# State Disaster Management Plan

## Volume-I

## 2020

**Government of Uttarakhand**

# State Disaster Management Authority

# Uttarakhand

SDMA, Uttrakhand || State Disaster Management Plan 2020-21

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# CHAPTER-1
## Introduction

## 1.1    Background

The Disaster Management Act, 2005 (DM Act 2005) lays down institutional and coordination mechanism for effective Disaster Management (DM) at the national, state, district and local levels. As mandated by the Act multi-tiered institutional system consisting of the National Disaster Management Authority (NDMA) headed by the Prime Minister, the State Disaster Management Authorities (SDMAs) headed by the respective Chief Ministers and the District Disaster Management Authorities (DDMAs) headed by the District Collectors and co-chaired by Chairpersons of the local bodies has been put in place.

Uttarakhand State Disaster Management Authority (USDMA) is the nodal institution for planning, co-ordination and monitoring of disaster prevention, mitigation, preparedness and management related initiatives of the state government. USDMA lays down disaster management related policies for the state, approves disaster management plans in accordance to the guidelines laid down by National Authority and co-ordinates their implementation. It provides guidelines and reviews the measures being taken for mitigation, capacity building and preparedness by the government and issue directions as necessary. USDMA recommends provision of funds for mitigation and preparedness measures. Created in accordance with S. 14(1) of DM Act, 2005 USDMA was created through GO No. 1198/XVIII(2)/07-3(6)/2007 dated 10.10.2007 and is Chaired by the Chief Minister of the state. Chief Secretary of the state is the ex officio Chief Executive Officer of the Authority while Ministers of Disaster Management, Health and Family Welfare, Drinking Water and Irrigation, Transport and Rural Development are its members together with Principal Secretary/ Secretary Finance and Disaster Management.

State Executive Committee (SEC) is constituted for undertaking various DM related executive actions in accordance with S. 20(1) of the DM Act, 2005 through GO No. 141/XVIII/08-3(6)/2007 dated 18.01.2008 with Chief Secretary of the State as its Chairperson and Additional Chief Secretary and Principal Secretary, Finance, Disaster Management and Health and Family Welfare its members.

USDMA is mandated to undertake every effort possible to contribute to the realization of the global targets set by the world community through Sendai Framework for Disaster Risk Reduction (SFDRR) to which India is a signatory. The four priorities for action under the SFDRR are:

1. Understanding disaster risk

2. Strengthening disaster risk governance to manage disaster risk

3. Investing in disaster risk reduction for resilience

4. Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction.

## 1.2 Vision

Uttarakhand is vulnerable to and has been devastated repeatedly by a number of hazards that include earthquake, landslide, flood, flash flood, drought and avalanche. These have inflicted heavy loss of human lives, infrastructure, property and other resources. Even though it is not always possible to prevent occurrence of natural hazards, with effort and planning it is possible to reduce their impact.

The State Disaster Management Plan (SDMP) is envisaged to lead the state towards the goal of being disaster resilient and has been designed in such a manner that it can be implemented as needed on a flexible and scalable manner during all the phases of disaster management cycle from prevention, mitigation and preparedness through response to recovery encompassing precepts of build back better.

## 1.3    Objectives

Apart from the mandate given by the DM Act, 2005 the Plan facilitates achievement ofthe national commitment towards SFDRR. The broad objectives of the Plan are:

- Assessment of the risk of various hazards to which the state is exposed
- Promote "Build Back Better" in recovery, rehabilitation and reconstruction
- Ensuring compliance of techno – legal regime to ensures DRR
- Invest in disaster risk reduction for resilience through structural, non-structural and financial measures, as well as comprehensive capacity development
- Ensuring risk transfer
- Capacity building for DRR
- Pre - planning of disaster response actions
- Promote the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures to prevent and reduce hazard exposure and vulnerabilities to disaster
- Encouraging traditional mitigation measures and blending state of art technology with the same
- Developing early warning systems backed by responsive and fail safe communications and information technology support
- Identifying institutional strengthening and capacity building needs and implementing programs for doing the same
- Putting in place systems for post – disaster societal support, monitoring and evaluation.
- Ensuring high level of preparedness at all times and at all levels
- Facilitate the mainstreaming of disaster management concerns into the developmental planning and processes

## 1.4    Theme

The focus of SDMP is to ensure the following at all levels; village to district and to state:

i)      Establishment of constructive and continuously updated and tested disaster preparedness, response and recovery plans

ii)     Ensure prompt, efficient, effective and coordinated response

iii)    Bring forth community participation in all DM related activities during every phase of the DM Cycle

iv)     Ensure high priority to all DM initiatives in the planning process at all levels so as to mainstream DM into development, and

v)      Promote culture of prevention and preparedness so as to ensure disaster resilience in the state

SDMP also seeks hazard, risk and vulnerability assessment of the state to different hazards and envisages voluntary compliance of DRR technologies and methodologies through sound and effective risk communication and awareness.

The plan also addresses capacity building and preparedness related issues and outlines roles and responsibilities of each and every government department and other stakeholders involved in one or other manner in the process of DM.

## 1.5    Scope

SDMP envisages to provide a consistent, state wide framework for enabling central, state and local governments and private and public sector institutions to come to a common platform and work together for the cause of mitigation, preparation, response and recovery so as to help the disaster affected community to recover from the effects of emergencies regardless of their cause, size, location, or complexity. In accordance with the provisions of DM Act, 2005, this plan is in effect at all times and applies to all levels of state government and its administrative subdivisions; districts, tehsils, blocks, Panchayats and villages. The plan incorporates and complies with the principles and requirements of national and state laws, regulations and guidelines.

## 1.6    Sendai Framework

In order to reduce disaster risk SFDRR envisages a need to address existing challenges and prepare for future ones by focusing on monitoring, assessing, and understanding disaster risk and sharing such information. The SFDRR highlights that it is "urgent and critical to anticipate, plan for and reduce disaster risk" to cope with disaster. It requires strengthening of disaster risk governance and coordination across various institutions and sectors. It requires the full and meaningful participationof relevant stakeholders at different levels. It is necessary to invest in the economic, social, health, cultural and educational resilience at all levels. It requires investments in research and the use of technology to enhance multi-hazard early warning systems (EWS), preparedness, response, recovery, rehabilitation, and reconstruction.

The four priorities for action under the SFDRR are:

1. Understanding the disaster risk
2. Strengthening disaster risk governance to manage disaster risk
3. Investing in disaster risk reduction for resilience
4. Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction

## 1.7 Disasters, Risk Reduction and Management

DM Act, 2005 defines disaster as being a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade 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 magnitude as to be beyond the coping capacity of the community of the affected area.

