief and Rehabilitation

- Carry out emergency repair of all damages to water supply system.
- Assist health authorities to identify appropriate source of potable water.
- Identify unacceptable water sources and take necessary precautions to ensure that no water is accessed from such sources, either by sealing such arrangements or by posting department guards.
- Arrange for alternate water supply and storage in all transit camps, feeding centers, relief camps, cattle camps, and also the affected areas, till normal water supply is restored.
- Ensure that potable water supply is restored as per the standards and procedures laid down in “Standards of Potable Water”.

- Continue round the clock inspection and repair of bunds of dams, irrigation channels, control gates and overflow channels.
- Continue round the clock inspection and repair of pumps, generators, motor equipment and station building.
- Plan for emergency accommodations from staff from outside the area.
- Report all activities to the head office.

On the recommendations of “NODAL OFFICER– “WaterSupply”/DeputyCommissioner/District

Control Room

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

Standards of Services

Water Supply

Piped Water

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

Private System (open well or tube)

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

Springs and wells (non-private)

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

health worker, should provide information on source of contamination, geological structures (with particular reference to over lying soil and rock formations) quality and quantity of ground water, direction of flow etc.

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

Surface water

- Surface water should be used as source of water supply only as a last resort.

- Measures should be taken to protect the water shed from pollution by animals and people. As it is usually difficult to enforce control regulations, the point of intake for water supply should be located above any tributary carrying grossly contaminated water. The pump intake should be screened and placed so that it will not take in mud from the stream bed or floating debris. The device can be something extremely simple, such as perforated drum fixed in the middle of the stream.

Treatment

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

Disinfection

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

Methods of chlorination

Gas chlorinator

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

Hypo chlorinators

- These are less heavy than gas chlorinator and more adaptable to emergency disinfection. Generally, they use a solution of calcium hypochlorite or chlorinated lime in water and discharge it into a water pipe or reservoir. They can be driven by electric motors or petrol engines and their output can be adjusted.
- Hypochlorinators are small and easy to install. They consist usually of a diaphragm pump and standard accessories, including one or more rubber-lined, solution tanks and a chlorine residual testing set. The usual strength of solution is 0.1% and it seldom rises above 0.5%

The Batch Method

□ In the absence of the chlorinators, water is disinfected by batch method. This method is more likely to be used in emergencies. It involves applying a predetermined volume of chlorine solution of known strength to a fixed volume of water by means of some gravity arrangements. The strength of the batch solution should not be more than 0.65% of chlorine by weight as this is about the limit of solubility of chlorine at ordinary temperatures. For example 10g of ordinary bleaching powder (25% strength) dissolved in 5 litres of water gives a stock solution of 500mg/litre. For disinfection of drinking water, one volume of the stock solution added to 100 volumes of water gives a concentration of 5mg/litre. If after 30 minutes contact the chlorine residual is more than 0.5mg/litre this dosage could be reduced.

□ After the necessary contact period, excess chlorine can be removed to improve the taste by such chemicals as sulphur dioxide, activated carbon, or sodium thiosulphate. The first two are suitable for permanent installations, whereas sodium thiosulphate is more suitable for use in emergency chlorination. One tablet containing 0.5g of anhydrous sodium thiosulphate will remove 1mg/litre of chlorine from 500 litres of water.

Continuous Chlorination

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

Filtration-Disinfection

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

Physical Protection

- In disaster situation, physical protection of water supplies for use, is a major consideration. In addition to such barriers as walls and fences, guards may be necessary to prevent mobs from overrunning and damaging treatment units, pumping stations,

tankers, distribution stations, and temporary collection facilities. Intake structures, wells and springs should also be protected against misuse. The character and extent of such protection will depend on the local situation.

