



GOVERNMENT OF HIMACHAL PRADESH
DEPARTMENT OF REVENUE

H P Disaster Management and Relief Manual
(2012)

Disaster Management Cell (DMC),
Himachal Pradesh

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(Approved by the State Cabinet on 9th July, 2012)

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**Disaster Management Cell (DMC),
Himachal Pradesh**



PREFACE


Himachal Pradesh lies in a geographic zone which is prone to numerous hazards. The Kangra earthquake of 1905 brings up horrendous images of devastation and suffering. While the possibility of a severe earthquake in the state is an ever present danger, we have escaped this eventuality for over 100 years. It is the occurrence of less devastating but more frequent calamities like flash floods, landslides, avalanches, fires and accidents and the necessity of disbursing immediate relief that occupy our attention and have been the focus of our efforts.

The entire approach to natural calamities has in recent times changed from a pure crisis management perspective to one which emphasizes risk management in even greater measure. The importance of risk management has been highlighted by events like Orissa Super Cyclone, 1999, Bhuj Earthquake, 2001, Indian Ocean Tsunami, 2004, Kashmir Earthquake, 2005, and Sikkim Earthquake, 2011. With the enactment of the Disaster Management Act, 2005 and the constitution of Authorities at the National, State and District Level, the total approach has shifted to Disaster Management and Disaster Risk Reduction with relief as one part of the total cycle. Unless preparedness measures are mainstreamed in infrastructure development and maintenance as well as in the everyday routine of government and the public at large, natural calamities will wreak havoc as their occurrence and intensity are witnessed on an increasing scale.

A shift in the emphasis and content of relief measures from the concept of administering relief as an immediate measure to save life and offer succor has also taken place. The old "Gratuitous" concept of relief is not in tune with this concept. It has been replaced by "Relief Assistance" in the form of cash and kind. Relief is now being visualized as going beyond offering immediate assistance to an awareness of social responsibility at such times.

With this changed approach and its rationale a more pro-active role is required to be performed by the District Officers in identifying the likely disasters and equipping the Government machinery and the community to handle them with minimum loss of life and damage to property. We have revised the H.P. Emergency Relief Manual and re-named it as "HP Disaster Management and Relief Manual" to reflect these new concerns and provide guidelines to field officers so that they are not caught unaware. The Manual has been divided into two parts – Disaster Management Manual and Disaster Relief Manual. This Manual should enable them to prepare their own Disaster Management Plans which can be put into operation at the first sign of a disaster.

This is a fresh attempt at a new approach in this sphere in HP. Suggestions for the improvement of the Manual will enable us to improve it further.


Deepak Sanan

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Abbreviations

BIS	–	Bureau of Indian Standards
CBOs	–	Community Based Organisations
CBRN	–	Chemical, Biological, Radiological and Nuclear
CSR	–	Corporate Social Responsibility
CRF	–	Calamity Relief Fund
CWC	-	Central Water Commission
DDMA	–	District Disaster Management Authority
DCMC	-	District Crisis Management Committee
DM	–	Disaster Management
DMC	-	Disaster Management Cell
EQR	-	Earthquake resistant
GSI	-	Geological Survey of India
GoI	–	Government of India
HFL	-	High flood level
IAG	-	Inter Agency Coordination
IMD	-	Indian Meteorology Department
IITs	–	Indian Institutes of Technology
NBC	-	National Building Codes
NCC	–	National Cadet Corps
NCCF	–	National Calamity Contingency Fund
NDMA	–	National Disaster Management Authority
NDRF	–	National Disaster Response Force
NGOs	–	Non-Governmental Organisations
NIDM	–	National Institute of Disaster Management
NIT	–	National Institutes of Technology
PRIs	–	Panchayati Raj Institutions
SAR	-	Search and Rescue
SASE	-	Snow and Avalanche Study Establishment
SCMC	-	State Crisis Management Committee
SDMA	–	State Disaster Management Authority
SDRF	–	State Disaster Response Fund
SEC	–	State Executive Committee
SOPs	–	Standard Operating Procedures
ULBs	–	Urban Local Bodies
VO	-	Voluntary Organisations

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Part I - Disaster Management Manual

Chapter – 1

Introduction

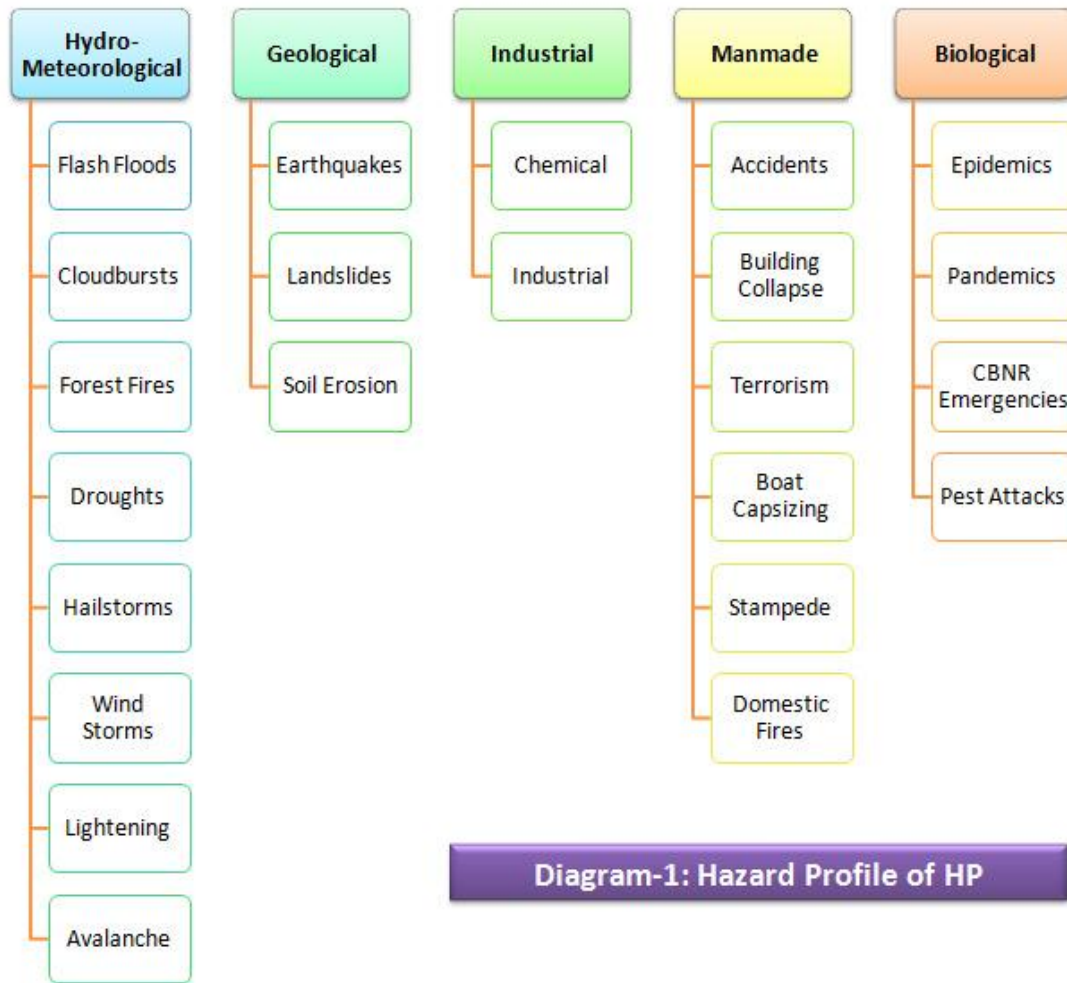
Hazard Profile of Himachal Pradesh – A Brief Overview

1.1 Himachal Pradesh is prone to various hazards both natural and manmade. Main hazards consist of earthquakes, landslides, flash floods, snow storms and avalanches, draughts, dam failures, fires- domestic and wild, accidents- road, rail, air, stampedes, boat capsizing, biological, industrial and hazardous chemicals etc. However, the hazard which poses the biggest threat to the state is that of earthquakes. Another form of the natural hazards in the state is the frequent occurrences of landslides. The hills and mountains of Himachal Pradesh are liable to suffer landslides during monsoons and also in high intensity earthquakes.

1.2 Although widespread floods problems do not exist in the state because of topographical nature, the incidences of flash floods are increasing and causing large scale damage. Besides, with the increase of road connectivity and number of vehicles plying on these roads in the State, the number of road accidents and loss of precious human lives is increasing day by day. Another major hazard that affects the state is forest fires. Over the years the forest wealth of the State is being destroyed by the incidences of fire attributed to both anthropogenic and other reasons. The destruction of rich flora and fauna of the State due to forest fires will have serious repercussions on the ecological balance of the State.

1.3 The State is known as land of Gods. Every year, large number of devotees visit temples and religious sites for pilgrimage and religious purposes. Sometimes, especially during the days of religious festivities, human stampedes pose a great risk to the lives of the devotees and tourists. In one such notable accident at the temple of Sri Naina Devi in district Bilaspur, 162 people died when a human stampede occurred on 3rd of August 2008. Possibility of such instances is always there if there is any laxity on the part of the management. Apart from the above-stated hazards, there are many instances when road accidents caused immense loss of lives. Boat-capsizing and Helicopter crash are some uncommon but not unprecedented types of anthropogenic disasters.

1.4 The diagrammatic (Diagram 1) representation of hazard profile of Himachal is as under:-



Note: Detailed hazard profile of State is available in HP SDMA Website: www.hpsdma.nic.in.

Paradigm Shift in Disaster Management

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

mitigation and preparedness-driven approach for conserving development gains and to minimize loss of life, livelihood and property.

1.6 According to Section 2 (d) of the Act "disaster means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area."

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

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

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

(The copies of the DM Act, HP DM Rules and Policy 2011 is available at: www.hpsdma.nic.in)

Role of Relief Commissioner

1.8 The State Relief Commissioner through the office of the Department of Revenue plays a direct and active role in the disaster management programme of the State. For a disaster that impacts more than one district in the State, the State Relief Commissioner may coordinate and supervise relief measures. The State Relief Commissioner either directly or through District Magistrates, co-ordinates and monitors the disaster management activities and measures using all the resources available with the State Government. The State Relief Commissioner would:

- i. Mobilise resources and response when the disaster is beyond the response capacity of the district (s);
- ii. Supervise and undertake Preparedness, Prevention and Mitigation measures, if necessary, where disaster is declared; and

- iii. Monitor rehabilitation and reconstruction work.

Role of District Collector in Disaster Management

1.9 The above definition encompasses the cycle of disaster management which has the elements of pre-disaster phase such as prevention, mitigation, preparedness and capacity building and emergency response, relief, rehabilitation and reconstruction as the post disaster management. The Act prescribes responsibilities to various authorities at all levels. The roles and responsibilities of DDMA has been elaborated in Section 30, 31, 33, and 34 of the Act. Keeping in view the provisions of the Act, the District Collector, 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 face 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.

Role of District Emergency Operation Centre

1.10 The District Collector would be assisted to perform the roles assigned to him and the DDAMA by the District Emergency Operation Centre (Control Room). 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 database of disasters and losses caused by them;
- x. Monitor preparedness measures and training activities;
- xi. Providing information at district level, local level and 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 database of trained personnel and volunteers who could be contacted at any time;
- xv. Liaise with on-site operation centre, State EOC and other emergency services.

1.11 The Additional Magistrate (Assistant Commissioner to Deputy Commissioner for Kinnaur and Lahaul & Spiti), the Nodal Officer for Disaster Management would be in-charge of the DEOC. A manual for the functioning and management of the EOCs has been prepared at the State Level and the district can refer to the manual for their use in the DEOC. It is available at: www.hpsdma.nic.in.

Role of Sub-Divisional Officer (Civil)

1.12 The Sub Divisional Officer will supervise Disaster Management operations within his jurisdiction. The Sub Divisional Officer will be in charge of disaster management in the sub division concerned. He will see that relief is being efficiently and economically administered, orders are properly carried out, provisions for medical relief, hospitals and dispensaries are adequate, special precautions are taken to guard the drinking water supply from contamination and pollution, to guard against breaking out epidemics in the disaster affected areas, that the provisions of the disaster management codes and orders of the State government are being fulfilled and that the provisions for the future is being duly made and reports properly submitted.

Role of PRIs and ULBs

1.13 The Disaster Management Act, 2005 enjoins upon the local authorities – PRIs, ULBs, etc. to render necessary assistance to the DDMA in disaster management. The Act also gives responsibility of ensuring safe construction within their respective jurisdiction. The DDMA/District Magistrate can constitute relief committee at local level and allocate responsibilities.

General Measures to be taken for Disaster Management

Pre-Disaster Activities

1.14 Generally speaking the following measure would help in dealing with disasters in the district/local level effectively:-

- a) Institutionalization of disaster management and strengthening of DM institutions.
- b) Preparation of Disaster Management Plans at District and local Level.
- c) Preparation of disaster management plans by all the departments and agencies.
- d) Implementing of Disaster Management Plans.
- e) Holding regular mock drills to test and improve and DMPs.
- f) Holding regular meetings at District and Sub-Division level to reviewing the readiness of the administrative machinery to deal with disasters.
- g) Constitution of Relief Committees at all levels.

- h) Regular training programmes of Government functionaries, PRIs, ULBs and other stakeholders in various facets of disaster management as per the TNA carried out by the Revenue Department. TNA report is available at: www.hpsdma.nic.in.
- i) Public awareness and education vis a vis all hazards.
- j) Community training and empowerment at all level.
- k) Taking preventive and mitigation measures for the identified hazards.
- l) Integration of Disaster Risk Reduction (DRR) into on-going development programmes of all departments.
- m) Setting up and strengthening of EOCs at the District level and control rooms at local level.
- n) Establishing effective early warning system for the vulnerable areas and communities.
- o) Improving the response capacities of the search and rescue teams.
- p) Establishing inter-agency group (IAG) and inter-agency coordination mechanism for effective and coordinated response.
- q) Holding regular meetings with regional response centres, CPMFs and Army.
- r) Having clear policies about post disaster rehabilitation and reconstruction.
- s) Regular and periodic updation of contact details and resource inventory.
- t) Preparing inventory of relief camps – buildings, open spaces.

Action during Disasters

1.15 The suggested guidelines have been given in the forthcoming chapters, however, the following would be the broad guidelines for actions during disasters:-

- a) Assess the full extent of the disaster/calamity and the damages/losses incurred.
- b) Plan and supervise search and rescue operations.
- c) Provision of medical treatment of the injured.
- d) Allocate clear responsibilities to the officers and provide them necessary resources along with necessary delegations.
- e) Coordination of actions of all departments, agencies, CBO, NGOs, etc.
- f) Identification of victims and beneficiaries.
- g) Finalise the relief to be provided to the affected persons and ensure its timely distribution.
- h) Disposal of unclaimed bodies and carcass.
- i) Arrangement of relief camps, if needed.
- j) Mobilise resources from outside the district if the situation so warrants.
- k) Collect and maintain full information of the disaster and steps taken to tackle it.
- l) Last but not least, keeping informing the higher authorities about the whole incident

After the Disaster

1.16 Main activities suggested for post disaster phase are:-

- a) Preparing action plan and mobilizing resources of post disaster recovery, reconstruction, if the extent of disaster is large.
- b) Documentation of disaster – nature and extent of damage for future reference and record. It should be uploaded in the DDMA website for quick reference and easy access.
- c) Documentation of lessons learnt and best practices. It should be uploaded in the DDMA website for quick reference and easy access.

1.17 In the succeeding chapters suggestive action plans for various hazards to which the State of Himachal Pradesh is vulnerable is discussed.

Chapter – 2

Earthquakes

2.1 Though numerous hazards pose threat to the State, however, the hazard which poses biggest threat to the State is the earthquake hazard. The State has been shaken by more than 80 times by earthquakes having a magnitude of 4 and above on the Richter Scale as per the recorded history of earthquakes. According to seismic zoning map of the state five districts, namely Chamba (53.2%) Hamirpur (90.9%), Kangra (98.6%), Kullu (53.1%), Mandi (97.4%) have 53 to 98.6 percent of their area liable to the severest design intensity of MSK IX or more, the remaining area of these districts being liable to the next severe intensity VIII. Two districts, Bilaspur (25.3%) and Una (37.0%) also have substantial area in MSK IX and rest in MSK VIII. The remaining districts also are liable to intensity VIII. Broadly speaking, roughly 32% of the State falls in zone V and rest of the State falls in Zone V as per the Seismic Zonation Map prepared by the Bureau of Indian Standards. Both these zones are highly susceptible to earthquake damages.

2.2 Unfortunately, inspite of the probable maximum seismic intensities being high, the house types mostly fall under Category A, consisting of walls of clay mud, unburnt bricks or random rubble masonry without any earthquake resisting features. All such houses are liable to total collapse if intensity IX or more actually occurs in future and will have severe damage called “destruction” with very large cracks and partial collapses even in Intensity VIII areas. Also, the burnt-brick houses, classified as Category B, as built in Himachal Pradesh do not have the earthquake resisting features, namely good cement mortar seismic bands and roof typing etc. therefore, they will also be liable to severe damage under intensity IX as well as in VIII whenever such an earthquake would occur. This became quite evident even in M 5.7 Dharamshala earthquake of 1986.

Action Plan for Earthquake

2.3 **Pre-Disaster Activities:** some of the activities suggested are as under:-

- i) Preparation of earthquake catalogues and epicentral and geologic-tectonic maps to be obtained from scientific organizations such as IMD, GSI, WIHG, etc.
- ii) Analysis of seismic risk and seismic zoning for general purposes may be done.
- iii) Popularization and enforcement of building codes and safe construction practices.
- iv) Training of engineers and architects in earthquake engineering principles and use of codes to be done (both government and private) through reputed Institutions such as NIT Hamirpur, CBRI Roorkee and IITs may be carried out.
- v) Promulgation building bye-laws for providing earthquake resistance feature in all new construction according to the codes may be enforced.

- vi) Development of methods for seismic strengthening of existing structure, particularly in the structures considered critical for the community may be done.
- vii) Development of simple methods for upgrading the seismic resistance of traditional non-engineered construction and their dissemination to the common builders and owners by mass communication media, demonstrations, extension work, etc. may be done.
- viii) Popularisation of earthquake insurance for the privately owned buildings and structures to reduce the economic impact may be done by public awareness.

2.4 Risk Assessment: Regular monitoring of structural integrity of public buildings, water tanks, roads, bridges, dams and other built-up structures may be done involving technical and scientific institutions such as NIT and IITs.

2.5 Public Awareness: Awareness raising, particularly in vulnerable areas, of basic safety precautions to be undertaken, at the individual and organizational levels by the District Administration by way of -

- i. Development and distribution of awareness leaflets.
- ii. Exhibitions of simple techniques may be organized to make houses earthquake resistant.
- iii. Demonstration of the Model Houses may be done.
- iv. Screening of Awareness movies/documentaries through cable and local network.

2.6 Training and Orientation: Government officers and staff needs to be trained and oriented in response measures to earthquake disasters. Training needs to be imparted to all the Government functionaries, public representatives and other stakeholders as per their respective Training Needs Assessment (TNA) carried out by the Revenue Department.

2.7 Minimising Risk: Delineation of fault zones and reduction of human activities in such areas enhancing structural integrity through measures like slope-stabilization should be done.

- a) Construction of public buildings (particularly schools, hospital buildings/community centers/ Panchayat Bhawans) and publicly funded buildings (e.g. IAY Homes) in an earthquake resistant manner should be done.
- b) Identification of public shelters e.g. schools, community buildings, etc. and equipping them with basic first-aid facilities, training of government servants/volunteers in basic first-aid measures to be done.
- c) Arrangement of involvement of Voluntary Organizations.
- d) Promote awareness of earthquake risks.
- e) Training in earthquake resistant house construction.
- f) Public education in basic response measures –what to do before, during and after an Earthquake occurs.
- g) Promotion of Ham Radio sets particularly in remote settlements (link with seismic stations) to be done.

- h) Establishment of District Hazard Safety Cell to be headed by the SE, PWD with a view to assess the earthquake resistance of existing lifeline buildings and retrofitting the same and also to ensure that the new construction (government buildings and construction in the MC areas) is as per BIS codes.