DRR, as per UNISDR, consists of a framework of elements that help in minimizing vulnerabilities and disaster risks throughout a society, avoiding (prevention) or limiting (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

DM Act, 2005 defines DM as 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 consequence;

      (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.

## 1.8 Levels of Disasters

The DM related planning process at various tiers has to take into account the vulnerability of disaster-affected area, and the capacity of the authorities to deal with the situation. Using this approach, the High Power Committee on Disaster Management, in its report of 2001, categorized disaster situations into three levels; L1, L2, and L3. The period of normalcy, L0, has to be utilized for DRR.

**L1:** The level of disaster that can be managed with the capabilities and resources at the district level. However, the state authorities are to remain in a state of readiness to provide assistance if needed.

**L2:** This signifies the disaster situations requiring assistance and active mobilization of resources at the state level and deployment of state level agencies. The central agencies have to remain vigilant for immediate deployment if required by the state.

**L3:** This corresponds to a nearly catastrophic situation or a very large-scale disaster that overwhelms the state and district authorities.

The categorization of disaster situations into levels L0 to L3 finds no mention in DM Act 2005. Further, the Act does not have any provision for notifying any disaster as a 'national calamity' or a 'national disaster'.

# CHAPTER – 2
## StateOverview

## 2.1 Administrative Setup

**Uttarakhand has geographical area of** 53,483 sq km; 93 percent of which is mountainous and 72 percent is under forest cover. 27$^{th}$ state of the Republic of India, Uttarakhand has two divisions;Garhwal and Kumaun. The state has 13 districts of which 07 (Pauri Garhwal, Tehri Garhwal, Chamoli, Haridwar, Dehradun, Uttarkashi, Rudraprayag) are in Garhwal while the remaining 06 (Almora, Bageshwar, Champawat, Nainital, Udham Singh Nagar, Pithoragarh) are in Kumaun (Fig. 1). Dehradun is the capital of the state.



**Map depicting administrative units in Uttarakhand**

The state has 104 tehsils, 15 sub - tehsils, 95 development blocks, 670 Nyaya Panchayats, 16,826 villages, 86 cities / towns, 06 Nagar Nigams, 32 Nagar Palika Parishads, 30 Nagar Panchayats, 09 Cantonment Boards and 06 development authorities. The state has only five cities with population over one lakh. The state has 05 Lok Sabha, 03 RajyaSabha and 70 VidhanSabha constituencies.

## 2.2 Demography and Socio-Economic Profile

As per Census of India (2011) Uttarakhand has a population of 101 million with average density of 189 persons per sq km. Demographic and socio-economic details of the state are summarized in table

**Demographic and socio-economic details of Uttarakhand.**

| Sl. No. | Item | |
|---|---|---|
| 1. | Total population (in lakhs) | 101 |
| 2. | Crude birth rate (SRS) per thousand of population | 19.7 |
| 3. | Crude death rate (SRS) per thousand of population | 6.8 |
| 4. | Infant mortality rate (SRS) per thousand of live births | 41 |
| 5. | Sex ratio (Number of females per thousand males) | 963 |
| 6. | Male literacy rate (in percent) | 88.33 |
| 7. | Female literacy rate (in percent) | 70.70 |
| 8. | Sex ratio per thousand of males (0 - 6 years) | 886 |
| 9. | Population density (per square km) | 189 |
| 10. | Decennial growth rate (2001 - 2011) | 19.17 |
| 11. | Rural population | 63,10,275 |
| 12. | Urban population | 21,79,074 |

## 2.3 Land use Pattern

Most area of the state is under forest cover (Fig. 2). The pattern of land ownership in the state is quite different from the rest of the nation with majority farmers being owner-cultivators and holdings being limited to family farms only. Tenant farming and share cropping practices are not observed in the state. Big land holdings in the state are limited to the plains. Broad land use pattern of the state is summarized in the Table below.

**Area under different lands use in Uttarakhand**

| Sl. No. | Landuse type | Area (sq km) | Percentage |
|---|---|---|---|
| 1. | Agricultural land; Crop land | 7,466.58 | 13.99 |
| 2. | Agriculture land; Current fallow | 3,896.00 | 7.30 |
| 3. | Agriculture land; Plantation | 227.14 | 0.43 |
| 4. | Built up area / Mining / Industrial area | 6.57 | 0.01 |
| 5. | Built up area; Rural | 202.76 | 0.38 |

| 6. | Built up area; Urban | 126.11 | 0.24 |
|---|---|---|---|
| 7. | Forest; Barren land | 3,864.80 | 7.24 |
| 8. | Forest; Dense | 14,706.91 | 27.56 |
| 9. | Forest; Open | 8,709.55 | 16.32 |
| 10. | Forest; Plantation | 775.84 | 1.45 |
| 11. | Forest; Scrub | 4,982.30 | 9.34 |
| 12. | Glacial area | 7,327.36 | 13.73 |
| 13. | Water bodies; River / Stream / Lake / Pond (Perennial) | 875.32 | 1.64 |
| 14. | Water bodies; Canal | 18.51 | 0.03 |
| 15. | Water bodies; Reservoir | 173.51 | 0.33 |
| | **Total** | **53,359.24** | 100.00 |

There is large uncultivable fallow land in the state with about 22 percent of the total area being cultivable and around one third of this being fallow.

## 2.4 State Disaster Management Authority (SDMA)

Created in accordance of S. 14 of the DM Act, 2005 under the Chairmanship of the Chief Minister, SDMA is to lay down policies and plans for disaster management, ensure implementation of the SDMP, recommend fund provisions for mitigation and preparedness measures and review the developmental plans of different departments so as to ensure integration of prevention, preparedness and mitigation measures in these.

In the case of emergency the Chairperson of SDMA has power to exercise all or any of the powers of the SDMA, but the exercise of such power is subject to ex post facto ratification by the Authority. Powers and functions of SDMA as laid down in S. 18 of DM Act, 2005 include:

a) lay down the state disaster management policy;

b) approve the state plan in accordance with the guidelines laid down by the National Authority;

c) approve the disaster management plans prepared by the departments of the government of the state;

d) lay down guidelines to be followed by the departments of the government of the state for the purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefore

e) coordinate the implementation of the state plan;

f) recommend provision of funds for mitigation and preparedness measures;

g) review the development plans of the different departments of the state and ensure that

prevention and mitigation measures are integrated therein;

h) review the measures being taken for mitigation, capacity building and preparedness by the departments of the government of the state and issue such guidelines as may be necessary.