Ice Supply

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

Coagulation-Disinfection

- Removal of the organic matter greatly lessens the amount of chlorine needed for disinfection. There are many factors that govern the coagulation process. These include:
 1. Hydrogen-ion concentration. The optimum pH value for coagulation is the value that the best floc formation and setting. The pH value of water changes when coagulants are used and has to be adjusted to its optimum value by addition of alkali or acids.
 2. Mixing. Coagulants must be thoroughly mixed with the water to give satisfactory results. This may be accomplished by (a) pump action, where by the coagulant solution is added to the suction pipe of the pump and pump does the mixing; (b) the drip bottle method i.e. hanging a drip-bottle over the discharge pipe or hose of raw water that feeds the tank and letting the coagulant solution drip onto the water jet; or (c) dissolution, i.e. allowing the discharge of raw water to splash on to a basket containing solid coagulant.

3. Coagulant dosage. The amount of the coagulant and chemicals required to adjust the pH value of water may be calculated when the pH and the type of alkalinity are known. However the optimum dosage for given water may be determined approximately using the jar test.

Coagulation-Filtration-Disinfection

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

OPERATING PROCEDURE GUIDELINES FOR ANIMAL HUSBANDRY DEPARTMENT

Planning Assumptions

- There is no substitute for maintaining standards of services and regular maintenance during normal times. This affects the response of the department to any disaster situation.
- Operating procedures for mobilizing community participation during various stages of disaster management have been given in section on “Areas of Community Participation”. The department is required to study these and adopt appropriate measures to ensure that community participates substantially.

- For effective preparedness, the department must have a disaster response plan or Disaster response procedures clearly defined in order to avoid confusion, improve efficiency in cost and time.
- Orientation and training for disaster response plan and procedures accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during emergency operations need to be imparted to the officials and the staff. Select personnel can be deputed for training as “NODAL OFFICER– Veterinary Services” at district level respectively.
- To the extent possible, preventive measures as recommended in the preparedness and mitigation document of DDMAP should be undertaken to improve departmental capacity respond to a disaster.
- Hospital staff be aware of damage–proof hospital rooms/buildings.
- A stand by generator be made available for every hospital
- At least one kerosene–powered refrigeration unit be made available for storage of drugs.
- Orientation and training for disaster response plan and procedures, accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during disaster situation need to be imparted to the officials and the staff.
- To the extent possible, preventive measures as recommended in the preparedness and mitigation document of DMAP should be communicated to the community to prevent extensive loss of livestock.

Action Plan Objective in a Disaster Situation

- Treatment of injured cattle.
- Protection and care of abandoned/lost cattle.

Activities on Receipt of Warning or Activation of DDMAP

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with

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

Relief and Rehabilitation

- Organise transfer of injured livestock from village to veterinary aid centres wherever possible
- The provision of medical services should be coordinated by Nodal Officer-Veterinary Services with District Control Room, and cattle camps.
- Establish cattle camps and additional veterinary aid centres at disaster sites and designate an Officer-in-Charge for the camp.

- Estimate the requirement of water, fodder and animal feed, for cattle camps and organise the same.
- Ensure the adequate sanitary conditions though cleaning operations are maintained in order to avoid outbreak of any epidemic.
- An injury and disease monitoring system should be developed, to ensure that a full picture of risks is maintained.
- Plan for emergency accommodations for veterinary staff from outside the area.
- Information formats and monitoring checklists as given in Annexure should be used for programme monitoring and development and for reporting to Emergency Operations Centre. This is in addition to existing reporting system in the department.
- Establishment of public information centre with a means of communication, to assist in providing an organized source of information. The hospital is responsible for keeping the community informed of its potential and limitations, in disaster situations.
- The local police and rescue group should be aware of there sources of each veterinary aid centre and hospital.
- Provide information to all staff of veterinary hospital and centres about the disaster likely damages and effects, and information about ways to protect life, equipment and property.
- Surgical packs should be assembled and sterilized.
- Enough stock of surgical packs should be sterilized to last for four to five days.
- The sterilized packs must be stored in protective cabinets to ensure that they do not get wet. Covering the stock with polythene is recommended as an added safety measure.
- All valuable equipments and instruments should be packed in protective coverings and stored in room the most damage-proof.
- Check the emergency electrical generators, to ensure that it is operational, and that a buffer stock of fuel exists. If an emergency generator is not available at the hospital, arrange for one on loan.
- Arrange for emergency supplies anesthetic drugs.
- Check stocks of equipment and drugs, which are likely to be most needed after disaster.
- Fill hospitals storage tanks and encourage water savings. If no storage tank exists, water for drinking should be drawn in clean container and protected.
- Prepare an area of hospital for receiving large number of injured livestock.