Pre-Disaster Activities

Safety of New Construction – Check list:

2.8 The following checklist should be referred to in order to ensure that the new construction adheres to safety norms and is EQR: -

- i. Whether provisions of appropriate earthquake regulations (NBC) for planning design and construction of all new engineered structures according to seismic intensity zones done?
- ii. Whether provisions of codes of Practice and Manuals for earthquake resistant construction in all non-engineered buildings done?
- iii. Whether incorporated the code provisions in an appropriate manner in building by-laws of Municipalities/local Panchayats?
- iv. Whether informed the public through the use of mass media and demonstrations regarding simple and economical earthquake resistance features for their otherwise traditional constructions done?

Safety of Existing Buildings and Structures:

2.9 For the existing buildings and infrastructure the following check-list should be followed:-

- a) Whether safety analysis carried out for dams and other appurtenant structures and strengthen them if found necessary?
- b) Whether carried out safety studies of existing bridges and incorporate appropriate retrofitting features to achieve desired earthquake resistance?
- c) Whether carried out seismic rating analysis of existing critical buildings such as hospitals, schools and other community and public buildings and to strengthen those found wanting by insertion of shear walls, bracings, cement grouting or adding buttresses or other techniques?

Post-Disaster Activities:

2.10 When the intensity of earthquake is severe and the loss caused thereby is grave, resulting in extensive damage to life and property, immediate rescue measures are required to be taken. These measures are broadly as follow:-

- a) Activation of DEOC immediately at District level, sub division level and sites level. Immediately make public the phone numbers and officers handling the control room. Ideally this should be known in advance to all and put in DDMA website.

- b) Quick assessment of damage and demarcation of damaged areas according to grade or damage to be done.
- c) Search and rescue operations, activation of public shelters.
- d) Arrangements for maintenance of law and order to be made.
- e) Arrangements for evacuation of people to be made.
- f) Recovery of dead bodies and their disposal arrangements to be done as per the guidelines issued by the NDMA (www.ndma.gov.in).
- g) Arrangements to be made for the medical care for the injured.
- h) Supply of food and water and restoration of water supply lines to be done.
- i) Temporary shelters like tents, metal sheds to be made available.
- j) Financial Assistance to the families of the victims.
- k) Financial Assistance to those whose houses have been destroyed or severely damaged.
- l) Restoring lines of communication and information flow to be made.
- m) Transport communications to be restored.
- n) Cordoning off severely damaged structures liable to collapse during aftershocks to be done.
- o) Temporary shoring of certain precariously standing buildings to avoid collapse and damage to other adjoining buildings to be done.
- p) Immediate actions to prevent certain chain-reactions from developing such as release of water from the reservoir behind a damaged dam to avoid flooding of areas if the dam fail, emptying of, containers of toxic or inflammable liquids and gases, treatment of environment for preventing spread of diseases etc. to be done.
- q) Gathering of information regarding the Earthquake's spread and damage done.
- r) Periodic press releases.
- s) Liaison with particularly army/paramilitary forces (to minimize possibility of looting).
- t) Opening of relief centers and supply of food and other basic requirements.
- u) Regulation of entry into affected area by public (issue pass).
- v) Restoration of minimum communication network.
- w) Quick relief operations to be started.(one week to one month)
- x) Shelters-established public shelters and new emergency shelters (mainly by selected agencies).
- y) Distribution of relief supplies, food, blankets, clothes, medicines as needed.

Besides, the following actions are also required to be taken:-

- i) Health surveys-preferably by VOs.
- ii) Provision of medical services particularly for the injured. Mobile units if needed to be arranged.
- iii) Establishment of hygienic and sanitary conditions in the relief villages (use bleaching powder etc.)
- iv) Restoration of basic transport facilities: (movement of two wheeler possible) at least to begin with.
- v) Distribution of basic/minimal compensation: (through proforma) using local people's representatives. (Kind-Ration/clothing/Utensils).

- vi) Establishment of a District level Relief and Rehabilitation Cell with government and non-government representatives.
- vii) Rapid damage assessment (up to 3 or 4 months): Basically to determine compensation due.
- viii) Announcement of relief-rehabilitation policy/package (state level).
- ix) Reconstruction (owner-driven) up to 2 years.
- x) Informing people of rehabilitation policy/package through media.
- xi) Sandesh Yatras, exhibitions, posters displays orientation meetings at village level by VOs on Rehabilitation package and EQR housing construction and repairs.
- xii) Training programmes for house-owners administrative staff (engineers) and masons if necessary-by government and non-government agencies to be arranged.
- xiii) Full restoration of transport and communication networks.
- xiv) Work on restoring structural integrity of built environment, particularly roads, embankments, slopes.
- xv) Collection of scientific data from field observations as well as from instrumentation specially deployed in the affected areas to monitor the aftershocks to be done.
- xvi) Preparation of proposals about reconstruction requirements and strategy to be adopted and whether reconstruction opportunity could also be utilized for affecting socio-economic development of the damaged area to done.
- xvii) To be ensured that we don't re-build the existing vulnerability during the reconstruction process. "Build-back better" should be the moto to be followed.

Chapter - 3

Drought

3.1 Drought is a “creeping disaster” thus emphasizing that a situation of drought develops gradually giving sufficient warning of its converge and extent of intensity unlike flash floods, earthquake, avalanche which offer little or no time for response. To mitigate the impact of drought the following measure should be taken.

Early Warning and timely Action

3.2 Drought is a slow onset natural disaster and it offers time and opportunity to mitigate its impact. Drought connotes a situation of scarcity and distress usually caused by prolonged failure of rain affecting seriously the agricultural activities leading to loss of production and employment, drinking water shortages, deficiency in fodder supply. The following measures are suggested:-

- a) Keep a close watch on the behaviour of the monsoon
- b) The Relief Advisory Committee constituted vide Government order dated 18th May, 1990 will meet in the month of March and assess the probable rainfall on the basis of data received from the IMD.
- c) On the basis of the data so received, the Agriculture Department should suggest a contingency plan for agriculture which may include the following:-
 - i) Suggesting crop life-saving techniques like water harvesting and moisture stress alleviation practices, to the farmers by holding camps and distributing literature.
 - ii) Depending upon dynamics of weather conditions a plan operation for alternate crop may be kept ready and farmers should be educated in time so that they can sow a crop which needs less water.

3.3 Drought though not a regular phenomenon in the State it keeps affecting parts of the state with varying intensity intermittently. Hence it is imperative to give suggestive guidelines to the district officers to deal with drought.

- Causes:**
- (i) Failure of Monsoons.
 - (ii) Lack of irrigation facility
 - (iii) Non-harvesting rain water/snow

Indicators of Drought:

3.4 Key indicators of drought are as under:-

- i. Low storage in Reservoirs.
- ii. Poor recharge of ground aquifers.
- iii. Wells drying up.
- iv. Considerable reduced discharge in natural sources
- v. Wilting of crops.
- vi. Season: March to June/ October till monsoon.
- vii. Meteorological drought – inadequate rainfall. Uncertainty, a long dry spells, unequal distribution.
- viii. Hydrological drought-water scarcity, lowering of the ground water, table, depletion of water resources, drying up of tanks, wells and reservoirs.
- ix. Soil Moisture drought- run off, seepage, evaporation and transpiration.
- x. Agriculture Drought- lack of crop/fodder growth, decrease in soil moisture.
- xi. Ecological drought – damage to the environment due to the factors mentioned above.

Objective of Drought Management

3.5 Main objectives of drought management are:-

- a) Focus on employment generations.
- b) Water conservation and power supply.
- c) Standing crop saving.
- d) Public Distribution supplies of essential commodities.
- e) Implements nutrition programme for the vulnerable group.
- f) Speed the pace of development creating employment and productive assets, which would trigger overall development.
- g) Provide Income generation activities to the affected population.
- h) Create productive assets in affected areas.
- i) Early warning system should reach the village level - use the media and appropriate method.

Planning for Drought Management

3.6 Planning for drought management would mainly consist of the following activities:-

- i. Fodder: Location, inventory, requirement, movement-plan in advance.
- ii. Cattle: Location of cattle camps, identification of sick cattle and treatment, cattle population and movement cycles- identifying good markets.
- iii. Food Grains: Prioritization of food grain availability and good supply network through PDS (maintenance of adequate stock).

- iv. Water: Preparation of drinking water contingency plan, tanker availability/construct/install temporary water storage structures on the village sides. If already constructed, if need be repair it - encourage local traditional structures under any scheme. The district administration should prepare an action plan with the following detail:-
- a) Have all those villages which are affected or likely to be affected by acute drinking water scarcity problems during the next few months, been correctly and realistically identified? The villages could be listed into two categories viz, most severely affected and severely affected.
 - b) Have contingency plans at the district, block and village levels been prepared to cover the identified villages? How many villages have been covered by such plans? Indicate the names of the departments responsible for implementation of the plans.
 - c) Identifications of villages where transportation of water shall have to be resorted to in order to meet the drinking water requirement provision for safe storage of water in the households or Panchayats.
 - d) Have sufficient stocks of bleaching powder, water sterilization tablets been arranged at the district and block level?
 - e) Has there been any incidence of water borne diseases? Any epidemiological survey carried out for water borne diseases.
- v. Afforestation Programme - plan ahead with species, which could tide over- the drought, plant drought resistant varieties.
- vi. Health related facilities: - preventive steps- store medicine/prevent water contamination and control diseases. Nutritional requirements fulfillment.
- vii. Relief Works: with special emphasis on soil conservation and water conservation (ground and surface).
- viii. Coordination meeting for Drought: Periodically convene the coordination meeting with members of district level, block level and Panchayat level.

Meeting the Onslaught-Action Points :

3.7 The following points may be taken into account to meet drought situation:-

- a) Formal declaration of drought specifying areas clearly district/tehsil/block/Panchayat or whole District.
- b) Internalization of powers under drought to various authorities-Financial powers, Executive powers to be given to the officers.
- c) All government officers' services to be pooled.

(Action by Revenue Department)

Opening of Relief works:

- i. Announcement of work
- ii. Preparation of musters
- iii. Provision of food grains through local ration shops.

- iv. Type of work depending on areas requirements.
- Road works
 - Digging and deepening of wells/digging of ponds at suitable locations
 - De-siltation of tanks and ponds.
 - Afforestation if not completely at least land work.
 - Construction activities-public buildings.
 - Water supply schemes and check dams across nallas and riverbeds.

(Action by Revenue, Rural Development, PWD, IPH and Forest Departments)

Food grain related issues:

- a) Ensure availability.
- b) Price monitoring through committees upto the Panchayat level.

(Action by DFSC and HPSCSC)

Agricultural Intervention:

- i. Agriculture is crucial for the local people.
- ii. Introduce-water budgeting in all irrigation schemes to regulate water supply
- iii. Distribution of timely agricultural inputs.
- iv. Relaxation of agricultural credit norms to farmers.
- v. Provide extension support to create awareness about the water/crop saving techniques to minimize crop loss.
- vi. Once known from the early warning of the meteorological departments farmers to be convinced to go for-adoption of alternative varieties/crops---(millets)
- vii. Drought resistant varieties-obtain it from state seed corporation/National seed Corporations/Agricultural Universities etc.
- viii. Recommend short duration pulses.
- ix. Alternative fodder crops
- x. Alternative sowing system (instead of raising nurseries –Direct sowing etc.)
- xi. Motivate farmers to collectively share available water.
- xii. At Panchayat level relief committee to be constituted to oversee the drought.
- xiii. Safeguard the interest of the tail-enders.
- xiv. Ensure optimum use of surface and ground water.

(Action by Dy. Director Agriculture)

Cattle related issues:

- i. Availability of fodder.
- ii. Timely movement of fodder.
- iii. Opening of cattle camps (if necessary).
- iv. Opening of special camps for sick cattle (veterinary care).
- v. Regular supervision of cattle camp.
- vi. Alert the veterinary officer to be responsible and control of diseases.
- vii. Networking with cattle market and if drought is severe-encourage to dispose off.

- viii. Payment of subsidy, if any.
- ix. Accounting system well laid down with detailed information.

(Action by Dy. Director Animal Husbandry and Revenue Department)

Drinking Water Related Issues:

- i. During drought there is likelihood of water borne diseases like gastro-enteritis. To prevent such diseases the district administration should hold meetings in the month of April to review the preparedness to counter such an eventuality. The Irrigation and Public Health Department, Revenue, Block and Health departments should chalk out a joint strategy for cleaning and chlorination of water sources. The local population and panchayats should be involved in such an activity. The Health Department should keep a record of outbreak of gastro-enteritis cases for record and future reference too.
- ii. Disinfection of traditional water sources through PRIs. To be checked up and Irrigation and Public health department to be given responsibility.
- iii. Diversion of water for drinking on priority.
- iv. Provision of Drinking water through tankers etc.

(Action by Revenue, Block, and I&PH department)

Health, Sanitation and Nutrition Issues:

- i. Provision of adequate health care facilities-storing of adequate medicines.
- ii. Inoculation against diseases/disinfect against biological contamination.
- iii. Provision of supplementary nutrition/through ICDS/Anganwadi to the vulnerable groups.
- iv. Draw up Plans - at PHC level to cope with any epidemics.
- v. Constant surveillance of Public Health Measure.
- vi. Refer- last drought related diseases and to take preventive action.

(Action by Health, ICDS and Revenue Department)

Other Relief Measures

3.8 Besides, the above actions the following relief measures may also be required to be taken by the district administration:-

- a) Suspension and remission of land revenue
- b) Postponement of recovery of bank loans
- c) Input subsidy to the farming community
- d) Survey of crop losses and recording of Kharaba.

Post Disaster:

3.9 Main activities which need to be done after drought is over are:-

- i. Declaration of end of scarcity –allowing the completion of work.
- ii. Closing of Relief Works: Closure of accounts, sock taking of works, Safe staging of work, Completion of payments and closure of muster rolls etc.
- iii. Stock taking of assets created: list out the assets crated, mark it year wise. Entrust the assets to the community/local Panchayats.
- iv. Take all steps to prevent migration of people to other places.
- v. Final evaluation meeting: Review and evaluation of work done by the committee or by an independent agency. Involve all the stakeholders.

Long Term Plan:

3.10 The Following long term measures are planned to eradicate drought problem form the State:

- i. Water harvesting structures to made compulsory in new constructions.
- ii. Snow harvesting to be popularized
- iii. Fodder development in waste lands, dry resistant varieties to be started
- iv. Linkage of Watershed Project, Kandi, Agriculture to manage draughts

Note: - At the national level Ministry of Agriculture is responsible to handle drought. The Ministry prepares "**Crisis Management Plan**" and "**Drought Manual**" to deal with drought. These documents can be accessed from the Ministry's Website at:

<http://agricoop.nic.in/DroughtMgmt/drought.htm>

Chapter – 4

Floods/Flash Floods/Cloud Burst

4.1 The State of Himachal Pradesh is basically not prone to floods but is mainly prone to riverine and flash floods. Ravi, Beas, Sutlej are the three main rivers which cut across the State. Besides, many rivulets/streams flow in different parts of the State. These rivers and streams carry huge load of water mainly during rainy season and many a times loss of life and property results. Cloud burst, glacial lake outburst (2005 Parechoo) and flash floods have been causing huge loss of life and property in the state. The issue of floods is intimately connected to monsoon season in the State and heavy rains cause wide spread damage to the infrastructure in the State. There are many cases of loss of life and cattle. Damage to agriculture land and crops – agriculture and horticulture is also wide spread. Hence the guidelines given here are also applicable to deal with heavy rains and reducing associated loss.

Action Plan to deal with the Disaster

Pre-Disaster Activities

4.2 Following pre-disaster activities are suggested:-

- i. Every district should catalogue the incidents of cloud burst, flash floods and the loss caused by them over the years.
- ii. Vulnerable areas of the districts should be identified and all preventive and precautionary steps should be taken.
- iii. People located along the river beds, nullahs should be alerted and warned.
- iv. Contingency plans along with SOPs to deal with emergency should be drawn and made part of the DDMP.
- v. A meeting sometimes in the month of May/June should be held at the District and Sub-Division HQs to review the preparedness measures.
- vi. Special attention needs to be paid to clean and keep drainage system free from any obstruction so that the rain waters flows smoothly.
- vii. DDMP should be activated on the on-set of the monsoon.

Flood Warning System

4.3 The Shimla office of Indian Meteorological Department issues weather forecasts and warning for heavy rainfall. The daily bulletin is e-mailed to all the Deputy Commissioners, Superintendents of Police, Divisional Commissioners, Department of Revenue and electronic and print media. Similarly the Shimla office of Central Water Commission also sends regular bulletin about the flow of rivers and water level in the reservoirs/dams in the State during monsoon season.

4.4 The District Control Rooms should process the information so received and issue alerts whenever the situation warrants to all the Government functionaries and vulnerable communities through electronic means etc. All pre-emptive steps should be taken to minimize loss and search and rescue parties should be put on high alert.

During the Flash Flood/Cloud burst – Some Guidelines

4.5 The following actions may be taken in case of flash flood/cloudburst: -

- a) As soon the calamity occurs it is the duty of local Patwari and other field officers of the departments to report the incident to the concerned Tehsildar/Sub-Divisional Officer (Civil)/Deputy Commissioner.
- b) The Sub-Divisional Officer (Civil) or the Deputy Commissioner on hearing the occurrence would immediately activate the disaster management plan and organize the coordinated search and rescue and relief operations.
- c) Wherever needed shelter for the victims should be arranged. Public building such as Panchayat Ghars, Schools, etc. can be used for the purpose. At times, the victims don't want to move away from their place and in such circumstances tarpaulin, bamboo poles, CGI sheets etc. could be provided to make temporary accommodation or to improve the damaged ones. In rare cases tented or temporary accommodation can also be considered.
- d) The loss to dwelling house due to rain/cloud burst includes loss to the buildings and loss to the belongings inside buildings. If the building/house due to rain/cloud burst involves loss to serious damage and is likely to collapse, the first attempt should be to move the occupants and if possible, the belongings to safe places.
- e) There may be cases when the building may be belonging to one person and there may be another person residing in the building or part thereof and the loss of belongings may belong to another person. The Revenue Officer who is required to assess the loss should carefully distinguish between the two and when he is preparing the statement of loss, he should clearly mention the loss of the building and name of person(s) to whom such loss has been caused. He should also mention and name of the Person(s) who suffered the loss of belongings.
- f) While making assessment, it is very difficult to observe many technicalities and normally the loss of the building as well as the loss of the belongings is estimated by the Patwari or Kanungo on the spot. In relation to the belongings, the best course is to obtain a statement of loss from the victim himself immediately after the occurrence and no time should be lost in doing this because with the passage of time, the victims tend to inflate their losses and it becomes very difficult to assess the actual loss, especially, in case of fire and such other calamity. On the basis of the statement of victim and seeing his status and after inspecting the remnants, the estimate of the loss should be worked out.
- g) Similarly, the estimate of the loss to the building should also be worked out. Approximately plinth area should be worked out while estimating the loss. There may be partial loss to the house due to landside, heavy rains and earthquake etc.

which may include collapse of a wall, cracks etc. In such cases, approximately loss should be worked out by the Revenue Officer. But while doing so he must give the details of actual loss which has taken place so that the sanctioning authority is in a position to check that the loss has been properly assessed.

- h) Immediate assistance may be given in the form of clothes. The provision of warm clothing should also be made. Keeping in view the extent of calamity, other articles like quilts etc. can also be provided. Since these articles are needed at a short notice, it is advisable to keep some stock of such articles like tarpaulins, clothes, blankets, etc., so that they could be rushed to the spot at a short notice. The Deputy Commissioners should be able to make these arrangements within their existing resources and whenever the stock is utilized, it should be replenished.
- i) In the event of a calamity, it is at times necessary to provide food articles. The normal practice is that wheat is distributed to the affected people. In fact, distribution of wheat cannot possibly meet their immediate requirement. Thus, in such eventualities, the Officer-in-Charge should ensure that affected people are given Atta, rice, vegetables, pulses, edible oil and salt etc. In exceptional cases, household articles should also be provided if situation so warrants. This may include minimum cooking utensils, kerosene, lanterns etc.
- j) In the event of calamity, many people either get injured or fall ill, especially the children, who are more prone to diseases. Arrangements for the supply of medicines or removing affected persons to the hospitals should be made for which ambulances should be pressed into service.
- k) There may be cases where women and children become orphans due to the loss of their husbands/parents. They may require special attention. The Revenue Officer should immediately help them either by getting the children admitted in special homes and in cases of widows, necessary help and assistance should be provided through the on-going programmes of the Government.
- l) In difficult areas of the State, evacuation of the injured may be necessary and it may not be possible to transport them by road. In such eventualities, assistance should be sought from the Army authorities to evacuate the patient by helicopter. The District Magistrate can place such requisition with the Army authorities. But it is always better to do it in consultation with the Government.
- m) It may be necessary to resort to air dropping of the essential supplies in the affected areas. Such proposals should be taken up with the State Government on top priority basis and no time should be lost in this behalf. It should be noted that loss of time can be detrimental to the life and health of the people.
- n) Immediate medical attention to be provided to the injured persons as well as transporting them to the nearest hospital.
- o) Checking of contamination of sources of water and providing safe drinking water.
- p) Suspension of collection of land revenue.
- q) Postponement/deferring of recovery of Government /bank loans.
- r) Provision of house sites and grant of land in exchange as per the instructions from the Government from time to time.
- s) Supply of timber or re-construction of houses.