Constituted by Government Order No. 1198/XVIII(2)/07-3(6)/2007 dated 10 October, 2007 the composition of SDMA is as given below.

| Sl. No. | Portfolio | Status |
|---------|-----------|--------|
| 1. | Chief Minister | Chairperson |
| 2. | Minister, Disaster Management | Vice Chairperson |
| 3. | Minister, Health and Family Welfare | Member |
| 4. | Minister, Irrigation and Drinking Water | Member |
| 5. | Minister, Transport | Member |
| 6. | Minister, Rural Development | Member |
| 7. | Chief Secretary; ex officio Chairperson of State Executive Committee | Member and CEO |
| 8. | Principal Secretary, Finance | Member |
| 9. | Principal Secretary, Disaster management | Member |

## State Executive Committee (SEC)

S. 20 of the DM Act, 2005 provides for the constitution of State Executive Committee (SEC) to assist the SDMA in the performance of its functions and to coordinate action in accordance with guidelines laid down by the State Authority. Constituted through Government Order No. 141/XVIII/08-3(6)/2007 dated 08 January, 2008 composition of SEC is as given below.

| Sl. No. | Portfolio | Status |
|---------|-----------|--------|
| 1. | Chief Secretary | Chairperson |
| 2. | Additional Chief Secretary | Member |
| 3. | Secretary, Disaster Management | Member |
| 4. | Secretary, Finance | Member |
| 5. | Secretary, Medical & Health | Member |

As laid down in S. 22 of the Disaster Management Act, 2005 the functions of SEC include:

a) control and restrict, vehicular traffic to, from or within, the vulnerable or affected area;

b) control and restrict the entry of any person into, his movement within and departure from, a vulnerable or affected area;

c) remove debris, conduct search and carry out rescue operations;

d) provide shelter, food, drinking water, essential provisions, healthcare and services in accordance with the standards laid down by the National Authority and State Authority;

e) give direction to the concerned Department of the Government of the State, any District Authority or other authority, within the local limits of the State to take such measure or steps for rescue, evacuation or providing immediate relief saving lives or property, as may be necessary in its opinion;

f) require any department of the Government of the State or any other body or authority or person in charge of any relevant resources to make available the resources for the purposes of emergency response, rescue and relief;

g) require experts and consultants in the field of disasters to provide advice and assistance for rescue and relief;

h) procure exclusive or preferential use of amenities from any authority or person as and when required;

i) construct temporary bridges or other necessary structures and demolish unsafe structures which may be hazardous to public;

j) ensure that non-governmental organizations carry out their activities in an equitable and non-discriminatory manner;

k) disseminate information to public to deal with any threatening disaster situation or disaster;

l) take such steps as the State Government may direct in this regard or take such other steps as are required or warranted by the form of any threatening disaster situation or disaster.

## 2.5 State Disaster Response Force (SDRF)

In accordance with S. 44 of Disaster Management Act, 2005 National Disaster Response Force (NDRF) has raised by the Government of India to ensure specialized response during disaster incidences.

Realizing the importance of having a specialized force that is well versed with local terrain conditions and other ground realities the state government has also raised two companies of State Disaster Response Force (SDRF) through GO No. 2086/XX-1/13-11904)2013 dated 09 October, 2013.

## 2.6 District Disaster Management Authority (DDMA)

In accordance with the provisions of S. 25 of Disaster Management Act, 2005 Disaster Management Authorities have been constituted in all the 13 districts of the state through Government Order Nos. 1501-13/XVIII(2)/07-3(6)/2007 dated 04 December, 2007. The composition of DDMAs is as given below.

| | | |
|---|---|---|
| 1. | District Magistrate | Chairperson |
| 2. | Chairperson, ZilaPanchayat | Co – Chairperson |
| 3. | Superintendent of Police | Member |
| 4. | Chief Development Officer | Member |
| 5. | O/C Disaster Management / Additional District Magistrate | Member and CEO |
| 6. | Chief Medical Officer | Member |
| 7. | Executive Engineer, Public Works Department | Member |

## 2.7 Hazard Safety Cell

It is for the implementation of the building codes as also for assessing the vulnerability of the built environment Hazard Safety Cell (HSC) has been set up through Government Order No. 484/ XVIII (2)/2005 dated 07.05.2005.

The HSC works under direct supervision and control of the Superintendent Engineer of Public Works Department (PWD) and the composition of HSC is as given below.

| Sl. No. | Designation | Source |
|---|---|---|
| 1. | Superintendent Engineer | PWD |
| 2. | Executive Engineer | PWD / Irrigation / Peyjal Nigam /MDDA |
| 3. | Assistant Engineer | PWD / Irrigation / Peyjal Nigam / MDDA |
| 4. | Junior Engineer | PWD / Irrigation / Peyjal Nigam / MDDA |
| 5. | Structural engineering specialists | CBRI / IIT, Roorkee |

### Main functions of HSC include:

a) providing and propagating information and knowledge on hazard resistant design of buildings and retrofitting of buildings and structures through various means, as deemed fit;

b) reviewing the architectural and structural designs of all RCC, steel and masonry buildings and structures from safety point of view;

c) preparing the checklist for quick review of the design to be adopted for new buildings and structures and to carry out review of already existing buildings and structures;

d) to act as an advisory cell to the state government on different aspects of building safely;

e) to act as a consultant to the state government for retrofitting of government buildings and lifeline structures.

## 2.8 Hazard Safety Units

Hazard Safety Units (HSU) have been set up at the district level through Government Order No. 5045/XIV-168(2004) dated 04.09.2006. HSU comprises of the engineers and other district level officials of various state government departments as given below.

| 1. | Executive Engineer | PWD |
|----|----|----|
| 2. | Executive / Assistant Engineer | Irrigation Department |
| 3. | Executive / Assistant Engineer | Rural Engineering Services |
| 4. | Town Planner / Architect / Engineer | Nagar Palika / ULB |
| 5. | Geologist | Directorate of Geology and Mining |
| 6. | Officials of other departments as required | |

The HSUs are to deliver services similar to HSC at the district level.