- Develop emergency admission procedure (with adequate record keeping).
- Cattle camps and hospital administrator should
 - ☐ Establish work schedules to ensure that adequate staffs are available
 - ☐ Set up teams of veterinary doctors, and assistants for visiting disaster sites.

Standards for Cattle Camps

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

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

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

OPERATING PROCEDURE GUIDELINES FOR PWD DEPARTMENT

Planning Assumptions

- There is no substitute for maintaining standards of services and regular maintenance during normal times. This affects the response of the department to any disaster situation.

- The department is required to adopt appropriate measures to ensure that the community participates substantially.
- For effective preparedness, the department must have a disaster response plan or disaster response procedures clearly defined in order to avoid confusion, improve efficiency in cost and time.
- Orientation and training for disaster response plan and procedures accompanied by simulated exercise will keep the department prepared for such eventualities. Special skills required during emergency operations need to be imparted to the official and the staff. Select personnel can be deputed for training as “NODAL OFFICER–PWD” at district level respectively.
- To the extent possible, preventive measures as recommended in the preparedness and mitigation document of DDMP should be undertaken to improve departmental capacity to respond to a disaster.

Action Plan Objective in a Disaster Situation

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

Activities on Receipt of Warning or Activation of DDMP

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

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

Relief and Rehabilitation

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

STANDARDS FOR RELIEF CAMPS

Tent Camps

- The layout of the site should meet the following specifications.

1. 3-4 hectares of land/1000 peoples
 2. Roads of 10 meters width
 3. Minimum distance between edge of roads and tents of 2mtrs.
 4. Minimum distance between tents of 8mtrs.
 5. Minimum floor area/tent of 3 square meters per person.
- Water distribution incamp sites consists of
 1. Minimum capacity of tanks of 200 litres
 2. Minimum capacity per capita of 15liters/day
 3. Maximum distance of tanks from farthest tent of 100 meters.
 - Solid waste disposal containers intent camps should be
 1. Water proof
 2. Insect-proof and
 3. Rodent-proof
 4. The waste should be covered tightly with a plastic or metallic lid
 5. The final disposal should be by in cineration or by burial.
 - The capacities of solid waste units should be, 1 litre/4-8 tents; or 50-100 litres/25-50 persons.
 - Excreta and liquid waste should be disposed in bore-holed or deep trench latrines intent camps. Specifications for these are:
 1. 30-50 meters from tents.
 2. 1 seat provided/10 persons
 3. Modified soakage pits should be used for waste water by replacing layers of earth and small pebbles with layers of straw, grass or small twigs. These need to be removed on a daily basis and burned.

Buildings

Buildings used for accommodating disaster victims should provide the following:

1. Minimum floor area of 3.5sq.meters/person
2. Minimum air space of 10sq. meters/person
3. Minimum air space circulation of 30 cubic meters/person/hour and
4. There should be separate washing blocks for men and women.

5. Washing facilities to be provided are:

- 1 handbasin/10 persons
- 1 wash bench of 4-5meters/100 persons and 1 shower head/50 persons in temperate climates

6. Toilet accommodation in buildings housing displaced persons, should meet these requirements:

- 1 seat/25 women
- 1 seat plus 1 urinal/35 men
- Maximum distance from building of 50 meters

7. Refuse containers are to be plastic or metallic and should have closed lids. To be provided are:

- 1 container of 50-100 liters capacity/25-50 persons

OPERATING PROCEDURE GUIDELINES FOR HPSEB

Planning Assumptions

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

and mitigation document of DDMAP, should be undertaken to improve departmental capacity to respond to a disaster.