- t) Setting up of Relief Centres ensuring adequate supply of essential commodities in the affected areas.

4.6 The above relief measures are in the nature of guidelines and Deputy Commissioner and the Sub-Divisional Officer (Civil) can start any other relief measure as the situation warrants.

Rescue and Evacuation Operations:

4.7 This gets top most priority. On receiving the flood warning, the people should be evacuated by road if floods have not yet hit the area. Once the floods have hit, boats/rafts at village/evacuation center should be pressed into action. Also ensure that in each team there are some divers who can save life. Depending upon the gravity of the situation, following personnel should be pressed for evacuation/rescue operations:

- i. Home guards
- ii. Pre trained local men/Ex-service men.
- iii. Police/fire service
- iv. Army
- v. Divers

4.8 Ensure that arrangements are made for security of belongings left behind by people in evacuated areas. Involve local residents in patrolling such areas at night. Unless the residents are convinced about the security, they may not be ready to evacuate.

4.9 Ensure that members of a family are evacuated together to the same safe site. Any human deaths must be promptly reported.

Post flash flood phase: General Observations

4.10 This phase will start when flood waters have either dried up or have been drained out. During this period, the first and foremost requirement is to repair damaged roads/bridges to make them suitable for vehicular movement.

- (i) The Public Works Department should prepare a check-list of probable locations which are land-slide prone and remedial measures/actions should be taken so that landslides can be prevented in future.
- (ii) Rural Development Department and Soil conservation Wing of Agricultural Department should take up Soil conservation under Employment Generation Scheme.
- (iii) It is seen that during flash floods, many a times, good agricultural land is washed away resulting in heavy loss to farmers. In such cases, immediate

steps should be taken to formulate land development schemes for all affected farmers.

- (iv) As a long term measure, the Public Works Department should provide cross drainage to all katcha roads so that during rains, these roads remain good for vehicular movement.
- (v) All the departments of Govt. at the district level should assess the losses caused to their property due to flash flood and report to the Deputy Commissioner.
- (vi) Expeditious distribution of gratuitous relief by the Revenue Department.
- (vii) Forest department should ensure good plantation in catchment areas and in rivers or khuds.
- (viii) It is also advisable that wherever flash floods are common, check dams/live hedges should be planted by the forest department.

Long Term Measures

4.11 Structural Measures

- i. Watershed management.
- ii. Reservoirs
- iii. Natural Water Detention Basins.
- iv. Safe Disposal of Surplus Runoff.

4.12 Non-Structural Measures

- i. Flood plan Zoning.
- ii. Flood Forecasting and Warning; along major river systems (including its major tributaries) basin.
- iii. Flood Proofing.
- iv. Establishment of rain gauges in all the Sub Divisional and Tehsil HQs. For this follow up IMD department would be required as the same would be installed and maintained by it.

4.13 Structural measures are in the nature of physical measures and help in “modifying the floods” while Non-structural measures are in the nature of planning and help in “modifying the losses due to floods”. In structural measures we keep the water away from the people and in Non-structural, we keep the people away from water. All of these works can be individually divided into long term measures and short-term measures. Long-term measures even though time-taking and costly must be undertaken, as they are very effective and permanent in nature. Short term measures serve the purpose in a limited way.

- a. Embankments
- b. Channel improvements.
- c. Emergency Floodways and River Diversions.

- d. Inter Basin Transfers.
- e. Bank protection, River Training, anti-erosion works.
- f. Village rising and/or construction of community-cum-shelter buildings above H.F.L.

Contingency Plan for Floods

4.14 Check-list for Pre flooded arrangements:

- i. Whether a meeting of the district level committee on Natural calamities/DDMA was convened?
- ii. Have the control rooms started functioning before monsoon?
- iii. Whether high flood level marking done in vulnerable locations?
- iv. Whether drainage lines cleaned and obstruction/congestion removed?
- v. Whether the past breaches in river embankments has been closed?
- vi. Whether rain-recording and submission of rain gauge-readings and preparation of maps and charts arranged?
- vii. Whether the charge of flood areas has been arranged.
- viii. Whether arrangements were made for the dissemination of weather reports and flood bulletins issued by the Meteorological Centres, Central Water Commission, Flood Forecasting Organization, Power Projects, etc.? Who is made responsible?
- ix. Whether deployment of rescue material at strategic points done?
- x. Whether installation of temporary Police Wireless Stations and temporary telephones in flood-prone areas done?
- xi. Is the arrangement for keeping telephones and telegraphs lines in order ensured?
- xii. Whether arrangements for storage of food in interior, vulnerable, strategic and key areas has been done?
- xiii. Whether arrangement for dry food stuff and other necessities of life have been made?
- xiv. Whether arrangements for keeping the drainage system desilted and properly maintained - a month before monsoon?
- xv. Whether agricultural requirements of crop insurance/seed availability assured?
- xvi. Whether health measures action plan kept ready?
- xvii. Whether Veterinary action plan kept ready?
- xviii. Has the selection of flood relief shelters been done and kept ready?
- xix. Whether advance arrangements for Army assistance have been made?
- xx. Have the officials been trained in flood relief work?
- xxi. Was the organization and bringing of relief parties done?
- xxii. Whether other precautionary measures taken to prevent food?
- xxiii. Whether alternative drinking water supply arrangements have been made?

4.15 Arrangements during and after floods – A Checklist:

- i. What arrangements made for rescue operations?

- ii. Whether shelter arrangements for the people in distress are made? If the efforts of the civil authorities are most likely to be inadequate, should army assistance be sought immediately?
- iii. Relief measures by non-official and voluntary organization may be enlisted as far as possible- Has it been done?
- iv. Whether provision of basic amenities like drinking water, sanitation and public health care and arrangements of cooked food in the relief camps have been done?
- v. Whether necessary arrangements for air dropping of food packets in the marooned village through helicopters have been made?
- vi. Are there sufficient numbers of relief parties for the rescue of the marooned people? If so can they move in time?
- vii. Have alternative communication links to have effective communication with marooned areas done?
- viii. Whether controlled kitchens to supply food initially at least for 3 days done?
- ix. Is there need for organizing cattle camp/veterinary care to the affected animals? If so what action has been taken?
- x. Whether emergency relief to all the affected people has been disbursed?
- xi. What action has been taken for daily reports and arrangements to disseminate correct information through mass media have been made?
- xii. What action plan for rehabilitation of homeless people done?
- xiii. Whether the commencement of agricultural activities-desiltation, resowing has taken place?
- xiv. Whether action has been taken to repair and reconstruct infrastructural facilities such as roads, embankments and resettlement of food prone areas done?
- xv. What health measures intervention have been planned and done?
- xvi. What arrangements for economic reconstruction are planned in the district?

Chapter – 5

Road Accidents

5.1 Road Accidents are a major killer and take place without any warning. Accidents may involve passenger vehicles, goods vehicles, vehicles carrying hazardous and toxic materials. The damage therefore may involve injuries and death, chemical spills, fires or release of toxic gases. Road in India have an annual fatal accident rate of about 2.65 deaths per 1000 registered vehicles. Data on road accidents reportedly indicate that 70% of road accidents arise from driver failure. Apart from this factor, the generic reasons are:

- i. Poor road conditions
- ii. Mixed traffic
- iii. Poor vehicle maintenance
- iv. Poor driving
- v. Lack of safety belts and helmets
- vi. Poor emergency services
- vii. Absence of pedestrian amenities

5.2 Road accidents occur in HP with alarming frequency (see table below).

S. No.	Year	Road Accidents	Persons Killed	Injured persons
1	2001-02	2,226	804	3,798
2	2002-03	2,830	695	3,917
3	2003-04	2,607	867	4,188
4	2004-05	2758	920	4674
5	2005-06	2807	863	4833
6	2006-07	2756	886	4688
7	2007-08	2906	945	4867
8	2008-09	2846	838	4637
9	2009-10	3409	1196	5560

Source: Police Department, HP/Deptt. Road Tpt. And Highways , GOI, etc.

5.3 The terrain of Himachal Pradesh is very tough, roads are narrow and road accidents occur quite frequently taking lives of large number of innocent people.

Possible Impact

5.4 A. Effects on Individuals

- i. Loss of life
- ii. Trauma
- iii. Burns
- iv. Injuries demanding surgical treatment
- v. Poisoning or exposure to toxic material

On accident event (involving passenger vehicle)

5.5 Those on the accident site should follow the following priorities:

- i. Look for and rescue the injured or those trapped in the vehicles.
- ii. Arrange for transport of the injured to the nearest medical care centre. The victims should be provided immediate first aid and the medical facilities free of cost. If a victim is required to be referred to a hospital, then ambulance/private vehicle should be arranged by the district administration.
- iii. The relations of the victim should be informed about the accident.
- iv. In cases of death, the body should be handed over to the relations of the victim after post-mortem etc. and in case of un-identified bodies, arrangement for cremation should be made with the help of local authorities. Proper record of such case needs to be maintained meticulously.
- v. In case of death or injury, relief assistance should be provided to the next of the kin of the victim or deceased.
- vi. Place the dead bodies on one side to avoid obstructions.
- vii. Organize local traffic control using the available manpower to avoid traffic jams.
- viii. Discourage people from crowding near the accident spot.
- ix. Stop people from looting the goods from the accidents vehicle.
- x. Arrange to inform the nearest traffic police post through passing vehicles on either side.

5.6 B. Disruption of services:

- i. Road network
- ii. Traffic
- iii. The spills from vehicles carrying hazardous materials may require stoppage of traffic and cleaning of road surface. Various materials are recommended depending on the nature of spill. Also, specialized agencies may have to be called for undertaking spill cleaning operations.
- iv. Diversion of traffic resulting from such accidents may require traffic control to give information at various entry points also located far away (which need quick identification) from the site of accident, so as to avoid inconvenience to the travelers.
- v. Special cranes may be required for clearing the accident site.

5.7 Economic and Social Consequences of road accidents

- i. Law and order problem
- ii. Security and protection of goods and materials in the vehicles involved in the accident. The details of goods need to be officially recorded.
- iii. Fires.
- iv. Gas leak affecting settlements near the accidents etc.
- v. It may be necessary to inform the settlements around to take necessary precautionary measures, if the accident involves leakage of toxic gases.

Mitigation Measures:

5.8 If the provision of Motor Vehicle Act and other related legislation and regulations including regulations on transport of hazardous and toxic materials are strictly enforced the incidence of road accidents will reduce drastically.

5.8.1 Strengthening Institutional Capacity:

- i. Strengthening the enforcement mechanism at the local level.
- ii. Modern technology including speed monitoring equipment and computerization of movement of vehicles with adequate checkpoints on the national highways should be introduced.
- iii. Equipment for removal of accident vehicles from the highways should be easily accessible to the SDM's and the police.
- iv. Considerable confusion exists because of multiple authorities and agencies involved in the regulation and monitoring of movement of vehicles on all roads. It is necessary to coordinate the roles of all such agencies through a single agency (Magistracy and Police).

5.8.2 Strengthening Road Infrastructure:

- i. Parking of vehicles on national highways and even of state highways should be strictly prohibited and monitored.
- ii. Excavations on roads must be protected well, particularly in the night, with barricades, fluorescent signs and red lights.
- iii. Special bays for parking of vehicles on truck routes should be provided at strategic points with provision for food and other facilities.
- iv. Public works department should concentrate on removal of bottlenecks on national and state highways in particular. Bridges should be widened before roads are widened.
- v. Efforts should be made to provide road dividers on all national and state highways on a priority basis with advance warning.
- vi. The speed breakers must have standard designs.
- vii. Information sign-boards should be provided giving the location of the nearest village, police station, hospital, petrol pump etc. at every traffic aid post.
- viii. Parapets should be constructed at all the risk and accident prone areas.

5.8.3 Improving Regulations

- i. All two wheeler drivers, including pillion must always wear the right kind of protective head-gear.
- ii. All vehicles carrying school children must be registered and provided with flashlights signs and designated halts. Regulations for overtaking such vehicles when they are stationery should be introduced.
- iii. Vehicles with break-down on the highway must display a plate on a stand with a danger sign pointed thereon in the front and rear. Every goods vehicle must have such plates with the stands.
- iv. Simulation aided training should be adopted for drivers carrying hazardous and toxic materials.
- v. Every vehicle must be provided with hazard lights (blinking lights) which would warn drivers of other vehicles of the stationery vehicles.
- vi. Reflectors and tail lamps should be made compulsory for handcarts, cattle driver carts, domesticated elephant on road, tractors, tractor and jeep trolleys, cymes, cycles-rickshaws and such other non-motorized vehicles not falling under Motor Vehicles Act.
- vii. Frequently occurring accident spots to be identified/marked cause-probed and rectification-mitigation measures taken.
- viii. Adequate cautions in these areas to be given.
- ix. Lanes if possible to be marked for pedestrians.
- x. Bridges and road separators should have adequate signs boards and reflectors.
- xi. Goods carriages should not be allowed to carry passengers.

Chapter – 6

Landslides

6.1 The hills and mountains of Himachal Pradesh are liable to suffer landslides during monsoons and also in high intensity earthquakes. The vulnerability of the geologically young and unstable steep slopes in various Himalayan ranges, has been swiftly increasing in recent decades due to inappropriate activity, such as deforestation, road cutting, terracing and changes in agriculture pattern requiring more intense watering.

The important landslides in Himachal Pradesh which caused huge damage are:

- Maling (1968): This slide damaged 1 Km NH-22 and is still active.
- Kinnaur (Dec.1982): This occurred at Sholding Nala, collapsing 3 bridges and 1.5 Km. of road was vanished.
- Jhakri (March 1989): At Nathpa about 500 m of road was damaged due to this slide and is still active.
- At Luggarbhati on 12 Sept.1995, 65 people (39 as per official record) were buried alive during the slide.
- Prominent slides in Beas valley are at Marhi, Bhang, Chhyal, and Mandu in upper catchment of the Beas river.

Landslide Prone Areas of Himachal Pradesh

District	Severe to very High	High	Moderate to Low	Unlikely	Total Area in Square Kms.
Bilaspur	216	842	83	1	1142
Chamba	2120	3829	351	70	6370
Hamirpur	0	851	204	45	1100
Kangra	123	3698	1233	557	5611
Kinnaur	868	4956	498	0	6322
Kullu	1820	3512	65	3	5401
Lahaul & Spiti	127	11637	1825	2	13591
Mandi	968	1978	826	98	3870
Shimla	893	3345	767	14	5019
Sirmaur	95	1805	614	228	2742
Solan	556	1118	157	79	1910
Una	2	678	517	311	1508

(Source: BMTPC, Landslide Hazard Zonation Atlas of India)

Causes of Landslides

6.2 Landslides can be caused by poor ground conditions, geomorphic phenomena, and natural physical forces and quite often due to heavy spells of rainfall coupled with impeded drainage. A checklist of causes of landslides is as under:-

6.2.1 Ground Causes

- i) Weak, sensitivity, or weathered materials
- ii) Adverse ground structure (joints, fissures etc.)
- iii) Physical property variation (permeability, plasticity, etc.)

6.2.2 Morphological Causes

- i. Ground uplift (volcanic, tectonic, etc.,
- ii. Erosion (wind, water)
- iii. Scour
- iv. Deposition loading in the slope crest;
- v. Vegetation removal (by forest fire, drought, etc.

6.2.3 Physical Causes

- i) Prolonged precipitation
- ii) Rapid draw- down
- iii) Earthquake
- iv) Volcanic eruption
- v) Thawing
- vi) Shrink and swell
- vii) Artesian pressure

6.3 Mitigation Measures: In general the chief mitigation measures to be adopted for such areas are:-

- i) Drainage correction,
- ii) Proper land use measures,
- iii) Reforestation for the areas occupied by degraded vegetation and
- iv) Creation of awareness among local population.

6.3.1 Non Structural Measures

- a) Areas which are prone to recurring landslides and which are near to habitation or along the communication routes such as roads require continuous

monitoring. Maps of such sites should be prepared on a scale of 1:500-1:200 for mitigation planning. GSI or any other specialized agency can be requested to undertake this job.

- b) Rapid response to suggest immediate measures in the event of landslides. Control rooms need to be 24 x 7 operations during the season when incidences of landslides are reported.
- c) There is need to evolve early warning system for landslides. Some work has been done in this regard by CISO, Chandigarh. GSI is the nodal agency to issue early warning for landslides.
- d) Total ban on grazing, cutting of trees in the affected area.
- e) Awareness generation programme in hazard prone areas should be launched at various levels through media campaign, development and distribution of leaflet posters, meetings, workshops on priority basis.

6.3.2 Structural Measures

- a) Construction of check dams, gully plugs, vegetative barriers etc.
- b) Large scale plantation in the areas of specific varieties.

Chapter – 7

Building Collapse

7.1 Building collapse and killing of human beings and damages have become very common in the urban areas. Poor quality construction has aggravated the cause of Building Collapse. Natural calamities like earthquake, landslides and Flood could also be contributing factors for building collapses. Cases of building collapse are not very common in Himachal but with the aging building stock and poor maintenance such incidents can be expected.

Building Structural Collapse Rescues

Purpose

7.2 To provide guidance during “Technical Rescue Operation” that require search and rescue operations to occur in any form or type collapsed structure or damage structure.

Response

7.3 No responder should enter a collapsed or damaged building to render patient care or extrication until a general survey and size up of damage is done.

7.4 The following Departments to be informed and instructed for response:

- i. The fire Department.
- ii. Home Guards/Civil Defence
- iii. The Police Department
- iv. Public works department
- v. Electricity Department
- vi. PRIs/ULBs
- vii. The Technical Rescue Team and District/Sub Division Control Room

Search and Rescue Stages

7.5 Find out the following information:

- i. Buildings use
- ii. Number of occupants
- iii. Number of victims trapped and their probable location.
- iv. Are rescue operations currently underway.
- v. Presence of hazards.
- vi. Gas and utilities.
- vii. Flammables

- viii. Electricals
- ix. Flooding possibility
- x. Plumbing and sewer disruption.
- xi. Structural stability of adjoining buildings

7.6 Rescue efforts are generally already underway by untrained personnel and/or citizens. Take their help but technical guidance is essential in such rescue operation of qualified engineers. The district should constitute teams of Volunteers at Sub Divisional headquarters to carry out search and rescue operations.

Immediate Rescue of Surface Casualties

7.7 Victims found on top of the debris or lightly buried should be removed first. All rescue efforts should be directed to the victims who can be seen or heard. Rescue efforts should be also directed to reach those victims whose location is known even if you cannot see or hear them.

Site Organisation and Management

7.8 The following checklist to be followed:

- i. Shut down electric connection/water supply/any other pipelines etc.
- ii. Evaluate structural integrity with the help of Civil Engineer - Request an engineer or architect.
- iii. Direct rescue operations from a safety stand point.
- iv. Assign team leaders for each designated rescue team.
- v. Divide the collapsed area into manageable areas
- vi. Draw up a contingency plan and place on standby

7.9 Keep ready the Medical team and emergency Wards. Crushing injuries, victims are in a state of shock. Ortho and Surgeons should be kept ready. At site first aid should be given and then victims should be rushed to hospital in ambulance.

Rescue from likely Survival Places

7.10 Seek out casualties by looking in places that could have afforded a reasonable chance for survival. Typical areas that should be searched are:

- i. Spaces under stairways
- ii. Basement and cellar locations
- iii. Locations near chimneys or fireplaces
- iv. Voids under floors that are not entirely collapsed
- v. Undemolished rooms whose egress is barred.
- vi. Voids created by furniture or heavy machinery

7.11 Locate casualties using the "hailing system".

- i. Place rescuers in “call” and listen positions
- ii. Have the operations officer call for silence
- iii. Going “around the clock” each rescuer calls out or taps on something. A period of silence should follow each call for any response.
- iv. All members should attempt to determine a “fix” on any sound return
- v. After a sound has been picked up at least one additional “fix” should be attempted from another angle.
- vi. Once communication with the victim has been established, it should be constantly maintained.