# CHAPTER – 3

## Hazard Risk and Vulnerability – State

### 3.1 The Scenario

Geo – tectonic set up of the region together with its evolutionary history, geomorphology and meteorological characteristics makes Uttarakhand prone to a number of natural hazards. Besides earthquakes the area is frequently devastated by landslides, cloudbursts, flash floods, floods, avalanches, droughts, lightening, cold waves and hailstorms.
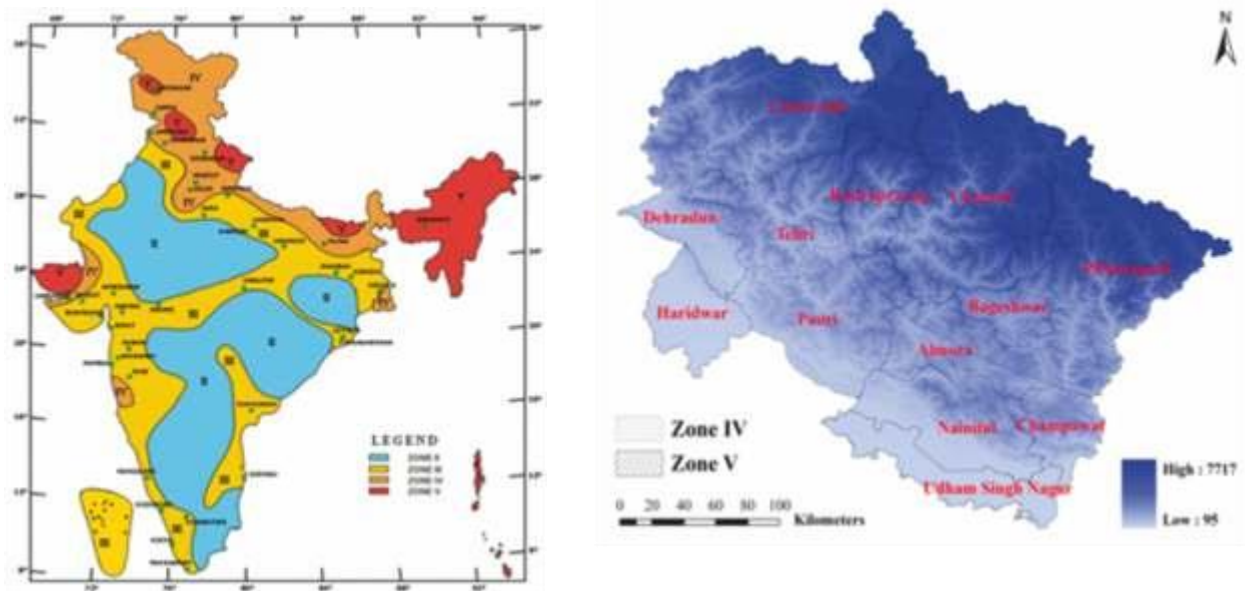


**Earthquake Zonation Map of India and Uttarakhand.**

Due to the ongoing tectonic movements the region has accumulated enormous strain that makes it susceptible to seismic tremors. The state falls in either Zone IV and V of Earthquake Zonation Map of India. Pithoragarh, Bageshwar, Chamoli and Rudraprayag districts together with some areas of Almora, Champawat, Tehri, Uttarkashi and Pauri districts fall in Zone V while Udhamsingh Nagar, Nainital, Haridwar and Dehradun districts fall fully in Zone IV. In the recent past the state has witnessed two major earthquakes (Uttarkashi 1991 and Chamoli 1999).

To ward off threat of earthquakes buildings were traditionally constructed in the region using locally available stone and timber and with the passage of time, through experience, experimentation and accumulated knowledge of generations the people of this region perfected the art of constructing earthquake safe multistoried buildings. Growing environmental awareness in the recent times and ensuing restrictions on quarrying and felling, as also higher social status being attached to brick –

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cement construction, the region witnessed abrupt change in building material. The masons were however not trained in the use of the new building material but demand forced them to continue constructing with the new material. This has added to seismic vulnerability of the region.



**Map showing major landslide zones along the Char DhamYatra route.**

Landslide incidences are all the more frequent during the monsoon season that coincides with the Char Dham Yatra season that attracts tourists and pilgrims from across the country and abroad. Disruption of surface transport by landslides often leads to inconvenience to tourists and pilgrims.
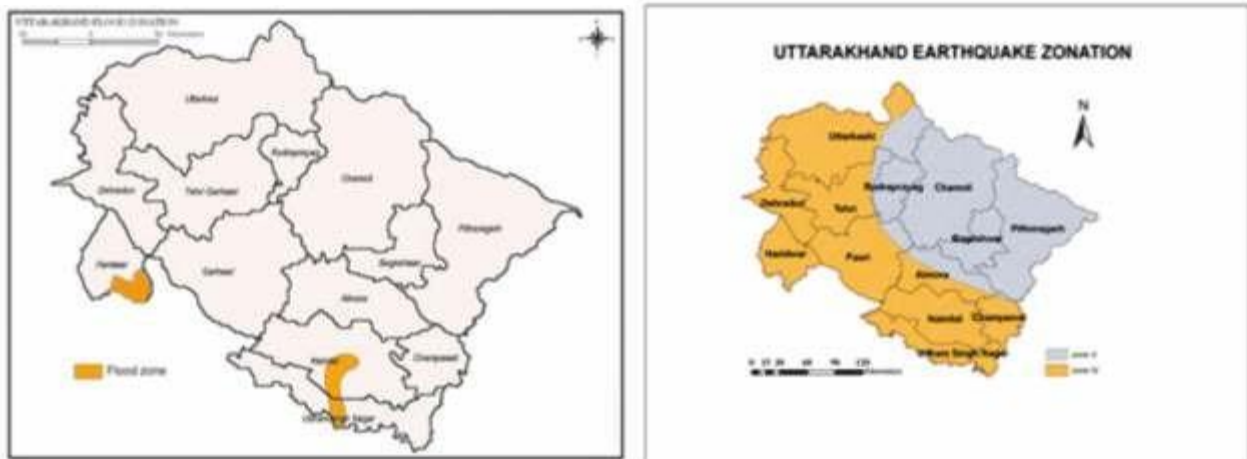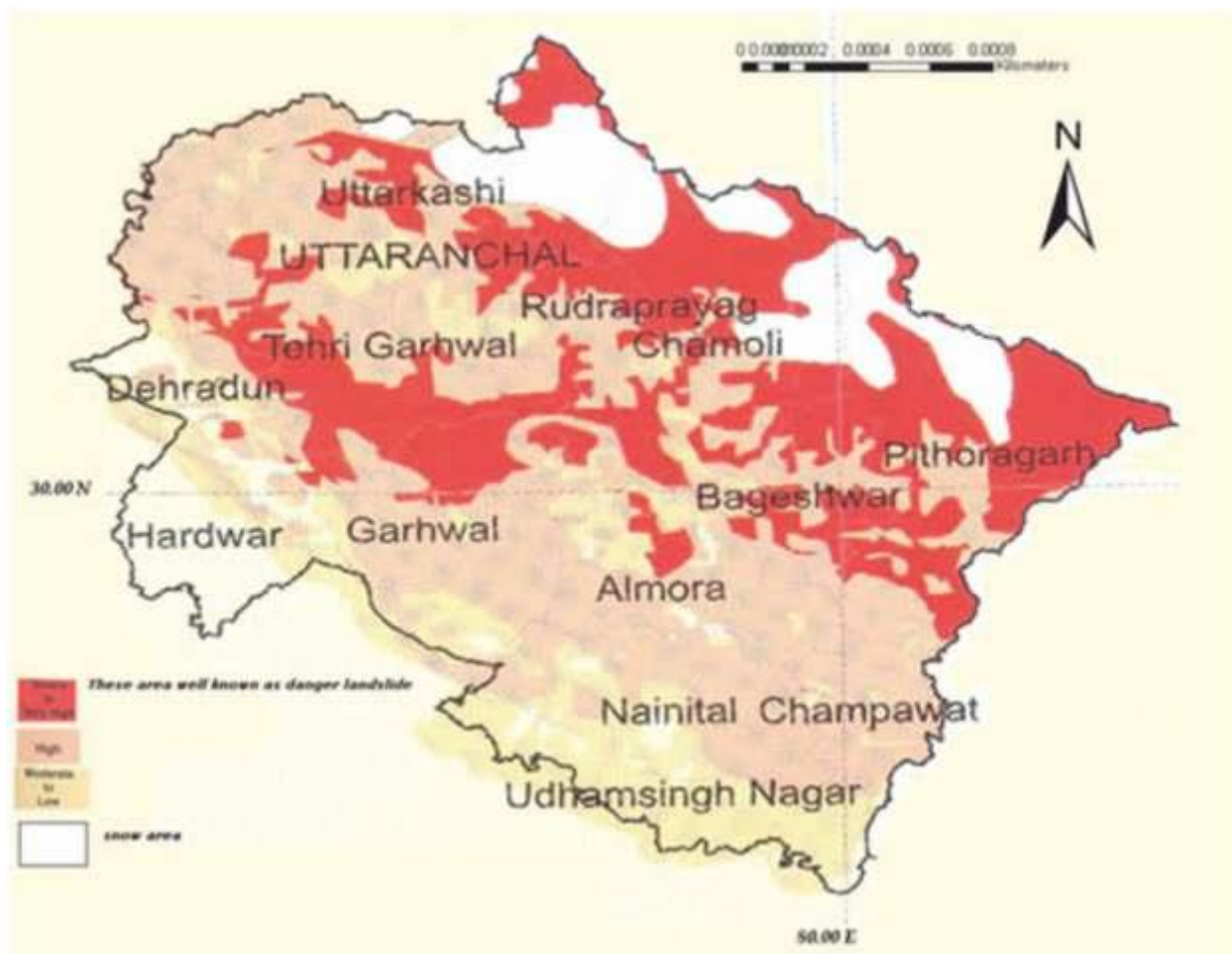
**map showing major districts requiring special attention**