Normal Time Activities

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

Action Plan Objective in a Disaster Situation

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

Activities on Receipt of Warning or Activation of DMAP

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with District control room and your departmental offices within the division.
- All district level officials of the department would be asked to report to the Deputy Commissioner/ DDM.
- Appoint one officer as “NODAL OFFICER– Power Supply” at district level.
- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Assist the state authorities to make arrangements for stand by generators in the following public service offices from the time of receipt of alert warning

- Hospitals
- Water Supply Stations
- Collectorate
- Policestations
- Tele communications buildings
- Fill departmental vehicles with fuel and park them in a protected area.
- Check emergency tool kits, assembling any additional equipment needed.
- Immediately undertake inspection from the time of receipt of alert warning of
 - High tension lines
 - Towers
 - Sub stations
 - Transformers
 - Insulators
 - Poles and
 - Other equipments
- Review the total extent of the damage to power supply installations by reconnaissance flight, if possible.

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

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

Relief and Rehabilitation

- Hire casual labourers on an emergency basis for clearing of damaged poles and salvage of conductors and insulators.
- Begin repair/reconstruction
- Assist hospital in establishing emergency supply by assembling generators and other emergency equipments, if necessary.
- Establish temporary electricity supplies for other key public facilities, public water systems, etc.

- Establish temporary electricity supplies for transit camps, feeding centres, relief camps, district control room and on access roads to the same.
- Establish temporary electricity supplies for relief material godowns.
- Compile an itemized assessment of damage, from reports made by various electrical receiving centres and sub-centres.
- Report all activities to the head office.
- Plan for emergency accommodations for staff from outside the area.

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

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

OPERATING PROCEDURE GUIDELINES FOR AGRICULTURE DEPARTMENT

Planning Assumptions

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

and mitigation document of DDMAP should be communicated to the community to prevent extensive loss of crops and plantations.

Action Plan Objective in a Disaster Situation

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

Activities on Receipt of Warning or Activation of DDMAP

- Within the affected district all available personnel will be made available to the District Disaster Manager. If more personnel are required, then out of station officer or those on leave may be recalled.
- All personnel required for Disaster Management should work under the overall supervision and guidance of District Disaster Manager.
- Establish communications with District control room and your departmental offices within the division.
- Appoint one officer as “NODAL OFFICER–Agriculture” at district level.
- Review and update precautionary measures and procedures and review with staff the precautions that have been taken to protect equipment and the post-disaster procedures to be followed.
- Fill departmental vehicles with fuel and park them in a protected area.
- Check available stocks of equipments and materials which are likely to be most needed after disaster.
- Stock agricultural equipments which may be required after disaster
- Determine what damage, pests of diseases may be expected, and what drugs and other insecticides items will be required, in addition to requirement of setting up extension terms for crop protection, and accordingly ensure that extra supplies and materials, be obtained quickly.
- Provide information to all concerned, about disasters, likely damages to crops and plantations, and information about ways to protect the same.

- All valuable equipments and instruments should be packed in protective covering and stored in room the most damage-proof.
- All electrical equipments should be unplugged when disaster warning is received.
- Extension officers should be assisted to
 - Establish work schedules to ensure that the adequate staff are available
 - Setup the teams of extension personnel and assistants for disaster sites.

Relief and Rehabilitation

- Assess the extent of damage to soil, crop, plantation, micro-irrigation systems and storage facilities and the requirements for replantation or salvaging
- Make extensive use of soil and water testing laboratories
- Provision of agricultural services should be coordinated with irrigation department, DRDA, District Control Room
- Estimate the requirement of
 1. Seeds
 2. Fertilizers
 3. Pesticides and labour
- Organise transport, storage and distribution of the above with adequate record keeping procedures
- Ensure that the adequate conditions through cleaning operations are maintained to avoid water-logging and salinity in the lowlying areas.
- A pests and disease monitoring system should be developed to ensure that a full picture of risks is maintained.
- Plan for emergency accommodations for agriculture staff from outside the area.
- Information formats and monitoring checklists as given in section on “Information and Monitoring Tools” should be used for programme monitoring and development and for reporting to DCR. This is in addition to existing reporting system in the department.
- Establishment of a public information center with a means of communication, to assist in providing an organized source of information. The department is

responsible for keeping the community informed of its potential and limitations in disaster situations.