Breaching and Shoring

7.12 In some instances, victims may be reached by breaching and shoring

- a) Initially try to avoid the breaching of walls. This may undermine the structural integrity of the rest of the building.
- b) It is safer to cut holes in floors and use the shaft approach.
- c) If you must breach a wall or cut a floor, cut a small hole first to assure that you are not entering a hazardous area.

7.13 Shoring may be used to support weakening walls or floors.

- a) Shores should not be used to restore the structural elements to their original positions
- b) An attempt to force beams or walls into place may cause collapse
- c) If you decide to shore, keep the following in mind:

The maximum length of a shore should be no more than 50 times its width. The strength of a shore is dependent on where it is anchored. If anchored to a floor, it will be dependent on the strength of the floor. Shoring should be attempted only by qualified personnel or under the supervision of technical rescue personnel. Air shores may be used in place of timbers and will provide a stronger shoring system. Shoring should NEVER be removed once in place.

7.14 Selected Debris Removal

- a) The stage of the rescue process will consist of reducing the size of the rubble.
- b) This must be accomplished based on a pre-determined plan.
- c) Cranes and heavy equipment may be needed to accomplish this portion of the rescue. Consult the fire department’s resource log to obtain these.
- d) Remove debris from the tap down.
- e) Remove debris from selected areas where information suggests that victims might be.

General Debris Removal

7.15 This should be employed after all other methods have been used. This should be used only after the decision has been made by the site Manager that no other victims may be found alive. This basically amount to the demolition phase.

7.16 General

- i. It is safer to reach entrapped victims from above.
- ii. Diagram the building on the command board.
- iii. Ensure control of all accesses to the site.
- iv. Beware of “at will” response by volunteers or citizens.
- v. The cause of the building collapse to be investigated and lessons learnt to be used for preventive action.
- vi. Sufficiently old and multi-storied structures to be tested for structural strength and remedial action to be done.

Note: If the response capacity of the district administration is inadequate to deal with any building collapse services of NDRF and Army should be requisitioned forthwith to minimize loss of life.

Chapter – 8

Snowfall and Avalanches

8.1 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.

8.2 Major Causes - 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. Major prime factors and exciting factors are shown in the following table.

Major Causes of Snow Avalanches

Item	Description	Factor
Prime factors	Topographic factors	<ul style="list-style-type: none"> • Inclination of slope • Shape of slope • Location (ridge line or toe of slope) • Orientation of slope
	Vegetation factors	<ul style="list-style-type: none"> • Vegetation cover and height of trees • Vegetation cover and its thickness
Exciting factor	Weather factors	<ul style="list-style-type: none"> • Depth of snow cover • Depth of snowfall • Wind velocity • Atmospheric and snow temperatures
	Other factors	<ul style="list-style-type: none"> • Increase in weight of snow cover because of snow dropping from cornices or snow covers • Vibrations such as earthquake or the sound of gunfire

8.3 Avalanches constitute major hazards in the higher reaches of Himalayas. Parts of Himalayas which receives snow fall round the year and avalanche spots are in abundant. Avalanches occur in winter soon after the snow mainly in Lahaul & Spiti, Kinnaur and Pangni areas of the State.

Factors Used for classification of Avalanches

Classification Factor	Classification Factor	Definition
Type of occurrence	Loose snow avalanche	Avalanches that flow rapidly, spreading widely from a point normally small in scale
	Slab avalanche	Avalanches that start to move suddenly over wide areas, normally large in scale.
Type of snow	Dry snow avalanche	Avalanches that contain no water.
	Wet snow avalanche	Avalanches that contain water.
Surface layer avalanche	Surface layer avalanche	Slip surface exists within the snow cover
	Full- depth avalanche	Slip surface occurs on the ground surface

The prominent avalanches in Himachal Pradesh

Location	Date / Year	Damage Occurred
Lahaul & Spiti	January 1975	Earthquake shocks triggered the avalanche of great dimensions damaging road network
Lahaul & Spiti	March 1978	About 30 people killed, road and property damaged
	March 1979	About 237 people killed, Communication disrupted
Tinku	March 1991	Tinku avalanche occurs every year 4-5 times from Jan to March. Road was blocked for 40 days in 1991
	September 1995	Due to avalanche, huge chunk of debris came down which later changed into flood
Khajua, Tissa	19 th January, 2012	Five persons buried alive. Dead bodies located after more than 11 days.

Types of Damage

8.4 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.

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

Mitigation of Avalanches

8.5 Mitigation measures for avalanche are suggested as under:-

- a) Modification of the path of avalanche movement.

- b) To have control structures like snow bridges, snow rakes, snow net, snow fences, avalanche gallery, diversionary dam, earthen mounts and above all planting with trees in those areas.
- c) Accurate forecasting will help people down below to rush to safe places. SASE is responsible to issue EWS for this hazard.
- d) A forest with thick growth of trees inhibits the formation of avalanches for the following reasons:
 - i. Tree trunk support snow cover and provide an anchor to potential to save avalanches.
 - ii. Snow drifting is almost eliminated.
 - iii. Tree canopy retains snow and released it gradually to form a stable cover on the ground.
 - iv. Forest canopy stables the snow.
- e) Avoid traveling in vulnerable areas during day time from 08:00 AM to 04:00 PM. Usually avalanche is triggered at this time.

8.6 Mitigation of Snowfall related problems

- a) Provision of snow cutters in the affected areas
- b) Establishment of snow gauges at appropriate locations

Snow Manual

8.7 Snowfall disrupts normal life. If the roads are not cleared of snow quickly it can lead to various problems such as shortage of essential commodities, treatment of sick people etc. The Government of H.P. vide letter No. Per(AR)A(4)12/83, dated 14.12.1985 has approved a Snow Manual (Annexure A) which is primarily implemented in Shimla but can also be used in other parts of the State. This manual relates to the action to be taken during Snow Season in Shimla. The provisions of the Snow Manual should also be implemented in case of Snow and Snow Storm whenever and wherever possible.

Chapter – 9

Forest Fires

9.1 The most common hazard in forests is forests fire. Forests fires are as old as the forests themselves. They pose a threat not only to the forest wealth but also to the entire regime of 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 and twinges, which could burst into flames ignited by the slightest spark. The Himalayan forests have been burning regularly during the last few summers, with colossal loss of vegetation cover of that region.

Information About the Circle-Wise Fire Sensitive Area

Name of Circle	Forest Area (in ha)	Fire Sensitive Forests, Plantations (in ha)			%age of Total Forest Area.
		Chil	Plantn	Total	
B/pur	69895	8933	9799	18733	26.8
Chamba	488548	22132	1986	24118	4.9
D/Shala	253233	24049	35502	59552	23.5
H/pur	101524	25189	19899	45089	44.4
Kullu	873080	6468	13434	19903	2.3
Mandi	174209	42390	34333	76723	44.0
Nahan	188790	13826	65979	79805	42.3
Rampur	570460	15833	9947	25780	4.5
Shimla	281721	2305	8204	10509	3.7
Wild Life	701837	9744	63577	73302	10.4
Total =	3703300	170873	262644	433517	11.8

(Source: Forest Department)

9.2 The forests of Himachal Pradesh known for their grandeur and majesty are like a green pearl in the Himalayan crown. This life supporting systems are presently under great stress due to impact of modern civilization, economic development and growth in human and cattle population. The forests of Himachal Pradesh are rich in vascular flora, which forms the conspicuous vegetation cover. Out of total 45,000 species of plants found in the country as many as 3,295 species (7.32%) are reported in the State. More than 95% of species are endemic to Himachal and characteristic of Western Himalayan flora, while about 5% (150 species) are exotic introduced over the last 150 years. Over the years the forest wealth of the State is being destroyed by the incidences of fire attributed to both anthropogenic and other reasons. The destruction of rich flora and

fauna of the State due to forest fires will have serious repercussions on the ecological balance of the State.

9.3 The rich forest wealth of the State has been subjected to the numerous fire incidences. A list of the same has been tabulated below:

Year	No. of fire Incidences	Areas Affected (In Hectares)
1995	1669	57143
2000	1900	36887
2001-02	301	5719
2002-03	282	4204
2003-04	550	9896
2007-08	550	8393
2008-09	572	6586
2009-10	1906	24849
2010-11	870	7837

(Source: Forest Department)

Causes of Forest Fire

9.4 Forest fires are caused by natural causes as well as man-made causes.

Natural causes- Many forest fires start from natural causes such as lightning which set trees on fire. However, rain extinguishes such fires without causing much damage. High atmospheric temperatures and dryness (low humidity) offer favorable circumstance for a fire to start.

Man made causes- Fire is caused when a source of fire like naked flame, cigarette or bidi, electric spark or any source of ignition comes into contact with inflammable material.

Classification of Forest Fire

9.5 Forest fire can broadly be classified into three categories:

- i) Natural or controlled forest fire;
- ii) Forest fires caused by heat generated in the litter and other biomes in summer through carelessness of people (human neglect); and
- iii) Forest fires purposely caused by local inhabitants.

Preventive Action

9.6 The following preventive measures are suggested for forest fires:-

- i. Local Community to be fully involved in for detection and prevention.
- ii. Under the employment creation scheme or scheme to be created specially and fire watchers from the local people can be employed during the season.
- iii. Incentives to the villagers who are coming forward to safeguard and who have controlled fire to be provided.
- iv. If there is no fire in a recurring area, in the development scheme incentives can be provided for the villagers.
- v. Under the forest management working plan prescribed forest lines to be maintained properly during the season.
- vi. In case of fire at various areas the fire-fighting teams to be kept ready and a responsibility to the local forest guard and to the Panchayat and the village chief to be given.
- vii. Fire watch towers may be erected in recurring places (for detection).
- viii. The local people and other who enter into the forest to collect fuel wood, non-timber forest produce and smokers to be specially requested to be vigilant and only those who are authorized or permitted alone need to be sent.
- ix. If there is a fire, the cause of the fire to be immediately assessed and steps taken so that it does not recur again.
- x. The local villagers including women through Mahila Mandals may be associated.

Chapter – 10

Fires

10.1 Fires are a major man made hazard which threaten the life of urban population in particular and rural in general. Both rural and urban areas of the State are prone to fires mainly because construction has taken place in a haphazard manner and ignition of fire at one point can threaten the whole locality if it is not controlled in time. We have seen the ravages caused by fires in almost in all the cities and numerous villages in the past. The construction of houses in rural areas involve use of a lot of timber. Fuel wood is the main source of energy for cooking and warming. Rural habitations are generally clustered together and are susceptible to fires. Every year there are numerous incidents of fires in the rural area causing both human, animal and material loss.

Plan of Action

10.2 Structural Measures

- i. At present fire services in the State are restricted up to district HQ only and at few locations up to Sub-Division HQs also. In the event of any fire tragedy in the remote area, the fire tenders are rushed from the district HQ to the site of accident. Fire services can save life and property in the affected area only if it reaches the site in no time. Keeping in view of the vulnerability of the State to fire hazard there is need to put in place fire services up to Sub division HQ in a phased manner and wherever possible local level where vulnerability is very high. The recommendation of NDMA in this regards can be looked into which are available at: www.ndma.gov.in .
- ii. Provision of fire hydrants should be made in all the Sub divisional, Block, Sub-Tehsil and MC HQ.
- iii. There should be fire alarms and fire-fighting equipment in all the public building and Government offices housing large number of people.
- iv. The new construction should adhere to National Building Codes so that fire hazard is minimized.
- v. Steps should be taken to reduce the existing vulnerability.

10.3 Non Structural Measures

- a) People should be made aware of fire safety measures and there should be regular drills.
- b) Hands on training of government functionaries and other stakeholders in use of fire equipment.

Chapter – 11

Locusts Control

11.1 Locusts generally appear in the month of June or July though there have been cases of their appearance even in October. They specially disappear after doing the damage which may be small in proportion to the total production, but may be very serious for the cultivators whose crops have been damaged. In some seasons, however, vast swarms invade the State and cause widespread devastation. Wherever locusts are observed in any district measures should be taken to ensure:-

- (a) That laying/hatching of egg shall be promptly reported and that;
- (b) Measures shall at once be taken for the destruction of eggs and of young nymphs when hatched.

Reporting of the Incident

11.2 Whenever locusts visits a district, the Deputy Commissioners of adjoining districts of the State and other States should be intimated so that they should keep watch over the laying of eggs by locusts and technical advice about locusts swarm may be taken immediately from Plant Protection Officers. The Revenue Officers should take immediate necessary action. Tehsildar whom the people know and trust, can take a great deal of work cheerfully. The appearance of locusts in a district and the measures taken for their destruction should be reported by the Deputy Commissioner to the Divisional Commissioner and the Financial Commissioner (Revenue) on the following proforma:-

Report Regarding Locusts

District	Date of Appearance	Direction of Flight	Damage Done	Measures Taken	Remarks
(1)	(2)	(3)	(4)	(5)	(6)

11.3 It should be borne in mind that a special report should not be made in every case when a flight is seen, but only when damage to crops to a considerable extent is

caused by the swarms. In all other cases, it will be sufficient to mention that locusts have been observed.

11.4 Individual efforts in a district are inadequate to deal with a menace of the magnitude of the desert locusts. It may, therefore, be necessary in case of severe infestations to set up a special agency for co-ordination. In the absence of such an agency, the Commissioner should co-ordinate efforts in the different districts. The Director of Agriculture and his staff or any special officers who may be appointed, will supply technical advice, broadcast information and wherever possible supply apparatus and equipment.

Coordination

11.5 Where in a case of severe infestation, it is considered desirable to set up a special coordinating agency, an officer of the headquarters of the district should be appointed to deal with the receipt and distribution of supplies and equipment and with the allotment of personnel. This officer should not normally go on tour or interfere in control methods, but he should work in close co-operation with officials of the Agriculture Department concerned with supplies and should have full authority under the Deputy Commissioner to allot staff made available within the district or from outside. Local officers should be responsible for areas not larger than two tehsils each and should be responsible for the organization of circle within their charges and for the adoption of control methods. They should requisition supplies and staff from the offices at the headquarters. A manageable circle has been found to consist of about 25 villages. Preferably an officer of Gazetted rank should be in charge of such circle. It has been found that no village is likely to do well unless visited by a responsible official for a considerable period daily but in these matters local conditions vary and much must be left to the discretion of the local officers.

Laying of Eggs

11.6 The laying seasons normally extends from six to eight weeks in March or April, and again, if the conditions are favorable about August, when about to lay her egg, the female locust makes a hole in the grounds by means of the two pairs of horny valves which open and shut at the top of her abdomen. With the valves close she pushes the trip into the ground and makes a hole for herself and her egg, which later are voided in a pale glistening, glutinous fluid which holds them together and binds them into a long cylindrical pad, covered with particles of earth which adhere to it. When fresh, the whole mass is soft and moist, but it soon acquires a firmer consistency. It is rarely placed much more than an inch below the surface of the ground but sometimes it lies much deeper, the eggs are laid by side at right angles to the axis of the pod to the

number of from 30 to 100. They are slightly curved of a pale yellow, colour and rather larger in the middle than at the ends, about a fifth of an inch long and one fifteenth of an inch at the thickest part. The female is believed to lay three hatches of eggs, and the average interval between the periods of lying by the same female is laid to be two weeks. Eggs may be laid in almost any kind of soil but by preference in bare sandy soil, grounds and sandy soil, especially in high and dry grounds tolerably compact areas much resorted to. Restoures, grounds and study fields are much resorted to for eviposting. Field of grass stubble will show no signs of holes but yet abound in eggs. Locusts have been known to deposit their eggs in the sandy bands of rivers and after the subsidence of the rains and the river floods, and when usual hatching time arrives the young have issues from the sandy beds in many raids.

Measures to Combat the Menace

11.7 The period between the laying of the eggs and the appearance of the young locusts is liable to variation. Under the influence of more than ordinary heat and moisture eggs have been observed to hatch out in about a fortnight. Therefore, whenever, locusts appear, careful observation should be taken at once to ascertain as soon as possible whether eggs have been laid and the young are hatched out, and necessary measures for their destruction should be carried out soon after the eggs are discovered.

- a) One of the most rapid ways of collecting eggs especially where there are numerous and light soils is to slice of about an inch of the soil with a spade or a similar instrument and carry the eggs to one spot and after separating them from the sand and bury them in deep pits of the ground being packed hard on the surface.
- b) Harrowing is an effective mode of destroying eggs, and of preventing future injury. The objective should be to strive deeply but to scarify and pulverize as much as possible the solid to the depth of about an inch. Breaking up to the mass and exposure of the individual eggs to the desiccating effects of the atmosphere effectually destroys them and when to this is added the well-known fact that thus exposed they are more liable to destruction by their numerous enemies, we see at once the importance of this mode coping with the evil.
- c) Ploughing is another effective way of destroying eggs. The ground may be ploughed up repeatedly, ploughing five or six inches deep, if possible.
- d) When eggs are deposited in standing crops measures should at once be taken to destroy, eggs without regard to consequent damage to the crop.

Young Unfledged Locusts

11.8 The time from hatching till the wings appears varies from three to eight weeks. The young locusts display gregarious instincts and congregate in immense numbers. Sometimes vast numbers will be found collected in a small spade of brush wood and short grass. After their first transformation, their voracious appetites seem to come to them. They march into the field of crops just beginning to grow clearing the ground as they move. As one band meets another, they join together until they form immense closely packed armies. They migrate only when their original breeding places cannot hold them.

11.9 It has been found that more especially during the harvesting season in Rabi when crops are no longer green, kuhls/canal banks with abundant grass and vegetation sooner or after become the objective of hoppers. When this issues work on the affected areas it requires close supervision. Employees of the irrigation Channel must not be allowed to content themselves with the driving operations.

11.10 The organs of generation form gradually and get more complete with each change of skin. After the first change the insect arrives at its complete state. It is impossible to prevent fecundations. The larva is produced largely and rapidly from eggs, and the first swarms are not early replaced but multiplied a hundred fold by each successive generation.

11.11 Dealing with the Menace

- a) Various methods have been employed for the destruction of the young locusts, such as burning, crushing and trampling but the last method obtained most favour.
- b) When they are not above a week old a trench of 6 or 8 inches wide and deep such as two men may form in a few minutes suffice for securing the insects, which jump into it with alacrity and appear wholly unable to extricate themselves from it.
- c) When however, they grow a little older and are making their way from road and paths ditches two feet wide and two feet deep with perpendicular sides should be dug wider at the top for effective barriers. The young locusts tumble into such ditch and accumulate and die at the bottom in huge numbers.
- d) In order to keep them in ditch open, it may be necessary to dig pitch more deeper and side ditches at short intervals in which the locusts will accumulate and may be buried each being well pressed down.
- e) Where the solid is tenacious and water can be let into the ditches so as to cover the bottom they may be made. The efficacy of the ditch depends so much on

the ability of the young locusts to jump or scale it as on the tendency of the young insects not to do so. In the bottom of the ditch they soon become demoralized crippled and unfledged by constant effort and the trampling and growing up on one another.

- f) The destruction of the young can only be carried out successfully during the period when the locusts are unable to fly and this is very short, being at the most only six weeks or two months.
- g) In the cold weather the swarms are unable to move in the morning from numbness and under such circumstances the destruction of even full grown swarms is easy.
- h) Complete destruction of the full grown or winged insect when they invade a country in larger swarms is impossible. Attempts have been made to frighten them away by firing guns, crackers beating drums and by rattling tackling noises, but if disturbed in this way they simply pass on to the next field.
- i) Effective means of coping with the evil is by the destruction of:-
 - a) The eggs.
 - b) The young of unfledged insects.

- j) Eggs are laid in masses just beneath the surface of the ground, seldom to a depth of more than one inch where immense swarms have settled scarcely an inch of the soil. Steps employed for employed in destroying the eggs are:-
 - a) Collecting.
 - b) Harrowing.
 - c) Ploughing or digging
 - d) Flooding and
 - e) Tramping

11.12 Other Measures

- a) When damage has been caused by locust in a certain area relief measure may be undertaken in the same manner as relief is provided to farmers whose crops are destroyed by hail storm.
- b) The local Panchayats, Panchayat Samities and Zila Parishads are also expected to render necessary assistance to the administration in tackling the menace.
- c) In case of severe infection or as and when the circumstances warrant special Committees may be constituted at State, District and Tehsil level.