## 3.2 Reducing risk, enhancing resilience (State level identified hazard)

The guiding principles of SFDRR state that DRR requires responsibilities to be shared by different divisions of governments and various agencies. The effectiveness in disaster risk reduction is dependent on coordination mechanisms within and across sectors and with relevant stakeholders at all levels. For each hazard, the approach used in this plan incorporates the four priorities enunciated in the Sendai Framework into the planning framework for DRR under the five thematic areas for action:

1. Understanding risk
2. Inter-agency coordination
3. Investing in DRR – Structural measures
4. Investing in DRR – Non-structural measures
5. Capacity development

For each of these thematic areas for action, a set of major themes have been identified for inclusion in the planning framework.

# Hazard-wise responsibility matrices for DRR

For the DM plan to succeed roles and responsibilities of identified stakeholders/agencies and have been clearly specify. At all levels - from local to the state - the relevant authorities have to accordingly institutionalize programmes and activities at the ministry/department levels, and increase inter-departmental and inter-agency coordination and networking. They should also rationalize and augment the existing regulatory framework and infrastructure. For each hazard, in the subsections that follow, themes for action are presented in a separate responsibility matrix for each of the five thematic areas for action.

This section covers the hazards listed below:

1) Floods
2) Earthquakes
3) Landslides and avalanches
4) Drought
5) Industrial disasters
6) Fire

## 3.2.1  Flood RiskMitigation

| Themes | TASK | Responsibility | Agency/ Department | Time line |
|---|---|---|---|---|
| **Understanding Disaster Risk** | Observation Networks, Information Systems, Monitoring, and Forecasting | • Modernization of Observation Network; Assessment, Monitoring and Scientific studies | SDMA, Irrigation Dept., Information Dept.,DDMA, | **October to May** |
| | Zoning, mapping, and classification flood prone areas | • Preparation of large-scale hazard maps of flood prone areas of high vulnerability | SDMA, GIS Irrigation Dept, DDMA, | **January to April** |
| | Studies and monitoring of rivers flowing & Research and Development | • Studies on flood related problems such as soil losses caused by flooding of rivers, sediment transport, river course changes, and appropriate use of embankments<br>• Studies on support systems for people living in flood prone areas<br>• Promote research and studies – both in house to researchers and institutions<br>• Evolving designs of shelters in flood prone areas<br>• Enhanced risks from climate change and adaptations to change | SDMA, Irrigation Dept., relevant technical institutions | **January to May** |