- The NGOs and other relief organizations should be aware of the resources of the department.
- Assist farmer store-establish their contacts with agriculture produce market and ensure that appropriate prices to offer to them.

Annexure - N

First Information Report

Name of the District

Date of Report

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

ANNEXURE –O

RAPID ASSESSMENT FORMAT FOR DISASTER MANAGEMENT TEAM

[Aim to determine immediate response of the locality]

Type of Disaster _____; Date _____;

Time _____;

Team

Member _____

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

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

13.Health Facilities (a) Infrastructure damaged - Hospitals - Health Centers - Vaccination Centers (b) Availability of Doctors - In the area - In the district (c) Availability of Paramedical staff - In the area - In the district (d) Local Staff affected - Doctors - Paramedical Staff (e) Conditions of equipments Specify which equipments (f) Availability of medicines/drugs - Typology (g) Availability of Vaccinations - Typology (h) Any immunization campaign was undertaken before the disaster (i) Possibility of diseases outbreak (j) Other health problems	Number Scale 1 to5 where 1 is no damages and 5 is Completely destroyed Number Number Number Scale 1 to 5 where 1 is no damages and 5 is completely destroyed Yes/No Yes/No Yes/No Yes/No
14.Water Sanitation (a) Availability of safe drinking water (b) Availability of sanitation facilities (c) Availability of Disinfectant - Typology (d) Damages to the Water/Sewage systems (e) Damages to the water supply system (f) Availability of portable water system (g) Agencies participating in WATSAN	Yes/No Yes/No Yes/No Scale 1 to 5 where 1 is no damages and 5 is completely destroyed Yes/No List
15.Crops/Agriculture Damage (a) Crop Damaged - Typology - % Of Hectare damaged - In Upland/medium/low - Paddy or Non paddy - Irrigated or non-irrigated (b) Normal and actual rainfall assessment (c) Livestock loss (d) Availability of Health services for livestock (e) Cattle feed/folder availability (f) Damage to agriculture infrastructure	Mm Number Yes/No Number Tonnes Scale 1 to 5 where 1 is no damages and 5 is completely destroyed

16.Food/Nutrition (a) Availability of food/stocks (1) Family (2) Relief (3) PDS (4) Community Kitchen (b) Expected duration of the food stock (c) Most affected groups - Infant - Children - Pregnant and lactating mothers - Elderly (d) Where are the different groups located? (e) Levels of malnutrition? (f) Type of food required (g) Total quantity/ration levels required (h) How is the food supply and nutrition situation likely to evolve incoming weeks/months?	Yes/No Kg Tonnes Tonnes Kg Days To be ticked Days To be ticked
17. Secondary Threats (a) Potentially hazard oussites (b) Existence of epidemics (c) Scarcity of Food (d) Scarcity of Water (e) Scarcity of Shelter (f) Scarcity of Clothes (g) Anyother problem	List
18.Response (a) <u>Local:</u> Govt./NGOs/CSOs/Individuals Type of assistance (b) <u>National:</u> Govt./NGOs/CSOs Type of assistance (c) <u>International:</u>Govt./NGOs/CSOs Type of assistance	To be ticked Description To be ticked Description To be ticked Description
19. Logistic and Distribution system (a) Availability of Storage facilities (b) Means of transport available (c) Availability of Fuel (d) Are there any distribution criteria already in place Availability of Manpower	Yes/No List Yes/No Yes/No Yes/No

20. Priority of Needs	
Search and Rescue:	
(a) Need of Search and Rescue	Yes/No
- Locally available	
- Needed for neighbouring districts	
- Needed for neighbouring states (indicate from where)	
(b) Need of transportation and equipments:	
- Boats	
- Any other transportation (specify)	
- Special equipments (specify)	
- Heavy equipments (specify)	
(c) Need of shelter	
- Temporary	
- Permanents	
(d)Clothing:	Estimated Quantity
(a) Children Clothing	
(b) Adult Clothing	
(c) Winter Clothing	
(d) Blankets	
(e) Bed Sheets	
1.1 Food item:	
(a)Pulses	
(b) Grain	
(c) Baby Food	
(d) Specialised food	
(e) Cattle feeds/fodder	
1.2 Water/sanitation:	
(a) Portable water	
(b) Chlorine powder and disinfectant	
(c) Latrine	
(d) Soap	
(e) Detergent	
(f) Insecticides	
(g) Disinfestations of water body	
(h) Manpower for carcass disposal	