Chapter – 12

Industrial and Chemical Accidents

12.1 In view of the fast development of industrial areas in Solan, Sirmour, Una and Kangra districts of the State the possibilities of accidents in the industrial and chemical sector cannot be ruled out if adequate prevention and preparedness measures are not taken. The standard of installation of quality machinery, training of the manpower, high safety measures are very high. The industrial accidents are one of the highest in the world. The industries should have both on sites and off site plans. Frequent mock drills are also to be conducted.

12.2 Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 prescribes for the constitution of the State Crisis Group as apex body at the State Level to deal with major chemical accidents and to provide expert guidance for handling major chemical accidents. Schedule 7 and Schedule 8 of the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 (<http://www.moef.nic.in/legis/hsm/gsr347.htm>) prescribes for the constitution of District and Local Crisis Groups. The composition of the District Crisis Group has been prescribed under the chairpersonship of District Collector and Local Crisis Group under the Chairpersonship of Sub-Divisional Magistrate. The District Crisis Group shall meet every forty five days and send a report to the State Crisis Group. The Local Crisis Group shall meet every month and forward a copy of the proceedings to the District Crisis Group. More details on this is available on the Ministry of Environment and Forest, GOI (<http://moef.nic.in>).

12.3 Impacts of Industrial Accidents

1. Loss of life
2. Burns
3. Injuries needing surgical treatment and exposure to toxic materials.
4. They may also cause disruption of services like road network, electricity, and water supply etc.

12.4 The District Administration plunges into action when the impact is in a larger area. The linking of the disaster management committee with the mutual aid response group (MARG) is very essential. The lessons learnt from Bhopal accidents and lapses are listed below for the district authorities of the complex situations:-

1. Design defects
2. Wrong material selection
3. Malfunctioning of equipment

4. Disconnection of facilities
5. Poor instrumentation
6. Plant modification
7. Insufficient safety margin
8. Difference in balance of plants
9. Manufacturing defects
10. Fatigue and mental failure
11. Corrosion
12. Contamination
13. Low level of safety provision
14. Absence of hot lines for quickly informing the civil authorities
15. Tension and operator stress
16. Poor training and skills
17. No training for handling emergencies
18. Inability to perceive the risk
19. Neglecting safety instructions
20. Error in judgment
21. Non-communication of uncommon events
22. Faulty operations
23. Faulty safety procedures
24. Absence of experienced personnel at site
25. Delay in taking decisions because of lack of experience
26. Carelessness
27. Deviating from specified operating procedures
28. No Manual for operators on handling emergencies
29. Absence of documentation of Toxicity and sharing of information
30. Delay in getting toxicological information
31. Non-disclosure of lone of treatment
32. Non-communication of precautions for handling toxics
33. Proprietary nature of hazardous inputs and process involving secrecy.
34. Absence of emergency warning procedures
35. Different quality assurance standard and material specifications and involvement of different contracting parties causing incompatibility of systems.
36. Absence of rehearsing for handling emergencies
37. Poor emergency planning (on site)
38. Neglecting early warning systems
39. Poor industrial sitting criteria
40. Neglecting safety even after a number of accidents
41. No hazard assessment procedures
42. Unplanned manpower allocation and transferring
43. Non-review of safety procedures
44. Treating hazardous and non-hazardous facilities alike
45. Non-institutionalization of systems safety
46. Over emphasis on profits
47. Poor Corporate information exchange
48. Large scale storage of toxic

49. Large manpower turnover.
50. Poor disclosure of critical information
51. Poor commitment for Safety at the top levels
52. No specification of emergency procedures
53. Absence of a system for analyzing and assessing accidents objectively.
54. Weak factory safety inspection
55. Factory safety Inspectorate ill-equipped to handle complex facilities
56. Absence of hazard management systems in Government
57. Poor emergency planning (off site)
58. Poor coordination of emergencies (Off site)
59. Poor industry sitting procedures and policy
60. Absence of strong hazardous substances information centre.
61. Poor communication facilities.
62. Illiteracy poverty and underdevelopment
63. Absence of emergency transportation and evacuation systems
64. Insufficient levels of medical facilities for handling large-scale disasters.
65. No permanent structure or institutional arrangement for handling emergencies.
66. Absence of emergency communication systems
67. Permitting human settlement close to hazardous facilities or poor zoning policy,
68. Local public not informed of what to do in case of accidents.

Emergency Preparedness at Local/District level.

12.5 It is a local activity requiring technical and scientific expertise of varied nature at district level. Qualified and trained personnel in the following specialized areas are essentially required besides the following:-

- (i) Contingency planning
- (ii) Environmental monitoring and surveillance
- (iii) Information retrieval from computer database
- (iv) Pathology and Biochemistry
- (v) Industrial Hygiene
- (vi) Pathology and biochemistry
- (vii) Toxicology
- (viii) Telecommunications
- (ix) Preventive Medicine
- (x) Information and Publicity
- (xi) Meteorology

Post-emergency Management

12.6 Specialist expertise is required in the following functional areas:-

1. Anti-dotal treatment
2. Occupational health and hygiene
3. Psychology

4. Exposure/assessment through the media of air, water, food, occupational and societal
5. Medical rehabilitation
6. Epidemiological studies
7. Neuropathy
8. Genetic disorders
9. Industrial and environmental Toxicology
10. Clinical Toxicology
11. Risk Assessment
12. Manpower and financial requirement for creation of new agencies and strengthening of existing agencies.

Checklist for Assessing the Capabilities for Managing Industrial and Chemical Disasters

12.7 The points contained in this questionnaire are only indicative and the authorities should closely examine the local area requirements in formulating the checklist for the district/area.

12.7.1 Industry unit

1. Does the industry/unit have a proper on-site emergency management plan? Does such a plan consider aspects of off-site emergencies arising from on-site incidents?
2. Has a complete inventory of toxic and hazardous materials, their physico-chemical properties and potential health and environmental hazards properly been laid down? Are appropriate persons in the industry aware of the above?
3. Has the industry conducted hazard analysis exercise and have probable off-site scenarios been developed? Has the facility evolved plans to reduce risk from such incidents and have these informations been provided to the emergency planning team?
4. Does the industry have a proper safety organization along with system and procedures for effective safety management?
5. Does the industry have a proper system for effective prevention of spills and releases? What equipment and procedures are available for containment and mitigation of releases/spills?
6. What safeguards are available at site to prevent accidental spills/releases?
7. Has the industry examined safer substitute, for actual toxic and hazardous materials and dangerous processes?
8. Are the storages of toxic and hazardous materials properly located, constructed, maintained and operated from the point of view of minimizing risk?
9. Does the industry have adequate equipment for on-site emergency management such as for fire-fighting, communication, personal protection etc.? Are there sufficient stocks of these items to be available on loan for an off-site emergency situation?
10. Availability of trained emergency management personnel in the facility, their names, numbers and areas of specialization.

11. Number of managers, supervisors, workmen formally trained in the various aspects of emergency management. Numbers who may be available for off-site emergency assistance.
12. Whether 24 hours emergency medical cover available at site? Names of medical personnel in the facility to be provided. In case of hospital/medical centre being available, are antidotes/medicines required for treatment readily available?
13. Has the on-site emergency plan been tested through mock exercise? Please provide report of such trials.
14. What types of warning systems are available for informing the facility personnel, outside communities of an on-site emergency and off site emergency situations?
15. Is there a mutual aid system operational in the area? What disciplines does it cover and as it formalized in writing? How is the outside aid agencies familiarized with the hazards of the facility?
16. Does the industry have a comprehensive safety manual etc.?
17. Whether a meteorological station is available in the unit/vicinity? Are the data analyses to derive information of trends? Is there capability of vapor cloud dispersion, fire and explosion modeling available? Are there monitoring equipment available for toxic gases e.g. Dragger tubes, explosimeters, continuous monitors etc.?
18. Whether emergency power available for critical areas during emergencies?
19. Does the facility have training arrangements for its employees in emergency management, use of response equipment, personal protective equipment and hazard containment and mitigation procedures?
20. Does the facility have regular testing of on-site alarms and warning signals and emergency response equipment and is systematic record of such testing maintained?

12.7.2 Mobile Risks

1. Whether the transport container designed for dedicated use for a specific material or is it used interchangeably for various products?
2. Do transport documents contain information about identification of hazardous material, physical and chemical characteristics, emergency procedures and specific information on reactivity and other parameters which would be relevant in the event of a transport accident?
3. Do the transport vehicles carry relevant records and are the vehicles externally denoted by suitable hazard rating and classification signs?
4. Are standard emergency procedures for taking care of spill and releases contained with the transport crew and are they duly trained to put such procedures into operation?
5. Is there an emergency contact for the transport crew in the event of an emergency?
6. What is the transport crew chain of command in response to a hazardous material incident? Transport Emergency Relief Materials.

7. What emergency response equipment are carried by the transport vehicles (protective clothing, breathing equipment, extinguishers, spill clean-up devices etc.)?
8. What first-aid equipment do the transport vehicles carry and are the crews trained in first-aid measures?
9. Do the transport vehicles have communication equipment on board and who are the authorities with whom they can establish contacts during emergency?
10. How does the owner/shipper of hazardous chemical ensure that transport emergencies are properly taken care of before pre-shipment?
11. How are the vehicles and the cargo certified before the journey?
12. Are there safe driving practices required for transport operations? Are the transport/vehicles equipped with monitoring device like tachygraph etc. to regulate vehicle operation?
13. Whether the transport emergency plan checks out through mock exercise and random checks done by suitable inspection authorities during transit?
14. Are inspection tests done and if so to what schedule? Who is responsible for ensuring overall safety in transport operation?

12.7.3 Government Agencies

1. Is there nominated nodal body for dealing with emergency planning and response? Who are the members of such nodal body?
2. Several local bodies are required to be involved during the emergency planning and response processes such as the fire department, Police, home guards, civil defence authorities, medical/paramedical personnel associated with hospitals and other agencies, public health authorities, environment protection authorities, factory and explosive inspectorate, public works utilities, and transport department, other agencies and Non-Government organizations (NGOs) who may have a role in emergency management. What is the capacity, level of expertise, availability of facilities, equipment and personnel in these bodies to emergency planning and management?
3. Is a written down off-site emergency management plan available? If so, does it clearly stipulate the roles and responsibilities of the various bodies mentioned above?
4. Do the planners and responders have sufficient training which is updated periodically, to deal with the various aspects of emergency with which they would be concerned with?
5. Are these nominated experts/consultants available to support the district authorities in the event of a clarification being required on a technical matter?
6. Are maps of the area showing various details required for an emergency management plan available to all concerned?
7. Is the communication facility adequate to meet the requirements of the emergency planning and management and is it checked regularly to ensure fidelity and reliability?

8. Is the off-site emergency management plan tested out at periodical intervals partially or totally to assess the state of awareness and preparedness of the various response and support bodies?
9. Are clear cut procedures available for evacuation, hazard mitigation, decontamination and other processes involved in emergency management?
10. Is a firm strategy and action plan available to make use of community resources during emergency?
11. How is the community informed of the hazards and what are their roles and responsibilities during a hazardous material accident?
12. How are the off-site emergency management plan and the various concerns there in taken from the plan stage to the response stage?
13. Is formal training exercise conducted regularly?

These checkpoints are equally applicable to nuclear emergencies.

Note:-

- a) The NDRF battalion which has been equipped to deal with CBRN emergency having jurisdiction over HP is located at Gaziabad, UP and its updated contacts must be available with the district administration all the time.
- b) MOEF also prints “Central Crisis Management Alert System” booklet containing list of experts and agencies available to deal with CBRN emergencies in the country with their contact details.
- c) The Department of Revenue has issued guidelines for preparation of on-site and off-site emergency plans and the same are available in the HP SDMA website (www.hpsdma.nic.in).

Part II – Disaster Relief

Chapter – 13

Disaster Relief

Introduction

13.1 Whenever hazards turn into calamities or disasters people have to undergo a lot of miseries. To mitigate such miseries to a certain extent, relief is required to be provided to the sufferers by the Government, because, at such critical time people do look forward to the Government for some sort of help. It is true that whenever the calamity/disaster/disaster occurs, the losses suffered are on very large scale and it is not possible for any Government to compensate the sufferer for the entire loss. At the same time it becomes imperative on the part of the Government which is committed to the welfare of the people to provide some relief assistance to the victims of such calamities. On such occasions the victims are obviously depleted of strength of courage. Being enfeebled, they look to others for help and guidance. It is, therefore, important that while on one hand the Government may provide some relief assistance to such sufferers on the other, it is necessary to maintain personal contact with the victims so that they feel morally re-assured. It should be understood clearly that the assistance which Government provides is only a measure of immediate relief. It is in fact no compensation for the loss.

13.2 There may be occasions when a person who is otherwise well off, may be rendered penniless at a particular point of time and may need some assistance. Therefore, in the matter of providing immediate relief, the status and financial position of a person is not very relevant. What is more, important is that at the particular hour of distress, he receives immediate assistance to sustain himself for a few days. Thus, it is important that whatever relief to be provided it should be provided within minimum loss of time and with maximum speed.

13.3 The relief measure will differ and depend upon the nature of calamity/disaster. At certain occasions in a certain places, money may have no value, but certain articles like food, clothes, etc., may be more important and at such occasions these articles may have to be rushed such place by making immediate arrangements. There may be areas which may become inaccessible due to the calamity/disaster or various other reasons and in all such contingencies the facilities available in the State or outside the State should be immediately harnessed. The assistance of the various department of the State Government as also Central Government or other organizations like I.T.B.P., S.S.B., Red Cross or the Army may be obtained to cope with such situations.

13.4 As soon as a calamity/disaster/disaster occurs, this is the duty of local officer, whether he is a Patwari or any other Revenue Officer above this rank to get in touch with the S.D.O. (Civil) of the area, who should be able to make arrangements to provide assistance by mobilizing local resources. He should also immediately inform the Deputy Commissioner or other officers at the District Headquarters apprising them of the calamity/disaster/disaster and the action which he has already taken. He should also ask for more assistance from the district headquarters and should not hesitate to bring to the notice of district officers his difficulties and assistance required by him to cope up with situation. If there is disruption in telecommunication facilities, he should send special messenger to communicate with district headquarters. If the calamity/disaster is of grave nature and the Deputy Commissioner feels that the Government should be brought in the picture, the Deputy Commissioner should get in touch with the Divisional Commissioner and the Financial Commissioner (revenue) as also other Senior Officers of the Government intimating in brief the nature of the natural calamity/disaster and the action which he has already intimated and further assistance required by him from the Government. This should be done without any loss of time.

13.5 Once he has apprised the Government, of the natural calamity/disaster he should immediately take steps to assess the loss caused by the natural calamity/disaster which should include loss of human life, loss of cattle, loss caused to human dwelling and damage caused to the crops. In certain cases it may be necessary to work out the loss caused to the Government buildings, roads, bridges, electrical installations, Water Supply Schemes, Telephone and other Government and non-government property including forest wealth etc. A report of the first/preliminary information in the form given in **Annexure – B** may be compiled and sent to Relief Commissioner. This should be followed up with detailed report containing description of the event, damage/loss details, causes, pictures etc. A standard reporting format for damage reporting during monsoon or any other occasion specifically desired by the Relief Commissioner is given at **Annexure – C**. Generally in case of large scale and monsoon damages the State submits memorandum to the GOI for allocation of funds out of NDRF. For this purpose the consolidated report of damages for the district should be sent in form given in **Annexure – D**. In case of disaster like earthquake a damage assessment reporting format is given at **Annexure – E** should be more relevant.

13.6 The first concern of the district officer is to provide immediate relief to the effected people/victims so that they are able to sustain their life and livelihood. In cases where damages to the human dwelling have taken place, alternative arrangements may have to be made to provide shelter accommodation. In fact even arrangements for food, clothing etc. may also become imperative. In the event of such natural calamities some time, the belonging of the people are thrown out or are removed away from the site of the calamity/disaster for safety purpose. Anti-social, elements take advantage of

the situation and they try to remove such articles. The officers on the spot i.e. both the Police and the Magistrate should take special care and make special arrangements for the watch and ward of the belongings of the people to avoid loss to the sufferers.

Disasters/Natural Calamities Requiring Disaster Relief

13.7 The calamities/disasters which will qualify for disaster relief are fire, flood, lightning, earthquake, landslides and sinking of land, snow avalanches, glaciers, drought, locusts, epidemics, land storms, excessive rains, cloud bursts, hailstorm, etc. In addition to what has been described above, there are certain contingencies which are accidents like motor vehicles accident, boat mishap, food poisoning, fall from free or steep rock, non-explosive burst, snake-bite would also be considered for relief.

Relief Measures

13.8 The following measures are required to be provided in the event of a calamity/disaster:-

- (1) Arrangement of shelter accommodation for the people who have lost their houses;
- (2) Free ration for a certain period of time;
- (3) Provision of beddings like blankets and clothing to the victims;
- (4) Informing the relations of the family whose members have died or have been affected;
- (5) Provision of some sort of relief assistance for the death of member(s) of the family;
- (6) Disposal of dead bodies and medical aid to the injured persons;
- (7) Relief assistance for the loss of cattle;
- (8) Evacuation of the effected people to a safer place;
- (9) Checking the contamination of sources of water;
- (10) Special arrangements for care of children and expectant mothers;
- (11) Suspension/remission of land revenue;
- (12) Postponement of recovery of Government/bank loans;
- (13) Provision of house sites;
- (14) Grant of land in exchange;
- (15) Supply of timber for the reconstruction of houses;
- (16) Grant of loans for reconstruction and repair of houses as well as improvement of land etc.;
- (17) Starting employment generation programmes where purchasing power of the people have been depleted due to failure of crops on account of drought/flood/excessive rains/earthquake etc.;

- (18) Provision of input subsidy to the farming community;
- (19) Taking up long term measures so that the menace of the calamity/disaster is minimized for future like drinking water supply schemes, irrigation schemes soil, conservation measures, etc.

13.9 If the measure mentioned are taken soon after the occurrence of a calamity/disaster, it leaves very deep impact on the minds of the affected people and this is a gesture of good will to the suffering people on the part of the Government Help of Red Cross Society, Home Guards, Fire services, para-military troops, police and Army can be taken at the time of need.

Provision of Shelter, Clothes, Food and Medicines

13.10 Whenever there is a natural calamity/disaster it is necessary to provide shelter accommodation to the victims. Arrangement for the same should be immediately made. This can be done in consultation with the local people, PRIs and ULBs. Public buildings like Panchayat Ghars, Schools, Recreation centers can be used for the purpose. At times the victims do not want to move from the place of the occurrence of natural calamity/disaster and they insist that they would like to stay at their old places. In such cases assistance like giving of Tarpaulins etc. could be provided for making temporary accommodation or for improving the damaged one. Since tents are very costly and it becomes difficult to retrieve the tents after use in good condition from the victims they should be provided only in rare cases. However, in cases the situation so warrants, the Officers should not hesitate either to construct temporary sheds or to provide tented accommodation.

Estimation of Loss

13.11 The loss to a dwelling house include two major losses i.e. loss to the building and loss to the belongings inside buildings. There may be cases when the building may belong to one person and there may be another person residing in the building or part thereof and the loss of belongings may be caused to another person. The Revenue Officer who is required to assess the loss should carefully distinguish between two and when he is preparing the statement of loss, he should clearly mention the loss of the buildings and name of person(s) to whom such loss has been caused. He should also mention the name of the person(s) who suffered in the loss of belongings. While making assessment, it is very difficult to observe many technicalities and normally the loss of the building as well the loss of the belonging is estimated by the Patwari or Kanungo on the spot. In relation to the belongings the best course is to obtain a statement of loss from the victim himself immediately after the occurrence and no time should be lost to do this, because by the passage of time the victim tend to inflate his losses and it

becomes very difficult to assess the actual loss especially in case of fire and such other calamity/disaster. On the basis of the statement of victim and seeing his status and after inspecting the remnants the estimate of the loss should be worked out.

13.12 Similarly, the estimate of the loss of the building should also be worked out. Approximate plinth area should be worked out while estimating the loss. There may be partial loss to the house, due to landslide, heavy rains and earthquake, etc. which may include collapse of a wall, cracks, etc. In such cases approximate loss should be worked out by the Revenue Officer, but while doing so he must give the details of actual loss which has taken place so that the sanctioning authority is in a position to check that the loss has been properly assessed.