| | | | | |
|---|---|---|---|---|
| | Hazard Risk Vulnerability Assessment | • Undertake HRVA as part of preparing and periodic revision of DM plans<br>• Studies on vulnerability covering social, economic, ecological, gender, and equity aspects<br>• Change in vulnerability and risk due under climate change scenarios | SDMA, Irrigation Dept. | **October to December** |
| | Monitoring, Forecasting and Warning Systems | • Support, cooperation for data collection and updates<br>• Specialized efforts for different types of floods and causes of flooding, including cloudburst<br>• Developing forecasting models for discharge from dams | SDMA, Irrigation Dept., relevant technical institutions | **May to September** |
| | Dissemination of warnings, data, and information | • Inter-state data and information sharing where applicable<br>• Coordination and cooperation with the central agencies<br>• Quick, clear, effective dissemination among state and district agencies<br>• Dissemination of warnings to all, down to the last mile – remote, rural or urban; Regular updates to people in areas at risk | SDMA, Irrigation Dept., Information Dept.,DDMA, Panchayats, ULBs | **June to September** |
| **Inter-Agency Coordination** | Overall disaster governance | • Preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks | SDMA, DDMA | **Oct to December** |
| | Response | • Organizing the IRS and seeking assistance of central agencies | SDMA,DDMA | **April to May** |
| | Warnings, Information, Data | • Quick, clear, effective dissemination among state, District and PRIs agencies | SDMA, Irrigation Dept., Information Dept., DDMA, Panchayats, ULBs | **January to May** |
| | Non-structural measures | • Adapting the norms/ codes as per District's requirement, enforcement, monitoring | SDMA,DDMA | **Regular** |
| **Investin in DRR** | Social Housing Schemes | • Ensure that flood -resistant features are incorporated in the planning and execution of social housing schemes in flood prone areas | SDMA, DRD, UDD, PRD,DDMA, Panchayats, ULBs | **Regular** |
| | Multi-purpose Flood Shelters | • Ensure availability of shelters, undertake proper maintenance, and make arrangements to support the people shifted to temporary shelters | SDMA, Irrigation Dept., PWD.,DDMA, Panchayats, ULBs | **May** |
| | Waterways and drainage systems for roads, highways, and expressways | • Coordination and cooperation with the central agencies and ensure proper alignment and design in all state projects | SDMA, Irrigation Dept., PWD, BRO, | **January to May** |

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| | | | | |
|---|---|---|---|---|
| | Hazard resistant construction, strengthening, and retrofitting of all lifeline structures and critical infrastructure | • Collaboration with technical agencies and implementation | State/UT, SDMA, CoR, Revenue Dept., DRD, UDD, PRD,DDMA, Panchayats, relevant technical institutions ULBs | **November to March** |
| Inves ing in DRR  N  tructural M  ur | Regulation and enforcement of laws, norms | • Implementing land-use regulation for low lying areas as per flood control norms<br>• Regulation of inhabitation of low-lying areas along the rivers, gadera and drains<br>• Implementing flood management action plan<br>• Review and modification of operation<br>• manuals for all major dams/ reservoirs<br>• Support and cooperate with central agencies; Sponsor state-specific efforts;<br>• support local efforts; Cooperate with central efforts<br>• Prevention and removal of encroachment into the waterways and natural drainage systems | Irrigation Dept., | **November to February** |
| | Regulations to promote flood resilient buildings and infrastructure | • Revise and implement the relevant rules in flood prone areas | SDMA, Irrigation Dept., DDMA, | **December to January** |
| | Wetland conservation and Restoration Catchment Area Treatment | • Discourage reclamation of wetlands, natural depressions<br>• Action plan managing wetlands and natural drainage systems for flood moderation<br>• Implementation of watershed management including catchment area Treatment | SDMA, Irrigation Dept., DDMA | **January to April** |
| | Public Private Partnerships | • Promote private participation in disaster | SDMA, DDMA | **Regular** |
| Capa  ty | Training | • Training and orientation programs for govt. staff, , professionals for veterinary care and support to disaster-affected animals<br>• Incorporating disaster response, search and rescue in the training programs of youth such as village volunteers, and for protection of disaster-affected animals | SDMA, SDRF, SIDM, ATI, DDMA, relevant institution | **February to April** |

| | | | | |
|---|---|---|---|---|
| | Curriculum Development | • Incorporate of Crisis Management, emergency medical response/recovery and trauma management at Diploma /UG/ PG levels for Health Professionals | SDMA, Health dept. | **Regular** |
| | Awareness Generation & Mock drills | • Carry out mass media campaigns<br>• Promote culture of disaster risk prevention, mitigation, and better risk management<br>• Promote attitude and behaviour change in the awareness campaigns/ IEC<br>• Promote use of insurance/ risk transfer<br>• Promote Community Radio Strengthening network of civil society organizations for awareness generation about DRR and DM<br>• Information on care and protection of disaster-affected animals<br>• Joint planning and execution of emergency drills | State/UT, SDMA, Revenue Dept., Irrigation Dept., SDRF, Fire and Emergency Services, Civil defence, Police, DDMA, Panchayats, ULBs | **January to May** |
| | Empowering women, marginalized, and persons with disabilities | • Incorporating gender sensitive and equitable approaches in capacity development, covering all aspects of disaster management at the state, district, and local levels | SDMA, SDRF, ATI,DDMA, Panchayats, ULBs | **February to May** |
| | Community-Based Disaster Management | • Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach<br>• Training for panchayat, SHG, NCC, NSS, Youth, local community organizations | SDMA, SDRF, ATI,DDMA, Panchayats, ULBs | **February to May** |

## 3.2.2 Seismic Risk Mitigation

| Themes | TASK | Responsibility | Agency/ Dept. | Time line |
|---|---|---|---|---|
| Understandin | • Earthquake Monitoring Services<br>• Real Time Seismic Monitoring Network | • Estimate the earthquake parameters quickly after detection<br>• Disseminate information<br>• Share seismic activity data with national and international scientific, academic and R&D institutions | SDMA, UDD, PWD,ULB, DDMA | **Regular** |
| | • Earthquake Hazard<br>• and Risk<br>• Assessment | • Carry out needs assessment from end-users, conduct micro-zonation studies,<br>• prioritize important urban areas for micro-zonation, do professional review before adoption | SDMA, UDD, PWD,ULB, DDMA, relevant institution | **September to December** |

| | | | | |
|---|---|---|---|---|
| | • Vulnerability Assessment | • Ward Level Information System to be developed using high resolution satellite images / aerial photos integrated with socioeconomic data covering natural resources and infrastructure facilities on appropriate scale at community level social, economic, ecological, gender, and equity aspects<br>• Change in vulnerability and risk due under climate change scenarios | SDMA, UDD, PWD, ULB, DDMA | **February to April** |
| **Inter-Agenc Coordination** | • Overall disaster governance | • Preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks | SDMA, DDMA | **Regular** |
| | • Response | • Organizing the IRS and seeking assistance of agencies | SDMA,DDMA | **October to November** |
| | • Non-structural measures | • Adapting the norms/ codes as per District's requirement, enforcement, monitoring | SDMA,DDMA | **Regular** |
| **vestin in DRR M ur tructural** | • Social Housing Schemes | • Ensure that earthquake resistant features are incorporated in planning and execution of social housing schemes<br>• Ensure compliance with relevant building codes | SDMA, DRD, UDD, PRD, DDMA, Panchayats, ULBs | **Regular** |
| | • Strengthening and seismic retrofitting of prioritized lifeline structures and buildings | • Implementation strengthening and seismic retrofitting as per recommendations of safety audits in all govt. departments, agencies, public utilities, schools, colleges, community halls, etc. | SDMA, DDMA, Panchayats, ULBs, PWD, all relevant Departments/ Agencies | **February to April** |
| | • Hazard resistant construction, strengthening, and retrofitting of all lifeline structures and critical infrastructure | • Collaboration with technical agencies and implementation | SDMA, DDMA, Panchayats, ULBs, PWD, all relevant Departments/ Agencies | **April to May** |
| **Inv sting in DRR N** | • Regulations and model codes for town planning, civil works and Public infrastructure | • Adopt suitable byelaws for rural and urban areas, put model codes into practice and ensure proper compliance<br>• Ensure strict compliance with code implementation through relevant Departments and agencies | SDMA,DDMA, Panchayats, ULBs, PWD, all relevant Departments/ Agencies | **Regular** |
| | • Structural safety audit of lifeline structures and buildings<br>• Prioritization of lifeline structures | • Carry out safety audit of lifeline buildings and critical infrastructure<br>• Ensure implementation, monitoring, enforcement and proper compliance within | SDMA, DDMA, Panchayats, ULBs, PWD, all relevant Departments/ | **February to March** |