1.3 Health: (a) Medical staff (b) Medicines (specify) (c) IV fluid (d) ORS (e) Vitamin A (f) Vaccines (g) Mobile units (quantity to be specified) (h) Cold chain system 1.4 Education: (a) Infrastructure temporary/permanent (b) Teachers (c) Teachers kits (d) Reading materials (e) Availability of mid-daymeal 1.5 Crop/Agriculture (a) Need of seeds (b) Fertilizer, Pesticide (c) Type of Seed required (d) Availability of local variety (e) Availability of resources 1.6 Infrastructure: (a) Repair of roads (b) Repair of railways and bridges (c) Power Supply (d) Tele communication (e) Equipments required for restoration (f) Manpower required	List Yes/No and specify location Yes/No and specify location List Number of Man days
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- **Observation:**
- **Source of information:**
- **Site Visit:**
- **Interaction with affected population:**
- **Assessment Carried By:**

Annexure - P

GUIDELINES FOR REQUISITIONING OF ARMED FORCES IN AID OF CIVIL ADMINISTRATION

Procedure for Provision of Aid

1. The Armed Forces are conscious of not only their constitutional responsibility in-aid to civil authority, but also, more importantly, the aspirations and the hopes of the people. Although such assistance is part of their secondary role, once the Army steps in, personnel in uniform whole heartedly immerse themselves in the tasks in accordance with the Army's credo-**SERVICE BEFORE SELF**.
2. Assistance during a disaster situation is to be provided by the Defence Services with the approval and on orders of the central government. In case, the request for aid is of an emergency nature, where government sanctions for assistance is not practicable, local military authorities when approached for assistance should provide the same. This will be reported immediately to respective Services Headquarters (Operations Directorate) and normal channels taken recourse to, as early as possible.

Requisition Procedure

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

Coordination

4. The responsibility for coordination of disaster relief operations at various levels is as follows:
 - a) Inter-service Coordination at Central Level: Cabinet secretariat (Military Wing). A

case force-opting a Tri Service RRF to cater for emergency situations within India and in the region is under consideration of COSC. This JCC would be responsible for coordination and direct in gall rescue/relief operations to ensure synergy of efforts of all three services in management of disasters.

- b) Service Headquarters
 - (i) Military Operations Directorate (MI-6) at Army Headquarters
 - (ii) Director of Naval operations at naval head quarters
 - (iii) Directorate of Operations (Transport and Maritime) at Air Head quarters
- c) Command and Lower Formation Headquarters: Senior General Staff Officers (Operations)
- d) State Level: Service liaison officer deputed to form a part of Joint Control Centre.
- e) Local Level: Nominated Commander of troops and seni or civil administratorin-charge of relief.

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

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

Disaster Relief Operation

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

Procedure to Requisition Army, and Air Force

- 7. It will be ensured by the local administration that all local resources including Home Guards, Police and others are fully utilised before assistance is sought from outside. The District Collector will assess the situation and project his requirements to the State Government. District Control Room will ensure that updated information is regularly communicated to the State Control Room, Defence Service establishments and other concerned agencies.
- 8. District Collector will apprise the State Government of additional requirements through State Control Room and Relief Commissioner of the State.
- 9. Additional assistance required for relief operations will be released to the District Collector from the state resources. If it is felt that the situation is beyond the control of state administration, the Relief commissioner will approach the Chief Secretary to get the aid from the Defence Services. Based on the final assessment, the Chief Secretary will project the requirement as under while approaching the Ministry of Defence, Government of India simultaneously for clearance of the aid:

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

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

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

10. Co-Ordination between Civil and Army: For deployment of the Army along with civil agencies on disaster relief, co-ordination should be carried out by the district civil authorities and not by the departmental heads of the line departments like Police, Health & Family Welfare, PWD and PHED etc.
11. Overall Responsibility When Navy and Air Force are also being Employed: When Navy and Air Force are also involved in disaster relief along with the Army, the Army will remain over all responsible for the tasks unless specified otherwise.
12. Principles of Employment of Armed Forces
 - a) **Judicious Use of Armed Forces:** Assistance by Armed Forces should be requisitioned only when it becomes absolutely necessary and when the situation cannot be handled by the civil administration from within its resources. However, this does not imply that the response must be graduated. If the scale of disaster so dictates, all available resources must be requisitioned simultaneously.
 - b) **Immediate Response:** When natural and other calamities occur, the speed for rendering aid is of paramount importance. It is clear that, under such circumstances, prior sanction for assistance may not always be forth coming. In such cases, when approached for assistance, the Army should provide the same without delay. No separate Government approval for aid rendered in connection with assistance during natural disaster sand other calamities is necessary.
 - c) **Command of Troops:** Army units while operating under these circumstances continue to be under command of their own commanders, and assistance rendered

is based on task basis.

- d) **No Menial Tasks:** While assigning tasks to troops, it must be rendered that they are not employed for menial tasks e.g. troops must not be utilised for disposal of dead bodies.
- e) **Requisition of Aid on Task Basis:** While requisitioning the Army, the assistance should not be asked for in terms of number of columns, engineers and medical teams. Instead, the-civil administration should spell out tasks, and leave it to Army authorities to decide on the force level, equipment and methodologies to tackle the situation.
- f) **Regular Liaison and Co-ordination:** In order to ensure that optimum benefits derived out of Armed Forces employment, regular liaison and coordination needs to be done at all levels and contingency plans made and disseminated to the lowest level of civil administration and the Army.
- g) **Advance Planning and Training:** Army formations located in areas prone to disaster must have detailed plans worked out to cater for all possible contingencies. Troops should be well briefed and kept ready to meet any contingency. Use of the Vulnerability Atlas where available must be made.
- h) **Integration of all Available Resources:** All available resources, equipment, accommodation and medical resources with civil administration, civil firms and NGOs need to be taken into account while evolving disaster relief plans. All the resources should be integrated to achieve optimum results. Assistance from outside agencies can be super imposed on the available resources.
- i) **Early De-requisitioning:** Soon after the situation in a disaster-affected area has been brought under control of the civil administration, Armed Forces should be de-requisitioned.

REQUISITION FOR ARMY AID BY CIVIL AUTHORITIES

(NATURAL CALAMITIES)

Reference No. : Calamities

1. **From** :

2. **To** :

3. **For Information-**

4. **Date and time origination of demand-**

5. **Situation as at area** _____ **an**
Heavy flood in area _____ due rising of
rigor civilians marooned. Own evacuation resources **insufficient** to meet the requirement. In
view of continuous heavy, rains in upper regions, more areas may be affected marooning other
civilians of region.

6. **Type of extent of aid required for**

- (i) Equipment and personal, to evacuate marooned civil.
- (ii) Medical assistance for approximately _____ civilians.
- (iii) Tentage for _____ families' if available.

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

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

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

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

Mr. _____(Telephone No)_____

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

Mr. _____will meet Army aid part at_____on receipt of
information from Army authorities.

11. **Special Instructions**

(i) School building at _____being made available

to house personnel and also for medical arrangements.

(ii) Sufficient stocks of required medicines in the present contingency being made available
to treat effected civilians population.

(iii) Road Bridge at _____is unserviceable.

12. Please acknowledge.

Office Seal

Signature

DE-REQUISITION OF ARMY AID (NATUAL CALAMITIES)

1. Reference No.

Date:

2. From -

3. To -

4. Information -

5. Army aid requisitioned vides our reference no. _____ of
_____ is hereby de-requisitioned with effect from
_____ Hrs on _____.

6. Please acknowledge.

Office Seal

Signature

Appointment