13.13 Immediate assistance to provide clothes should be given in kind. The provision of warm clothing should also be made. Keeping in view the extent of natural calamity/disaster other articles like quilts etc. can so be given. Since these articles are needed at a short notice, it is advisable to keep some stocks of such articles like Tarpaulins, clothes blankets etc. in stock so that they could be rushed to the spot at a short notice. The Deputy Commissioner should be able to make this arrangement within their existing resources and whenever the stock is utilized it should be replenished.

13.14 In the event of a natural calamity/disaster it is at times necessary to provide food articles. Normal practice is that wheat is distributed to the affected people. In fact, distribution of wheat cannot possibly meet their immediate requirement. Thus in such eventualities the Officer in charge should ensure that affected people are given Atta, rice, vegetables, pulses, edible oil and salt, etc. In exceptional cases household articles should also be provided if situation so warrants. This may include minimum cooking utensils, kerosene, lanterns, etc.

13.15 In the event of a natural calamity/disaster many people either get injured or fall ill especially the children who are more prone to diseases. Arrangements for the supply of medicines or removing affected persons to the hospitals should be made for which the Ambulances should be pressed into service. In case of accident, earthquake or the like when there may be injuries to number of persons the hospitals should be informed in advance so that they make arrangement to receive the patients in the emergency ward for their treatment.

13.16 There may be cases where the children become orphans due to the loss of their parents or some ladies are felt widow who may be requiring special attention. The Revenue Officer should immediately help them either by getting the children admitted in special homes and in case of widows necessary help and assistance should be provided through the on-going programmes of the Government.

13.17 In difficult areas of the State evacuation of the injured may be necessary where it may not be possible to transport them by road. In such eventualities assistance should be sought from the Army Authorities for getting aid to the Civil Authorities to evacuate the patient by Helicopter. The District Magistrate can place such requisition with the Army Authorities. But it is always better to do it in consultation with the Government.

13.18 It may also be necessary to resort to air dropping of the essential supplies in the affected areas. Such proposals should be taken up with the State Government on top priority basis and no time should be lost in this behalf. It may be noted that loss of time can be detrimental to the life and health of the people. Such arrangement for the human beings has to be made on top priority.

13.19 The cattle should also not be ignored in areas where there is loss of fodder due to drought or any other reason. The arrangement of providing fodder and shelter should be made for cattle too. In case where areas are effected by drought and there is a shortage of fodder locally it may be arranged from outside. Usually the State Government makes announcement from time to time in such cases to provide transport subsidy to bring fodder from outside. The orders of the Government if any should be followed strictly and with speed. However, in case of emergency where the Officer feels that immediate arrangement should be made for the affected cattle, he should take immediate steps to arrange the same.

13.20 Relief is required to be provided to the sufferers of natural calamities to tide over the difficult period immediately following the occurrence of calamity/disaster, although it is just relief assistance for the loss sustained by the victims. Whenever the calamity/disaster takes place, it becomes very difficult for the authorities to distinguish as to who has been rendered indigent and in whose case the grant of relief is justified. If the authorities start going into the minute details to ascertain financial position etc. of the each affected person it may take a very long time for deciding the grant of relief and thus the very purpose of granting immediate relief will be defeated. Secondly, the affected persons may have many other resources but at a particular point of time i.e. immediately after the occurrence of the calamity/disaster may become a deserving person entitled to help from the Government. Therefore, all affected person should be given relief irrespective of their status unless the victim himself does not require it or has sufficient arrangements to cope up with the calamity/disaster.

Employment Generation Programmes

13.21 The Deputy Commissioner will also draw out a programme for the creation of employment in the villages. It may be difficult to take up small projects in the villages of all of sudden. But it should be possible if the Deputy Commissioners have a shelf of

projects/ schemes for each Panchayat area so that whenever such an eventuality arises he is able to sanction some of the schemes from such relief without wasting any time or without conducting any fresh survey. The information in this behalf should be sent to the State Government immediately for further action. The employment generation programmes would also include, programmes being carried out by various departments, like P.W.D. Irrigation Public Health, Forest, Agriculture, etc. There may be funds available with the various Departments under the on-going programmes/schemes. The work on such schemes should be accelerated and the efforts should be made so that more and more works are carried out in the area which is affected by the natural calamity/disaster. The responsibility to co-ordinate the work of employment generation at the district level would rest with the Deputy Commissioner and at the State level with Financial Commissioner (Revenue).

13.22 There may be some people who are infirm, old or ailing and unable to work including women who may be expectant mothers. It may not be possible for them to work and earn their wages under such employment generation programmes. In such cases some outright relief assistance can also be given either in kind or in cash but since the relief is paid to old and infirm people, it would be very difficult to meet the requirements of various categories of people in respect of their eating habits and to provide them assistance in kind. In such cases, case relief assistance should be given. As a matter of fact, the Deputy Commissioners have sufficient funds to grant such relief assistance under their normal allocation but for this purpose they can draw from the Treasury under the relevant rules and intimate the requirement to the Government so that the amount is allocated.

Loss of Crops and Individual Beneficiary Schemes

13.23 In Himachal Pradesh apart from the Agriculture crops, fruits and vegetable are also grown in many areas. Similarly vegetable including potatoes are grown all over the State. In case of a Natural Calamity/disaster these crops are either completely destroyed or partially destroyed and the farmers are put to loss. In fact due to the loss to the cash crops and people find it difficult to meet their both ends needs. There may be calamity/disaster where the damage is so vast like snow storm/avalanche etc. and the fruit trees are uprooted and the farmers have to re-establish their orchards. In such contingencies the farmers need assistance from the Government. In case of loss of crop as mentioned above the following measures should be taken:-

- (a) Special Girdawari may be ordered by the District Collector immediately so that the loss is assessed. The entire revenue field agency should be pressed into service to assess actual loss.

- (b) The District Collector should order immediate suspension of the land revenue including cases, local rates and surcharge and subsequently move for remission of the same as provided in para. 16 (c) of the Land Administration Manual and Financial Commissioner's Standing Order No. 30. Normally the remission land revenue is admissible when the loss is above 25%.
- (c) No remission due to heavy rain, flood, drought etc. is admissible where the damage to crops is less than 50%.
- (d) Total remission where the damage to crops is 50% and above.
- (e) In the case of hail-storm, total remission if the damage is more than 25%

13.24 If the recovery of loans is suspended the interest for the period for which the recovery of loans is suspended should not be charged. The Banks normally convert their short term loans into medium and long term loans. The District Collector or the State Government should persuade the Bankers to immediately enforce the scheme of conversion of such loans. Similarly the State Co-operative Bank should also come forward to help the farmers.

In a natural calamity/disaster where the crops have been damaged or fruit plants have been up-rooted and destroyed normally the seed for the next crop should be given at 50% subsidy. Subsidy should be provided by the Agriculture Department and the District Collector in consultation with the District Officer of the Agriculture/Horticulture Department should take up the matter with the Financial Commissioner and with the Head of Department concerned. The Department should take immediate action and provide funds for supplying seed on subsidy. Similarly fertilizer should be provided on subsidized rates. Insecticides and pesticides should also be given on subsidy. However, in each case the Deputy Commissioner should hold a meeting with the concerned District Officer and make correct recommendation to the Government in this behalf.

13.25 In the affected areas the District Collector should immediately chalk-out the programme for providing assistance to the affected people. Individual farmer may require assistance for the improvement of his land through individual schemes.

Norms of Assistance

13.26 The CRF and NCCF after the enactment of Disaster Management Act, 2005 has been replaced with State Disaster Relief Fund (SDRF) and National Disaster Relief Fund (NDRF) respectively. The SDRF for the State has been notified and guidelines for the application of the SDRF have been prescribed by the Government of India. The revised norms of assistance for disaster relief would be as per **Annexure F** with immediate effect. The form to be used for making reference to the sanctioning authority is given at **Annexure – G.**

13.27 Guidelines for Preparing and Sanctioning relief

13.27.1 Death Cases

- i) Since relief is admissible in cases of accidents specified in relief manual only it is advisable to ascertain the cause of death. Medical prescription, post-mortem report, copy of FIR etc. should invariably be taken on record to establish the cause of death.
- ii) Death certificate of the deceased and list of legal heir/next of kin/dependents should also be attached with the case.
- iii) In exceptional cases where no documents are available the SDO (Civil) would satisfy himself about the contingencies while sanctioning relief cases.

13.27.2 Loss of Cattle/Animal/Sheep/Goat etc.

- i) Since relief is admissible in cases of accidents specified in Relief Manual only it is advisable to ascertain the cause of death. A report to this effect should be taken from Veterinary Officer, Veterinary Pharmacist.
- ii) Photograph of dead animal/cattle/goat/sheep, etc. and grazing permit of sheep/goat (in case of migratory shepherds) should also be taken on record to avoid fake/false claims.

13.27.3 Loss of Dwelling Unit

- i) A house would be considered as fully damaged where the damage is above 50% or where it is certified that it is beyond economic repair.
- ii) A house would be considered as severely damaged where it is certified that the damage is above 30% .
- iii) The photograph of damaged house should invariably be taken on record to avoid fake/false claims.
- iv) In case the loss of dwelling unit is full, physical verification by Revenue Officers shall ordinarily be a pre-requisite for sanctioning relief. In exceptional cases the SDO (Civil) can wave off this condition.
- v) Sanctioning Authority can seek report of technical authority such as Engineers of various departments, loss assessors, etc. to evaluate the extent of damage/loss.

13.28 Constitution of Advisory Committees for Disaster Relief and Response

Suggested list of advisory committee at various levels is given below. The Chairmen of respective committee are free to co-opt any other person, expert or

officers of any department or drop any person from the suggested list as per the requirement of the situation.

13.28.1 State Level

i)	Chief Secretary	Chairperson
ii)	Principal Secretary (Revenue) & Relief Commissioner	Convener/Member
iii)	All the Additional Chief Secretaries/Principal Secretaries/ Secretaries	Members
iv)	Director General of Police	Members
v)	Commandant General of Home, Fire Services and CD	Member
vi)	Members of CPMF and Armed Forces (in case of need)	Member
vii)	Director I & PR	Member
viii)	CGM BSNL	Member
ix)	State Secretary Red Cross	Member
x)	Coordinator IAG HP	Member

13.28.2 District Level

i)	District Collector	Chairman
ii)	Members of Legislative Assembly	Members
iii)	All the members of DDMA	Members
iv)	Additional District Magistrate/AC	Convener
v)	Conservator of Forest	Member
vi)	Deputy Directors – Agriculture and Horticulture	Members
vii)	Deputy Director Animal Husbandry	Member
viii)	Commandant Home Guards	Member
ix)	District Project Officer ICDS	Member
x)	District Foods and Supplies Controller	Member
xi)	District Public Relations Officer	Member
xii)	District Telecom Officer	Member
xiii)	Engineer, Pollution Control Board	Member
xiv)	District level authorities of Army, CPMF etc.	Members
xv)	District Welfare Officer	Member
xvi)	District Fire Officer	Member
xvii)	Secretary Red Cross	Member
xviii)	District Coordinator IAG	Member

13.28.3 Sub-Divisional Level

i)	Sub-Divisional Officer (Civil)	Chairperson
ii)	Sub Divisional Police Officer	Member
iii)	Divisional Forest Officer	Member
iv)	XENs of PWD, IPH, and Electricity	Member
v)	Block Medical Officer	Member
vi)	Block Development Officer	Member
vii)	Tehsildar	Member Convener
viii)	CDPO	Member
ix)	TWO	Member
x)	Presidents of all ULBs	Members
xi)	Representatives of Food and CS Deptt.	Member
xii)	HDO and ADO	Members

General

13.29 Some general guidelines of disaster relief and response are as under:-

- i) In case of emergency it may be necessary to start distribution of food-grain, relief material like tarpaulin, blankets, clothes, milk powder etc.
- ii) Tents/temporary sheds should normally not be provided keeping in view their high cost but the same may require to be provided in case of major disaster like earthquake and major fires involving the whole village where the victims cannot be rehabilitated in public buildings.
- iii) People affected by disasters should have access to the minimum requirement – potable water, sanitation, food, nutrition, shelter and health care - during their temporary stay at Relief Camps/temporary sheds/tents. Special care needs to be taken care of women, older people, disabled etc.
- iv) Relief material distributed in kind should take care of lactating and pregnant ladies, women and adolescents.
- v) Constitution of Relief Committee in a situation of large scale disasters is important. The Deputy Commissioner concerned should constitute such committee at the Panchayat level too consisting of the Government functionaries, public representatives, CBOs, NGOs etc. with pre-defined roles and responsibilities. Due representation to the PRIs and ULBs be given in these committees.
- vi) Standards in disaster relief would be as notified by the NDMA.

Techno-Financial Regime

13.30. Considering that the assistance provided by the Government for 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.

Note:- This Manual contains only the guidelines. The situation may differ from disaster to disaster and from place to place and the Deputy Commissioner may have to act according to the situation keeping in view the broad provisions contained in this Manual.

Chapter – 14

Medical and Public Health Services

14.1 In the event of natural calamity/disaster especially in drought and in cases when the normal services are disrupted by heavy snow storm or rain, there is either shortage of water or pollution of water and there is likelihood of spreading of various epidemic both in human beings and in cattle, much of the damage resulting from such calamity/disaster can be reduced and human suffering lessened if there is organized and planned efforts to meet this problem.

14.2 In a situation of drought or in a situation when water supply schemes are disrupted or the sources get dried, the arrangement for the supply of water is to be made. The Deputy Commissioners are required to immediately plan and make arrangements in consultation with the Irrigation and Public Health department for the arrangement of supply water in each effected village. This can be done either by making temporary arrangements by way of laying pipes or tapping new sources of water to augment the existing water the affected villages by trucks and other means. There may be situations when water may have to be transported by mules or through porters or tankers. It should be ensured that no human being or cattle suffer due to inadequate supply of water and no casualty takes place on that account. The demand for funds in this connection can be placed immediately by the Deputy Commissioner with the Revenue Department and in the meantime he can go ahead with the arrangements. In emergent situation, he can seek approval on telephone or through wireless message/fax/e-mail.

14.3 Effective measures and preventive action are required to check the spread of epidemics in the affected areas. The Chief Medical Officer should take charge of this programme and should remain in constant touch with the Deputy Commissioner so that the whole programme is organized in a coordinated manner.

14.4 An assessment should be made of (i) requirements (ii) availability (iii) deficiencies, if any, in respect of personnel, stores and equipment and accommodation to provide such facilities as may be required by the people of the affected areas. Voluntary organizations should also be involved in making arrangements and providing emergency medical aids to the affected persons/ people. Arrangements for hospitalization of the ailing persons should be made and necessary medicines should be provided to them.

14.5 Sanitation and public health measures should be taken in all affected areas. Spraying of medicines, disinfectants should be undertaken. Sources of water supply should be inspected and they should be properly chlorinated. In fact diseases like Diarrhea, dysentery are frequent complaints and arrangements should be made in advance and if necessary a team of the doctors should be constituted to move in the mobile vans to provide medical aid to the affected persons of the area itself. The authorities concerned with public health and sanitation should be responsible for:-

- a) Maintenance and restoration of safe water supply and also temporary measures required for rendering water safer for drinking purposes and for other essential uses;
- b) Adequate food inspection during emergency especially inspection of emergency kitchens, canteens and cafeterias;
- c) Tightening up of existing sanitary regulations regarding milk supply and prevention diseases among milk cattle;
- d) Maintenance of high standards of sanitation in the disposal of sewerage and solid waste;
- e) Maintenance of sanitation of high degree in emergency camps;
- f) Prevention of epidemics by massive inoculating with TAB and Cholera vaccines;
- g) Anti-flu and anti-mosquito measures to be intensified and specially after floods when the normal sanitation arrangements will be disrupted;
- h) Stocking of essential hygienic chemicals and bleaching power and other disinfectants.; and
- i) Proper disposal of the dead.

Veterinary Services

14.6 Measures for the care of cattle are as important as for human beings. The services of District Animal Husbandry Officer in each district should be utilized in consultation with the Deputy Commissioner and he should ensure that necessary medical assistance and veterinary services are provided to the cattle. The treatment of the cattle should not suffer for want of medicines for which adequate arrangements should be made. While disposing off the carcass the guidelines issued by the NDMA (Dealing with the Dead in the Aftermath of a Disaster) should be followed.

Chapter – 15

Documentation

15.1 Since the State Government is to approach the Central Government for obtaining central assistance in case of each natural calamity/disaster, comprehensive information is needed by the State Government for the preparation of memorandum to be submitted to the Central Government. Though the Deputy Commissioners will inform the State Government about the loss caused by natural calamity/disaster in various areas as and when it occurs, yet it is necessary for the Deputy Commissioner to prepare consolidated information and forward the same to the government in the Revenue Department for the preparation of memorandum, for this detailed information showing the loss of human beings, loss of cattle, loss of private property, loss of crops, loss of community assets, loss of government assets and loss to the roads and bridges and other installation like electric installation, water supply schemes etc. etc. is required to be given.

15.2 A form for this purpose has been prescribed as Annexure - C and D. This information should also be maintained by the Deputy Commissioners and more comprehensive details should be prepared by them so that whenever the Central Team visit they could apprise them accordingly. The Central Team takes considerable time to visit the site. By the time the team arrives nothing can be shown in the field because the damage caused, has either been repaired or it has vanished. It is therefore, advisable to have photographs and keep cuttings of newspaper clippings wherever possible and the services of Public Relations Department should be used for the purpose. The District Public Relation Officers should visit the affected areas and prepare an album so that the visiting team could be shown the extent of loss/damages caused because of the natural calamity/disaster.

Knowledge Management

15.3 Every disaster leads to some learning. The lessons learnt would be documented and uploaded in the respective DDMA website for reference. The reports of damage and loss too should be compiled and uploaded in the website as per the Form – C.

Annexures

THE HIMACHAL PRADESH SNOW MANUAL

CHAPTER-1

GENERAL

Snow is a natural phenomenon which occurs in some parts of the State during winter. This manual envisages steps to be taken before during and after a snowfall to prevent dislocation and damage to life and property.

OBJECTIVES

The objective of this Manual is to keep the concerned departments in readiness for the snow season, to take such steps as are necessary to prevent damage and loss to human life and property and to ensure that normal life is restored without any loss of time.

AREA OF OPERATION

The manual has been mainly prepared for Shimla town and its suburban areas. However it can be used by the District Authorities of the State in other places also.

APPLICATION OF PROVISIONS OF MANUAL

The provisions of the manual will come into force at once and no sanction of any authority is needed to operate various provisions of the manual. The finances involved for the operation of the manual will be debitable to the normal budgets of the Deptt concerned and will be borne by

1. The Public Works Department by Superintending Engineer 4th Circle Shimla.
2. Police Department by Superintendent of Police, Shimla.
3. Irrigation and Public Health Deptt. by Superintending Engineer IPH Shimla.
4. Himachal Pradesh State Electricity Board by Superintending Engineer, Hydel Circle, Shimla.
5. Home Guards by District Commandant 3rd Battalion, Shimla.
6. Municipal Corporation by the Commissioner, Municipal Corporation.
7. Himachal Pradesh Transport Corporation by Divisional Manager Shimla.

In case of excess expenditure the matter will be referred to the Head of the Department and any excess will be reported to the Govt. in case of expenditure incurred by the Deputy Commissioner, Shimla to provide relief in connection with snow manual or in connection with the relief manual, the expenditure is debit able to the head " 289 Natural Calamities" which is operated by the District Collector.

Broadly, the departments involved in restoring normalcy and taking preventive action are PWD (B&R), Irrigation and Public Health, HPSEB, Municipal Corporation, Shimla, Telephones, Civil Defence and Home Guards, Transport, Police and Magistracy. All the departments are expected to assist and cooperate with the district administration in tiding over this difficult period.

CHAPTER-2

PREVENTIVE ACTION

All departments concerned will take preventive steps to avoid any loss of human life or property during the course of snow and these steps should be taken in hand well in time.