| | | | | |
|---|---|---|---|---|
| | and buildings for strengthening and seismic retrofitting | state by public, private and individuals | Agencies | |
| | • Licensing and certification | • Implement licensing of engineers through appropriate legal framework and institutional mechanism | SDMA, DDMA, relevant institution | **Regular** |
| | • Public Private Partnerships | • Promote private participation in disaster management facilities | SDMA, DDMA, relevant institution | **Regular** |
| **Capacity Development** | • Training | • Training and orientation programs for govt. staff, , professionals for veterinary care and support to disaster-affected animals<br>• Incorporating disaster response, search and rescue in the training programs of youth such as village volunteers, and for protection of disaster-affected animals | SDMA, SDRF, SIDM, ATI, DDMA, relevant institution | **October to November** |
| | • Curriculum Development | • Introduction of Crisis Management, emergency medical response/ recovery and trauma management at Diploma /UG/ PG levels for Health Professionals | SDMA, Health dept. | **Regular** |
| | • Awareness Generation & Mockdrills | • Carry out mass media campaigns<br>• Promote culture of disaster risk prevention, mitigation, and better risk management<br>• Promote attitude and behaviour<br>• change in the awareness campaigns/ IEC<br>• Promote use of insurance/ risk transfer<br>• Promote Community Radio Strengthening network of civil society<br>• organizations for awareness generation about DRR and DM<br>• Information on care and protection of disaster-affected animals<br>• Joint planning and execution of emergency drills | SDMA, Revenue Dept., Irrigation Dept., SDRF, Fire and Emergency Services,CivilDefence, Police, DDMA, Panchayats, ULBs | **November & February** |
| | • Empowering women, marginalized, and persons with disabilities | • Incorporating gender sensitive and equitable approaches in capacity development, covering all aspects of disaster management at the state, district, and local levels | SDMA, SDRF, ATI ,DDMA, Panchayats, ULBs | **Regular** |
| | • Community-Based Disaster Management | • Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach<br><br>• Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach<br>• Training for panchayat, SHG, NCC, NSS, Youth, local community organizations | SDMA, SDRF, ATI,DDMA, Panchayats, ULBs | **November & February** |

## 3.2.3    Landslides and Snow Avalanches Risk Mitigation

| Themes | TASK | Responsibility | Agency/ Dept. | Time line |
|---|---|---|---|---|
| **Understanding Disaster Risk** | Hazard Zoning, mapping, geological, and geotechnical Investigations in regions prone to landslides and snow avalanches | • Preparation of comprehensive and user-friendly inventory of landslides and avalanche prone areas and its updation as per widely accepted standards<br>• Studies and monitoring of risk prone areas on site and using satellites Studies to classify vulnerable areas as per likelihood of hazard | SDMA, State DGM, SRSC | **March & April** |
| | Research and Development | • Scientific assessment for predicting likelihood of landslides, and better understanding of driving forces<br>• Impacts of climate change on landslides and snow avalanches risks R&D for methods to reduce factors driving landslide | SDMA, State DGM, SRSC | **October to December** |
| | Hazard Risk Vulnerability Assessment | • Promote studies, provide guidelines<br>• Studies on vulnerability covering social, economic, ecological, gender, and equity aspects<br>• Change in vulnerability and risk due under climate changes scenarios | SDMA, DDMA, Panchayats, ULBs | **October & November** |
| | Dissemination of warnings | • Ensure facilities and infrastructure for the implementation of adequate access to communities at risk<br>• Dissemination of warnings to all, down to the last mile – remote, rural or urban; Regular updates to people in areas at risk | SDMA, PWD, DDMA, Panchayats, ULBs | **April & May** |
| | Monitoring, Warning Systems, | • Support the deployment of reliable monitoring and warning systems | SDMA, PWD, DDMA, Panchayats, ULBs | **June to September** |
| **Inter-Agenc C** | Overall disaster governance | • Preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks | SDMA, DDMA | **April to May** |
| | Response | • Organizing the IRS and seeking assistance of central agencies | SDMA, DDMA | **May** |
| | Warnings, Information, Data | • Quick, clear, effective dissemination among state, District and PRIs agencies | SDMA, DDMA, GIS | **June to September** |
| | Non-structural measures | • Adapting the norms/ codes as per District's requirement, enforcement, monitoring | SDMA, DDMA | **Regular** |

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|---|---|---|---|---|
| **Investing in DRR – Structural Measures** | Protection of Human Settlements | • Improving infrastructure, roads, and land stabilization work<br>• Technical inputs and guidance | State DGM,PWD | **January to April** |
| | Protection of Heritage Structures | • Prepare lists of structures/sites at risk due to landslides/slope stability problems and priorities them for hazard mitigation | SDMA, State DGM, SRSC, DDMA, Panchayats, ULBs | **October& November** |
| | Multi-Hazard Shelters | • Identification of safe buildings and sites to serve as temporary shelters for people and livestock evacuated from localities at risk<br>• Construction of multi-purpose shelters in high risk areas at safe sites away from hazard-prone locations<br>• Proper maintenance of roads in risk-prone areas | SDMA, DDMA, Panchayats, ULBs | **April & May** |
| **Structural –** | Site selection for Human Settlements in Landslide and Snow Avalanche Prone Areas | • Proper site selection for human settlements, amenities, and other infrastructure | SDMA, State DGM, DDMA, Local Authorities | **April** |
| | Regulations and building codes | • Ensure implementation and adherence to codes and guidelines | SDMA, State DGM, DDMA | **Regular** |
| | Licensing and certification | • Implement licensing of engineers through appropriate legal framework and institutional mechanism | SDMA, DDMA, relevant institution | **Regular** |
| | Public Private Partnerships | • Promote private participation in disaster management facilities | SDMA, DDMA, relevant institution | **Regular** |
| **Capacity Development** | Training | • Support and collaboration to national agencies<br>• Training and skill upgrades for search and rescue<br>• Conduct regular training programmes for professionals including those for care and protection of disaster affected animals | SDMA, SDRF, SIDM, ATI, DDMA, relevant institution | **February & March** |
| | Curriculum Development | • Include information on landslides and snow avalanches in the curriculum | SDMA | **Regular** |
| | Awareness Generation & Mockdrills | • Carry out mass media campaigns<br>• Promote culture of disaster risk prevention, mitigation, and better risk management<br>• Promote attitude and behavior change in the awareness campaigns/ IEC | SDMA, Revenue Dept., Irrigation Dept., SDRF, Fire and Emergency Services, Civil defense, Police, DDMA, | **February to May** |