PUBLIC WORKS DEPARTMENT (B&R)

The public Works Department (buildings and Roads) is primarily responsible for keeping the roads open and to achieve this objective they should inspect the roads under their control at a fairly senior level to see if any wall or any road at any place, requires repair and is likely to give way in the event to snow. All such repairs should be carried out well before snow season occurs. The Officer should also inspect all the trees which are standing by the side of the road and if any tree is likely to fall, steps should be taken well in advance to remove the same so that no damage is caused by its sudden fall to any human life or property. They should also check up their machinery like bulldozers and snow cutters well in advance and carry out necessary repairs before the snow season sets in the department will also ensure that sufficient quantity of salt is procured for Shimla Town so that it could be spread on the road soon after the snow fall for smooth running of traffic. The public Works Department will prepare and operation plan detailing the steps to be taken. The Superintending Engineer concerned will send a report to the Engineer-in-Chief, PWD that all steps envisaged in the Snow Manual for preventive maintenance of roads buildings tools and plants have been taken with a copy to Commissioner-cum-Secretary GAD to the Govt. of Himachal Pradesh and the Deputy Commissioner, Shimla.

IRRIGATION AND PUBLIC HEALTH DEPTT.

Water supply is one of the most important necessities of life and irrigation and Public Health Department should ensure that all water pipes within the jurisdiction of I&PH Department should ensure that all water pipes are properly covered under the ground and wherever they are exposed, they should be properly wrapped with hessian cloth or coir ropes so that the pipes do not burst during the winter season and uninterrupted water supply is available in the Town area. For the purpose preventive maintenance of pipes and other tools and plants should be carried out well before the snow season. Adequate steps should be taken to keep the pumps of Gumma, Jugroti, Chohor and Chor well maintained and proper arrangement of electricity supply should be made. The Superintending Engineer concerned will send a report to the Engineer-in-Chief that all

steps envisaged in the Snow Manual for preventive maintenance of water supply have taken with a copy to Commissioner-cum-Secretary GAD and the Deputy Commissioner, Shimla.

H.P. STATE ELECTRICITY BOARD

To ensure uninterrupted supply of electricity, the HPSEB authorities should see that all lines are checked and preventive maintenance of electric installations is carried out. The lines and machines should be in proper order and preventive maintenance should be carried out in relation to all tools and plans under their control. The lines should be inspected jointly by the SDOs concerned of HPSEB and Municipal Corporation, Shimla from 15 to 20 November every year, and if any tree is likely to fall or if any branch of trees is likely to fall or touch the lines disrupting the electricity supply, they should send a report to the Government to obtain permission for removal/lopping of such trees to avoid any failure of electricity. The Department should doubly ensure that supply of electricity to Gumma pumping Station remains uninterrupted during the snow season. The Superintending Engineer, HPSEB will send a report that he has ensured the compliance of the provisions of the Manual and furnish the same to the Chief Engineer, HPSEB with a copy to Commissioner-cum-Secretary, GAD to H.P. Government and Deputy Commissioner, Shimla.

MUNICIPAL CORPORATION, SHIMLA

The Municipal Corporation, Shimla is primarily responsible to provide various basic amenities to the citizens and their responsibility becomes all the more important during the snow season. They have to make all preparations well in advance to keep various facilities intact during the snow. All water lines under the control of Municipal Corporation should be checked up and it should be ensured that they are properly covered so that the water does not freeze during the winter season. All fire hydrants should be properly checked to ensure smooth flow of water to light against any eventualities of fire during the snow. Fire hydrant indicators should be installed so that in the event of fire there is no difficulty in locating the same. They should be well above the ground so that they do not get buried under the snow. All the municipal roads should be inspected and more attention should be given to sloppy paths/roads. Dangerous trees should be located and proper steps should be taken so that they do not fall during the snow season causing loss or endangering human life and property. The street lights particularly between Sanjauli, St. Bedes and Chotta Shimla should be checked with special reference to the installations like bulbs and tubes etc. and they should be got repaired through the agency concerned well before the snow season. Disruption of street light is a very great hazard. The Municipal Corporation should store sufficient stock of salt so that it could be spread on the roads in snow season. This salt can easily be procured from Gumma. The drains should be checked and cleaned before the snow season as it may be difficult to clean them when the snow has covered them. The areas which are prone to land-slide should be checked and remedial steps should be taken well in advance. The steps connecting various roads should be got repaired because once they are under snow, it is difficult for pedestrians to identify pot-holes in the drains and the roads, which cause accidents. All buildings in the town should be

inspected and any building which is likely to give way with heavy snow fall should be set right by taking recourse to legal provisions of Municipal Corporation Act. The buildings which are risky should be declared as such and steps should be taken to get them evacuated to avoid any loss of human life or property. The Commissioner, Municipal Corporation will send a report to the Commissioner, Shimla Division, that all preventive steps as envisaged in the Manual have been taken with a copy to the Commissioner-cum-Secretary, GAD to H.P. Government and the Deputy Commissioner, Shimla.

The Telephone Department should check their poles and wires and if there is any sag in the lines or any pole is likely to give way during the snow they should be set right well before snow season.

TELEPHONES

The Telephone Department should check their poles and wires and if there is any sag in the lines or any pole is likely to give way during the snow they should be set right well before snow season.

CIVIL DEFENCE & HOME GUARDS

The Civil Defence & Home Guards Department should get their vehicles viz. ambulances and fire brigades properly checked and repaired before snow seasons. Arrangements of snow chains should be made for all vehicles so that they could be plied during the snow season. The drivers should be given adequate training to ply the vehicles in the snow season. The firefighting organization should prepare a map of fire hydrants and keep them identified so that if they are under snow they could be located in any emergency of fire. An adequate number of Home Guards should be called out to meet any eventuality before snow season. The number of Home Guards required should be worked out in consultation with the Deputy Commissioner, Shimla. The District Commandant, Home Guards will send a report that he has taken proper steps as envisaged in the Manual and forward the same to the Commandant General, Home Guards with a copy to the Commissioner-cum-Secretary (GAD) to H.P. Government and Deputy Commissioner, Shimla.

TRANSPORT

The HRTC authorities should check all their buses for preventive maintenance and also ensure that diesel does not freeze during the winter season. They should also make arrangements for using snow chains in the local buses which are proposed to be plied during the snow. In case of very heavy snow fall, only limited number of buses can be plied which should be ear-marked well in advance so that there is no confusion or breakdown during the snow fall.

SUPERINTENDENT OF POLICE

The Superintendent of Police should keep adequate force for the snow season. The force should be properly equipped with clothing, shoes, rain-coats, torches etc. He should also arrange in advance adequate number of wireless sets which could be

deployed in the event of heavy snow fall and failure of telephone communication. The requirement of Home Guards should also be worked out well in advance. The Superintendent of Police will determine the requirement of force etc. In consultation with the District Magistrate for various purposes like patrolling, helping the stranded and infirm and rescue operations in case of collapse of any building and traffic jams.

DEPUTY COMMISSIONER, SHIMLA

The Deputy Commissioner, Shimla should ensure that adequate supply of essential commodities is stored in the town in Govt. Fair Price Shops so that there is no shortage of supply during the snow season. Sufficient quantity of coal, Kerosene Oil, Cooking gas and other essential commodities should be stored in consultation with the Director, Food & Supplies. The Deputy Commissioner, Shimla should also ensure that all his vehicles are in order and they are equipped with snow chains so that he is able to provide assistance to the stranded staff/officers and other needy persons. The Magistrates in the town should be in readiness so as to swing into action whenever needed. They should be equipped with proper clothing, sticks, shoes etc. The Deputy Commissioner, Shimla will also keep reasonable stocks of shoes, sticks, torches, Blankets, Jerseys/sweaters and tarpaulins so that these could be used by the stranded persons.

MEETING OF THE OFFICERS

The Deputy Commissioner, Shimla will convene meeting of all representatives of the departments before the end of December every year and apprise them of the various provisions of the Manual requesting them to take action as envisaged in the Manual and issue necessary orders to the effect that necessary preventive steps have been taken and send a report to the Commissioner-cum-Secretary (GAD) to the H.P. Government

CHAPTER-III

INSPECTION DURING THE SNOW

The Deputy Commissioner, Shimla will be the over all in charge of the arrangements during the snow. A room will be set up for which at least two rooms will be made available by the Municipal Corporation, Shimla to the Deputy Commissioner, Shimla. One room will be used for the Magistrate on duty and the other for the staff working in the control room. Each department concerned will nominate one person and send his name, designation and telephone number to the Deputy Commissioner, Shimla latest by the 15th November, who would be responsible as a Liaison Officer of the Department for over all co-ordination of the operation during the snow. The following will be liaison officers from their Departments.

1. Superintending Engineer, HPPWD, 4th Circle Shimla.
2. Superintending of Police, Shimla.
3. Superintending Engineer, I & PH, Shimla.

4. Superintending Engineer, Shimla Hydel Circle, HPSEB
5. District Commandant, Home Guards, 3rd Battalion.
6. Commissioner, Shimla Municipal Corporation.
7. Divisional Manager, HRTC Shimla

The Duty Magistrate will be assisted at the Control room by representatives of all the departments and such number of other persons like Home Guards, Police and other ministerial staff as may be required from time to time. A telephone with hunting facility will be provided at the control room by the Deputy Commissioner, Shimla. Arrangement to keep the control room warm by angithis or heaters will also be made by the Deputy Commissioner, Shimla. A register will be maintained at the duty room in which the attendance of those who are present in the duty room will be marked and, if any of the representatives leaves the control room with the permission of Duty Magistrate, a note to that effect will be indicated with his probable time of return. Another register in the control room will be maintained in which all emergency calls requiring assistance will be noted with the full particulars of the caller and the assistance needed by him. All types of complaints like failure of telephone, electricity, water supply, bad condition of roads etc. will be recorded and action taken will also be noted down in the register. The form to be used for the above mentioned two registers are at Annexure "F" and "G". If on any day the official does not report for duty or leaves the control room without permission of the Duty Magistrate, the Duty Magistrate shall forthwith report the matter to the liaison Officer and, in case, no favorable response is received from the Liaison Officer, the matter will be immediately brought to the notice of the Deputy Commissioner and Commissioner-cum-Secretary (GAD) to the Government of H.P.

PUBLIC WORKS DEPARTMENT (B&R)

The Public Works Department (B&R) is responsible to ensure that the roads under their charge are cleared of snow within 24 hours' time. To achieve this objective, they should prepare terms and earmark the areas for each team for manual clearance of the roads. A senior officer of the Public Works Department (B&R) will inspect the road frequently and ensures that no slackness is shown by the teams keeping the road clear. Snow cutters and bulldozers should be earmarked for various roads and they should come into action immediately without waiting for any formal orders from their superiors when the snow fall takes place. All places where the vehicles get stuck due to slippery road, should be given special attention by clearing those areas on priority and salt should be spread in adequate quantity at such inclines. In addition to the PWD roads, Municipal road from Chotta Shimla to Kennedy House and from Ridge to Sanjauli shall also be cleared by the PWD because of the limited man power resources of the Municipal Corporation. The Municipal Corporation Shimla will, however, pay to the PWD the expenditure incurred by the latter for keeping these roads clear. Use of snow-cutters, spreading of salt and manual clearance of roads should be resorted to in such areas. The complaints of non-clearance of roads from any area should be promptly attended to and if the traffic is stranded at any particular point, assistance should be rushed to that place and in such cases, the Senior Officer should personally visit the place. The overall responsibility to ensure clearance of the roads will be that of the

Public Works Department who should keep liaison and co-ordination in all spheres to ensure smooth flow of traffic all over the town.

IRRIGATION AND PUBLIC HEALTH DEPARTMENT

Irrigation and Public Health Department is responsible to maintain the water supply of the Town area by keeping the pumps running and lines in order up to the point where the Municipal Corporation takes over the works. They should ensure that the pumps work according to the schedule and there is no shortage of water supply in the town. They should maintain liaison with the H.P. State Electricity Board for regular supply of Electricity for running of pumps on priority. Proper arrangement to get information of the faults should be made and ear-marking the areas to the various teams should be made to ensure that the pipes have not burst at any place. These patrolling teams will send information for immediate attendance of the faults. The Superintending Engineer, (I&PH) will be responsible for maintenance of the water-supply to the Town area and he shall inspect the areas during the course of snow so that he satisfied that the supplies are being maintained.

H.P. STATE ELECTRICITY BOARD

The HPSEB is responsible to maintain electric supply to the drinking water pumps and for that purpose they should make all possible arrangements for providing power even from alternative routes. Similarly electricity supply in the town area for home consumption and for hospitals should be maintained on priority. The street lights have also to be kept in working order throughout the snow season. The HPSEB should make special arrangements to ensure that the power supply to the consumers is not disrupted. If any complaint of failure of electricity is received, the party should immediately rush to the affected area. For this purpose, a few parties should be kept in readiness round the clock to attend to such complaints. For the purpose of attending to all such emergencies, one vehicle of HPSEB will be parked near the Corporation office at Shimla and if it becomes essential to ply any vehicle on the restricted/seated portion of the road in Shimla, they may do so. The vehicles should only be plied in real emergency when an officer is travelling along with staff. In case of any fault in the high tension lines the patrolling parties should be available to detect the same and for this purpose, adequate number of patrolling parties should be detailed in advance and the area should be ear-marked to them. Arrangements should be made to receive information from the patrolling parties quickly so that the repair parties could be rushed. Wireless sets should be installed at Guma and Jutog and should be used for such eventualities. Arrangements should be tied up in advance with the Superintendent of Police, Shimla, so that the wireless sets are available at the time of necessity.

MUNICIPAL CORPORATION, SHIMLA

Apart from the road from Chhota Shimla to White House and Sanjauli to Ridge which will be cleared by the PWD on payment, there are other link-roads in the town area including Lower Bazar, Middle Bazar, Jakhu etc. where the roads have to be kept clear/open for emergent plying of ambulances and fire brigade vehicles. A list of

important roads should be prepared for clearance of snow on priority basis. This work is to be done by the Municipal Corporation through their own staff of workers who should be ear-marked to the various areas well in advance. They will swing into action to clear the areas immediately, a list of such teams prepared for each area should be sent in advance to the control room so that Duty Magistrate knows the particulars of the teams and the persons heading the team and any complain from that area should be immediately attended to. In clearing small roads, the first attempt should be to prepare a path for the pedestrians and the roads should be cleared immediately for small vehicular traffic. Sufficient labour for this purpose should be arranged by the Municipal Corporation and no delay should take place in clearance of such roads. The Municipal Corporation should also attend to the complaints of bursting of pipes and freezing of water, in the pipes in various localities so that the water supply is not disrupted. This could be avoided to a great extent if preventive action has been taken by covering the pipes and not allowing them to be exposed. In the event of snow fall, a large number of "Safai" staff becomes surplus who should be deployed for keeping the drains clear and clean and also to keep up the sanitation in the various parts of the town area. This would include arrangements for removing garbage and also cleaning of public latrines in various places in the town. The stairs connecting various parts of the town should be given special attention because most of the accidents take place by falling in the stairs and on roads which are slippery. Sufficient quantity of salt should be spread in places where the roads/stairs are slippery and railings may also be provided on these paths/roads to avoid accidents. The Municipal Corporation should make advance announcements if there is disruption of water supply so that public remains aware of the same. Street lights are most important during the snow season. Patrolling parties of the Municipal Corporation should see during the day time if all the street lights are in working order and, in case, of any disruption, it should be rectified before dusk. In case, any tree or branch of the trees fall on the road, they should be expeditiously cleared and for that a few teams should be kept in readiness with proper equipment. The responsibility of maintaining services in the town area in relation of the Municipal Corporation will be that of the Commissioner, Municipal Corporation who will maintain liaison with the Duty Magistrate in the control room. There may be tourists who are held up in the town when their vehicles get stuck at various places. Normally the coolies charge exorbitant rates for pushing vehicles to and from various points. A few such teams of coolies should be prepared and their charges should be fixed at reasonable rates by the Municipal Corporation for clearing the vehicles. The rates so fixed should be displayed on the notice boards at sensitive points so that the outside tourists who are helpless, and not fleeced. The address of such parties should be kept in the control room and should be published in various places.

TELEPHONES

The Divisional Engineer, Telephones, whose representative will also be available in the control room, should ensure that all complaints of failure of telephones are expeditiously attended to. Telephone lines in the remote areas of the District should remain in order so that the reports from the remote areas are received by the district administration for immediate remedial action. The public complaints which are received from the public directly or through control room should be attended to on priority and no slackness should be shown in this behalf. All the important telephone numbers should be daily checked.

CIVIL DEFENCE AND HOME GUARDS

Sufficient number of home guards should be called out during the snow season and they should be used for rescuing stranded persons. They should be made into small parties and wherever necessity arises, they should rush. They would also be used for carrying ailing persons to the hospitals, in case, ambulance is not above to ply. Any vehicle which gets stranded in any area of the town should also be cleared with the help of such parties. Adequate number of home guards should be kept in readiness in or near the control room to assist the Duty Magistrate in performing his duties. Home guard personnel should also be acquainted with the residence of VIPs and Senior Officers in the town so that if any message is to be sent from the control room they should act as messenger in the event of failure of telephonic communication.

MILK SUPPLY

Arrival of milk in the town should be ensured and, in case of disruption due to road blockade or failure of vehicular traffic, manpower should be utilized to bring the milk to the centre of distribution. In Emergency, milk should also be carried through men to the milk booths. Adequate supply of milk should be ensured. Manager, Milk Supply, Shimla will be over all responsible to ensure milk supply in the town area.

TRANSPORT

Efforts should be made that all transport should run as normal even during the snow. The transport authorities should keep liaison with the control room and with the Public Works Department. The vehicles which ply in the snow should have snow chains. A recovery van should also be arranged well in advance to recover the stranded vehicles from the snowy roads. If any transport vehicle gets stuck at any point, immediate steps should be taken to clear the same because the road also gets blocked if such vehicles are not cleared. The Divisional Manager, HRTC will be responsible for overall

arrangements of the transport in the town area. He should ensure that all buses ply as usual even during the snow season.

SUPERINTENDENT OF POLICE

The Police should remain vigilant during the snow season both against crime and providing assistance to the people. Patrolling parties of police should patrol various areas of the town and if they find anything wrong they should immediately get in touch with the control room for remedial measure. A large number of vehicles come from plains during the snow season and it is not possible for Flat or Ambassador Cars to ply on the road without chains. They should be stopped at the Police Barrier or at some other convenient places where the traffic is not jammed. The HRTC will make necessary arrangements of coolies to carry the baggage of the passengers and the occupants should be accordingly advised. If one vehicle gets stuck on the road the entire traffic is jammed and, therefore, vehicles which are not fit for plying in the snow, should not be allowed to ply on such roads. They could be parked at convenient places wherever they are detected. The Superintendent of Police will also ensure that wireless sets are used by the Patrolling parties so that they are able to send information to the Police Reporting Room and the Control Room. The Superintendent of Police will also coordinate with the Superintending Engineer of the H.P. State Electricity Board in the matter of getting information from the patrolling parties of High Tension lines. If necessary, a Temporary Wireless Station can be established at Gumma to monitor the pumping of water for Shimla Town.

DEPUTY COMMISSIONER, SHIMLA

The Deputy Commissioner, Shimla will be over all in charge of the various operations under this Manual. The Duty Magistrate in the Control Room should function round the clock and co-ordinate the activities and operations of various departments during the snow season. He should ensure that all the complaints made to him are entered in the register and necessary action is taken. He should himself contact the calling parties to know whether complaint made by them has been rectified. In the event of receipt of information of any VIP or Officer getting stranded to and from Shimla, the Duty Magistrate should immediately depute a vehicle along with a few Home Guards and necessary equipment like shoes sticks, rain coats, torches etc. so that such stranded persons are rescued. Similarly if there is any call from ailing persons and Ambulance is not able to ply, the Duty Magistrate should make arrangements. The Duty Magistrate will keep the Deputy Commissioner and Commissioner-cum-Secretary, GAD to the H.P. Government informed of various events which come to his notice. In case, he is not able to get any cooperation from any department, he should bring the matter to the notice of Deputy Commissioner, Shimla forthwith. The Deputy Commissioner will keep

at least two vehicles with chains available along with drivers round the clock under the charge of Duty Magistrate. One of these vehicles could be parked in the Ambulance Station for emergency duty. As regards supply of essential commodities, the control room should maintain complete liaison and complaints should be attended to by the District Food and Supplies Controller, Shimla under the overall charge of the Deputy Commissioner, Shimla. The District Food & Supplies Controller should maintain daily stock position and in case of any shortage, he should bring the matter to the notice of the Deputy Commissioner. In such difficult situation, the traders tend to charge high rates for essential commodities. This should be properly checked. The cooking gas dealers should be advised in advance to make adequate arrangements for distribution of cooking gas during the snow season. There may be some poor and infirm people who suffer because of heavy snowfall. Such persons have also to be helped and all deserving persons should be provided assistance by way of clothing and blankets so that due to heavy snowfall they do not die. In deserving cases where it may be necessary, some food grains could also be given. Due to heavy snow or snow storm sometimes some buildings may collapse or may be damaged. In such eventualities the administration will move swiftly for making arrangements of evacuation and providing shelter accommodation. It may be necessary to provide other assistance to such families like food grains, clothing, beddings etc. Adequate stock of these articles should be made in advance so that no difficulty is experienced at the time of necessity.

Annexure - B**Format for First Information Report on occurrence of natural calamity**

(To be sent to SEOC and NEOC, Government of India within maximum of 24 hours of occurrence of calamity)

From: District/State -----

Date of Report -----

To

- i) The Relief Commissioner cum Principal Secretary Revenue (Fax: _____ email: _____)
- ii) I/c State EOC (fax: _____; email: _____)
 - a. Nature of Calamity
 - b. Date and time of occurrence
 - c. Affected area (number and names of affected districts)
 - d. Population affected (approx.)
 - e. Number of Persons
 - i) Dead
 - ii) Missing
 - iii) Injured
 - f. Animals
 - g. Affected
 - h. Lost
 - i. Crops affected and area (approx.)
 - j. Number of houses damaged
 - k. Damage to public property
 - l. Relief measures undertaken in brief
 - m. Immediate response and relief assistance required and the best logistical means of delivering that relief from State/National
 - n. Forecast of possible future developments including new risks.
 - o. Any other relevant information

Situation Report

DATE OF REPORT:

Sl. No.	Category	Report of happenings during the last 24 Hours	Cumulative damage/loss
I - Rainfall and Damage/Loss Position			
1.	Indicate Place and rainfall (in CMs)		
2.	Details of rainfall		
3.	Brief details & cause (s) of flash/riverine floods, landslides, road blocked etc.		
4.	Population affected if any		
5.	Number of human lives lost district-wise (specify the cause of death)		
6.	Number of Cattle/livestock lost/perished.		
7.	Area affected (in hectares)		
8.	Estimated value of damaged crop (Rs. In lakh)		
9.	Number of houses damaged		
	i) Fully		
	ii) Partially		
10.	Estimated value of damaged to houses (Rs. In lakh)		
	i) Fully		
	ii) Partially		
11.	Impact of flood on infrastructure (sector-wise i.e. power supply, water supply, road transport, health sector and telecommunication etc. – in physical term)		
12.	Estimated value of damage to public properties-sector-wise in monitoring terms (Rs. In lakh)		
13.	Estimated value of total damage (8+10+12)		
II - Fire Incidents			
1.	No. of domestic fire incidents, causes, with brief details		
2.	Loss of life		
3.	Loss of cattle		

4.	Total loss of property (in lakh)		
5.	No. of wild fire incidents		
6.	Area involved (in hectares)		
7.	Estimated loss of forest wealth (in lakh)		
8.	Estimated value of loss/damage		
III – Accidents			
1.	No. of accidents – roads and others (Please specify the category)		
2.	Loss of life		
3.	No. of injured		
4.	Cause of accident		
IV- Snow Fall			
1.	Indicate Place and snowfall (in CMs)		
2.	Details of loss/damage if any		
3.	Estimated value of loss (in lakh)		
V – Hailstorm			
1.	Indicate Place and area of hailstorm (in hectares)		
2.	Estimated Value of loss (in lakh)		
VI – Other incidents of loss of life & Property			
1.	Detail of loss/damage with estimated value		
VII - Any other relevant information			
1.	Number of persons evacuated (district wise)		
2.	Number of relief camps opened (district wise)		
3.	Number of persons accommodated in the relief camps (district wise)		
4.	Details of distribution of essential commodities		
5.	GR paid, if any specify the items and amount		
6.	Steps taken to prevent outbreak of epidemic including the deployment of medical teams (district-wise). Whether outbreak of any epidemic occurred?		
7.	Whether assistance of from Army, Air Force and Navy sought (Specify details of no. of column/helicopters/ naval divers provided and their place of deployment as well as number of days etc.)		
8.	Whether assistance of NDRF Battalions sought, if so details of deployment.		
9.	Number of cattle camps opened & details of cattle accommodated therein		
10.	Any other relief measures undertaken (give details)		

Note: Kindly attached annexure for details wherever required.

Signature of officer with Name & Date
Telephone No/Fax No.
Mobile No.

Reporting Formats for Assessing Damage and Loss

Name of the Department _____

Name of the District _____

Component	Unit/ No.	Damage (In Rs.)			Sector		Cost (In case of Public Sector Only) In Rs.		Remarks
		Total	Direct Damage	Indirect Loss	Private	Public	Repair	Reconstruction	
Infrastructure (Please give item wise detail)									
Equipment / Machinery									
Crops									
Land									
Production/ Output									
Services									
Any Other Item									

Signature

Designation

Rapid Assessment Format (For big disasters)

[Aim to determine immediate response of the locality]

Type of Disaster _____; Date _____;
Time _____.

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

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

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

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

<p style="text-align: center;">disposal</p> <p>1.2 Health:</p> <ul style="list-style-type: none"> (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 <p>1.3 Education:</p> <ul style="list-style-type: none"> (a) Infrastructure temporary / permanent (b) Teachers (c) Teachers kits (d) Reading materials (e) Availability of mid-day meal <p>Crop/Agriculture</p> <ul style="list-style-type: none"> (a) Need of seeds (b) Fertilizer , Pesticide (c) Type of Seed required (d) Availability of local variety (e) Availability of resources <p>Infrastructure:</p> <ul style="list-style-type: none"> (a) Repair of roads (b) Repair of railways and bridges (c) Power Supply (d) Telecommunication (e) Equipment required for restoration (f) Manpower required 	<p>List</p> <p>Yes/No and specify location Yes/No and specify location</p> <p>List</p> <p>Number of Man days</p>
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- **Observation:**
- **Source of information:**
- **Site Visit:**
- **Interaction with affected population:**
- **Assessment Carried By:**

Annexure - F

REVISED LIST OF ITEMS AND NORMS OF ASSISTANCE FROM STATE DISASTER RESPONSE FUND (SDRF) AND NATIONAL DISASTER RESPONSE FUND (NDRF)

SR. NO.	ITEM	NORMS OF ASSISTANCE
(1)	(2)	(3)
1.	RELIEF ASSISTANCE	
	a) Ex-Gratia payment to families of deceased persons.	<p>Rs. 1.50 lakh per deceased person including those involved in relief operations or associated in preparedness activities, subject to certification regarding cause of death from appropriate authority.</p> <p>Note:-</p> <ul style="list-style-type: none"> i. An amount spent on transportation of the dead body, if any, would also be charged to this amount. ii. This relief would also be admissible to residents of Himachal Pradesh if they meet with an accident outside the state and where no relief is provided to them. In such case an application has to be made to the local Sub-Divisional Officer (Civil) in whose jurisdiction the dependents reside along with relevant documents. The application would be duly supported by an affidavit stating that no relief has been received from the family from the authorities where the accident/calamity took place. iii. This relief won't be admissible to non-Himachalis. However, cost towards search and rescue, immediate treatment, and transportation would be borne out of the relief funds in case of non-Himachalis. iv. In the case of a Foreign citizen who loses his life due to a notified natural calamity within the territory of India, his family would also not be paid this relief.
	b) Ex-Gratia payment for loss of a limb or eye(s).	<p>Rs. 43,500/- per person, when the disability is between 40% and 80%.</p> <p>Rs. 62,000/- per person, when the disability is more than 80%.</p> <p>This relief would be in addition to any other relief paid to the victim as provided under clause (c) below.</p> <p>Subject to certification by a competent authority</p>

		regarding extent and cause of disability.
	c) Grievous injury requiring hospitalization	<p>Maximum Rs. 15,000/- per person requiring hospitalization for more than a week.</p> <p>Maximum Rs. 5,000/- per person requiring hospitalization/treatment.</p>
<p>Note: In addition to (b) and (c) above all the victims would be provided free treatment in Government hospitals/medical facilities up to 48 hours of their admission immediately after the accident. Any bills raised can be charged to the SDRF. Payment should be directly made to the hospital on receipt of bills by the concerned SDO (C).</p>		
	d) Clothing and utensils/ house-hold goods for families whose houses have been washed away/ fully damaged/severely inundated for more than a week due to a natural calamity.	Maximum Rs. 15,000/- per family including the cost of material such a clothes, blankets, food grains, etc. given to the family, if any.
2.	SEARCH & RESCUE OPERATIONS	
	(a) Cost of search and rescue measures/ evacuation of people affected/ likely to be affected	<p>As per actual cost incurred, assessed at the local level and recommended by the Central Team (in case of NDRF).</p> <p>- By the time the Central Team visits the affected area, these activities are already over. Therefore, the State Level Committee and the Central Team can recommend actual/near-actual costs.]</p>
	(b) Hiring of vehicles, boats, earth movers, helicopters, etc. for carrying immediate relief and saving lives.	<p>As per actual cost incurred, assessed by SEC and recommended by the Central Team (in case of NDRF).</p> <p>The quantum of assistance will be limited to the actual expenditure incurred on hiring boats, hiring of vehicles, earth movers, helicopters, etc. and essential equipment required for rescuing stranded people and thereby saving human lives during a notified natural calamity.</p>
<p>Note: -</p> <p>i) The cost of hiring specialized persons such as divers, mountain search and rescue personnel can be charged to this head.</p> <p>ii) A proper record of expenditure incurred in this regard would be kept by the concerned authorities.</p>		
3	RELIEF MEASURES	
	a) Provision for temporary accommodation, food, clothing, medical care, etc. for people affected/ evacuated and sheltered in relief camps.	<p>As per assessment of need by SEC/local requirement and recommendation of the Central Team (in case of NDRF), for a period up to 30 days. The SEC would need to specify the number of camps, their duration and the number of persons in camps. In case of continuation of a calamity like drought, or widespread devastation caused by earthquake or flood etc., this period may be extended to 60 days, and up to 90 days in cases of</p>

		severe drought. Medical care may be provided from National Rural Health Mission (NRHM).
	b) Air dropping of essential supplies	As per actual, based on assessment of need by SEC/local authorities and recommendation of the Central Team (in case of NDRF). - The quantum of assistance will be limited to actual amount raised in the bills by the Ministry of Defence for airdropping of essential supplies and rescue operations only.
	c) Provision of emergency supply of drinking water in rural areas and urban areas.	As per actual cost, based on assessment of need by SEC/local authorities and recommended by the Central Team (in case of NDRF), up to 30 days and may be extended up to 90 days in case of drought.
4.	CLEARANCE OF AFFECTED AREAS	
	a) Clearance of debris in public areas.	As per actual cost within 30 days from the date of start of the work based on assessment of need by SEC/local authorities for the assistance to be provided under SDRF and as per assessment of the Central team for assistance to be provided under NDRF.
	b) Draining off flood water in affected areas.	As per actual cost within 30 days from the date of start of the work based on assessment of need by SEC for the assistance to be provided under SDRF and as per assessment of the Central team (in case of NDRF).
	c) Disposal of dead bodies/ Carcasses.	As per actual, based on assessment of need by SEC and recommendation of the Central Team (in case of NDRF).
5.	AGRICULTURE	
(i)	Assistance to small and marginal farmers.	
A	Assistance for land and other loss	To be given to individual beneficiaries.
	Loss to agriculture/ horticulture crops	i) Loss between 50% - 75% = Rs. 300/- per bigha ii) Loss above 75% = Rs. 500/- per bigha Subject to maximum loss per family = Rs. 7,000/- only.
B.	Input subsidy (where crop loss is 50% and above)	For allotment to Agriculture and Horticulture only.
	a) For agriculture crops, horticulture crops and annual plantation crops.	Rs. 3,000/- per ha. in rain-fed areas Rs. 6,000/- per ha. in assured irrigated areas, subject to minimum assistance not less than Rs.500 and restricted to sown areas.
	b) Perennial crops	Rs. 8,000/- ha. for all types of perennial crops subject to areas being sown and subject to minimum assistance not less than Rs.1000/-.
	c) Sericulture	Rs. 3,200/- per ha. for Eri, Mulberry, Tussar Rs. 4,000/- per ha. for Muga.

(ii)	Input subsidy to farmers other than small and marginal farmers. (For allotment to Agriculture and Horticulture only).	<p>Rs. 3000 /- per hectare in rainfed areas Rs. 6000/- per hectare for areas under assured irrigation. Rs. 8000/- per hectare for all types of perennial crops. - Assistance may be provided where crop loss is 50% and above, subject to a ceiling of 1 ha. per farmer and up to 2 ha per farmer in case of successive calamities irrespective of the size of holding being large.</p>
6. ANIMAL HUSBANDRY - ASSISTANCE TO SMALL AND MARGINAL FARMERS		
	i) Replacement of milch animals, draught animals or animals used for haulage.	<p>Buffalo, ox, yak, horse, mule, Camel. = Rs. 16,400/- per cattle</p> <p>Cow (Cross-breed) and Churu/churi = Rs. 11,000/- per cattle</p> <p>Cow (local breed), Donkey, Pashmina Goat = Rs. 6,000/- per cattle</p> <p>Sheep/goat = Rs. 1,650/- per goat</p> <p>Maximum relief on livestock to each family to be Rs. 50,000/-</p> <p>Poultry:-</p> <p>Poultry @ 37/- per bird subject to a ceiling of assistance of Rs. 400/ - per beneficiary household. The death of the poultry birds should be on account of a natural calamity.</p>
	ii) Cost of fodder and transportation.	Rs. 500/- per family having livestock.
	iii) Additional cost of medicines and vaccine.	Allocation to Animal Husbandry Department as per actual cost incurred by the Department of Animal Husbandry and assessed at local level and recommendation of the Central Team, (in case of NDRF) consistent with estimates of cattle as per Livestock Census and subject to the certificate by the competent authority about the requirement of medicine and vaccine being calamity related.
7. FISHERY		
	i) Assistance to Fisherman for repair / replacement of damaged or lost boats.	<p>Rs. 3,000/- for repair of partially damaged boats only Rs. 7,000/- for replacement of fully damaged boats</p>
	ii) Input subsidy for fish seed farm	<p>Rs. 6,000 per hectare.</p> <p>(This assistance will not be provided if the beneficiary is</p>

	(For allotment to Department of Fisheries only)	eligible or has availed of any subsidy/ assistance, for the instant calamity, under any other Government Scheme, except the one time subsidy provided under the Scheme of Department of Animal; Husbandry, Dairying and Fisheries, Ministry of Agriculture.)
8.	HANDICRAFTS/HANDLOOM – ASSISTANCE TO ARTISANS	
	i) For replacement of damaged tools/ equipment	Rs. 3000 per artisan for equipment.
	ii) For loss of raw material/ goods in process/finished goods.	Rs. 3,000 per artisan for raw material.
9.	HOUSING	
	a) Fully damaged/ destroyed houses (Where is the damage is above 50%)	
	i) Pucca house	Rs. 50,000/- per house
	ii) Kutcha House	Rs. 40,000 /- per house
	b) Severely damaged houses (Where the damage is above 30%)	
	i) Pucca House	Rs. 25,000/- per house
	ii) Kutcha House	Rs. 20,000/- per house
	c) Partially Damaged House (Other than huts) where the damage is at least 15 %	Rs. 12,500/- per house for pucca house Rs. 10,000/- per house for kutcha house
	d) Loss/damage to business premises, gharats.	Maximum Rs. 10,000/-
Note: No relief would be admissible for encroached house/structure on Government land.		
	d) Damaged / destroyed huts:	Rs. 2,500/- per hut, <i>(Hut means temporary, make shift unit, inferior to Kutcha house, made of thatch, mud, plastic sheets, dogri, etc. traditionally recognized as hut by the State/ District authorities.)</i>
	e) Cattle shed attached with house	Maximum of Rs. 10,000/- per shed
10.	INFRASTRUCTURE	
	<i>Repair/restoration (of immediate nature) of damaged infrastructure:</i>	Activities of immediate nature : Illustrative lists of activities which may be considered as

	<p>(1) Roads & bridges (2) Drinking Water Supply Works, (3) Irrigation, (4) Power (only limited to immediate restoration of electricity supply in the affected areas), (5) Schools, (6) Primary Health Centres, (7) Community assets owned by Panchayat.</p> <p>Sectors such as Telecommunication and Power (except immediate restoration of power supply), which generate their own revenues, and also undertake immediate repair/ restoration works from their own funds/ resources, are excluded.</p>	<p>works of an immediate nature are given in the enclosed Appendix.</p> <p>Assessment of requirements :</p> <p>Based on assessment of need, as per States' costs/ rates/ schedules for repair, by SEC and recommendation of the Central Team (in case of NDRF).</p> <p>-As regards repair of roads, due consideration shall be given to Norms for Maintenance of Roads in India, 2001, as amended from time to time, for repairs of roads affected by heavy rains/floods, cyclone, landslide, sand dunes, etc. to restore traffic. For reference these norms are</p> <ul style="list-style-type: none"> • Normal and Urban areas : up to 15% of the total of Ordinary Repair (OR) and Periodical Repair (PR). • Hills: up to 20% of total of OR and PR. <p><i>Note:</i> States shall first use its provision under the budget for regular maintenance and repair.</p>
11.	PROCUREMENT	
	<p>Procurement of essential search, rescue and evacuation equipment including communication equipment, etc. for response to disaster.</p>	<ul style="list-style-type: none"> - Expenditure is to be incurred from SDRF only (and not from NDRF), as assessed by the State Executive Committee (SEC). - The total expenditure on this item should not exceed 5% of the annual allocation of the SDRF.

Note: For natural calamities of unprecedented scale the State Govt. may notify separate norms depending upon the situation.

Annexure - G

FORM TO BE USED FOR MAKING REFERENCE TO GOVT. FOR SANCTION OF GRATUITOUS RELIEF									
Name of Village :-									
Name of Tehsil :-									
Name of Calamity :-									
Date of Occurrence:-									
SR. No	Name and parentage of sufferers.	Human lives lost. (with names)	Cattle lost.		Houses Destroyed		Any other Loss.	Total value of loss in term of money	No of family members dependent on the sufferers.
			No.	Estimated No. Value in Rs.	No.	Value in Rs.			
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Value of property.		Details of Property	Other Relevant Details	Position of funds available under Relief on account of natural calamities.	Gratuitous relief		Remarks.		
Moveable.	Immovable.				Already Paid.	Further recommended			
11.	12.	13.	14.	15.	16.	17.	18.		

GOVERNMENT OF HIMACHAL PRADESH
REVENUE DEPARTMENT
(DISASTER MANAGEMENT CELL)

NOTIFICATION

NO. REV.(DMC)(F)11-25/2011-PART DATED,SHIMLA-2, THE 11TH JULY,2012.

The Governor of Himachal Pradesh is pleased to notify the “**H.P. Disaster Management and Relief Manual, 2012**” which will come into force with immediate effect. The above Manual is available on HP State Disaster Management Authority (HPSDMA) website at www.hpsdma.nic.in.

By Order,
Additional Chief Secretary(Revenue) to the
Government of Himachal Pradesh.

Endst. No. Rev. (DMC)(F)11-25/2011-Part Dated, Shimla-2, the 11th July, 2012.

Copy forwarded for information and necessary action to:-

1. The Chief Secretary, Himachal Pradesh, Shimla – 171 002.
2. All the Addl. Chief Secretaries to the Government of Himachal Pradesh, Shimla-2.
3. All the Pr. Secretaries to the Government of Himachal Pradesh, Shimla – 2.
4. The Pr. Secretary to the Hon’ble Chief Minister, Himachal Pradesh, Shimla – 2.
5. The Secretary to the Governor, Himachal Pradesh, Shimla – 2.
6. The Secretary (IT) to the Government of Himachal Pradesh, Shimla-2 to put on the website.
7. The Secretary, Himachal Pradesh Vidhan Sabha, Shimla – 171 004.
8. All the Divisional Commissioners in Himachal Pradesh.
9. All the Heads of Department in Himachal Pradesh.
10. All the Deputy Commissioners in Himachal Pradesh.
11. The Settlement Officer, Shimla/Kangra at Dharamshala, H.P.
12. The Controller, Printing & Stationery Department, H.P., Shimla – 171 005 for publication in the Gazette.
13. The Private Secretary to all the Ministers, H.P.
14. Guard File.

Sd/-
Additional Secretary (Rev.) to the
Government of Himachal Pradesh.