| | | • Promote use of insurance/ risk transfer<br>• Promote Community Radio Strengthening network of civil society organizations for awareness generation about DRR and DM<br>• Information on care and protection of disaster-affected animals<br>• Joint planning and execution of emergency drills | Panchayats, ULBs | |
| Empowering women, marginalized, and persons with disabilities | | • Incorporating gender sensitive and equitable approaches in capacity development, covering all aspects of disaster management at the state, district, and local levels | SDMA, SDRF, ATI ,DDMA, Panchayats,<br><br>ULBs | **Regular** |
| Community-Based Disaster Management | | • Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach<br>• Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach Training for panchayat, SHG, NCC, NSS, Youth, local community organizations | SDMA, SDRF, ATI ,DDMA, Panchayats,<br><br>ULBs | **February to April** |

## 3.2.4   Drought Risk Mitigation

| Themes | TASK | Responsibility | Agency/ Dept. | Time line |
|---|---|---|---|---|
| Understanding Disaster Risk | Vulnerability Maps | • Annually, after the end of the South-West monsoon, carry out comprehensive assessment of water availability for drinking and irrigation in all the dry land farming/drought-prone areas in the state to demarcate blocks and preferably villages<br>• Prepare maps of areas likely to face water deficit before onset of next monsoon (demarcate blocks and preferably villages)<br>• Undertake village-wise assessment of water storage in the vulnerable blocks | SDMA, Agri. Dept. | **October to December** |
| | Assessment,<br><br>Monitoring, and<br><br>Early Warning | • Coordinate with central agencies in the compilation, for refining forecast accuracy for the region, and analysis of all the drought, water deficit, and crop related data<br>• Ensure functioning of DMC under control of SDMA with requisite facilities and staff<br>• Separately, at the end of SW and NE monsoon, as applicable, prepare and update a robust database of micro-level details on rainfall, reservoir/ lake | SDMA, Agri. Dept., Irrigation dept., water supply dept. | **October& November** |

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|---|---|---|---|---|
| | | water levels, surface water/ ground water, soil moisture, sowing/ crop conditions and socio-economic factors<br>• Separately, at the end of SW and NE monsoon, prepare crop advisory for blocks that are likely to face water deficit<br>• Separately, at the end of SW and NE monsoons, prepare comprehensive water conservation, re-distribution, and management plan for the areas in the state that are likely to experience water deficit | | |
| | Drought Declaration | • Monitor key indicators for drought declaration with the support of relevant State agencies/ Departments<br>• State Govt. to issue a formal declaration of drought affected areas after which Collector will notify the district and talukas affected and initiate drought response measures | SDMA, SDMC, Agricultural Dept., Irrigation Dept., Rev. Dep., DDMA, District Collector | **February to March** |
| | Hazard Risk Vulnerability Assessment | • Undertake HRVA as part of preparation/ revision of DM plans including change in vulnerability and risk considering climate change scenarios<br>• Estimate vulnerability of crops to rainfall uncertainties | SDMA, Agricultural Dept., Rev. Dep., DDMA, | **November& December** |
| | Research | • Conduct research through the university system to cope with water deficit, to manage crops with less water, improve water conservation programs, enhance the productivity of dry land/ rain fed farming | SDMA, DDMA, Agri. Dept., other relevant institution | **Regular** |
| **Inter-Agency Coordination** | Overall disaster governance | • Preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks | SDMA, DDMA, Agri dept. | **Regular** |
| | Response | • Organizing the IRS and seeking assistance of central agencies | SDMA,DDMA, Agri dept. | **February** |
| | Warnings, Information, Data | • Quick, clear, effective dissemination among state, District and PRIs agencies | SDMA,DDMA, GIS, Agri dept., Irrigation, Revenue dept. | **February to April** |
| | Non-structural measures | • Adapting the norms/ codes as per District's requirement, enforcement, monitoring | SDMA, DDMA | **Regular** |
| **Investing in Structur** | Storage Facilities | • Drinking water storage and distribution facilities<br>• Fodder storage facilities to maintain fodder banks | SDMA, Revenue Dept., DDMA, Forest Dept., Water | **February & March** |

| | | • Rain water harvesting systems – individual and community | Supply Dept., Panchayats, ULBs, DRD, PRD, Revenue Dept., other relevant departments | |
|---|---|---|---|---|
| | Water Conservation Structures | • Water harvesting and storage structures Check dams, reservoirs with excess capacity<br>• Groundwater recharge augmentation systems | SDMA, Revenue Dept., DDMA, Panchayats, ULBs, DRD, PRD, AHD, Revenue Dept., Irrigation Dept., other relevant departments. | **November & December** |
| | Social Housing Schemes | • Ensure rainwater harvesting and storage in the social housing schemes especially in drought-prone areas | SDMA, Revenue Dept., DDMA, Panchayats, ULBs, DRD, PRD, AHD, Revenue Dept., Irrigation Dept., other relevant departments. | **November & December** |
| **Investing in DRR–Non Structural Measures** | Mitigation Measures | • Promote private participation<br>• disaster management facilities Improve the implementation of watershed development programmes<br>• Risk management for dry land/ rain fed farmers through agricultural extension, and financial institutions based on assessments at the end of monsoon (SW or NE as applicable) & Drought-Proofing | SDMA, Revenue Dept., DDMA, Panchayats, ULBs, DRD, PRD, AHD, Revenue Dept., Irrigation Dept., Forest/ Environment Dept., Other relevant departments | **November to February** |
| | Promote water conservation, harvesting, efficient irrigation, a forestation | • Promote water efficient irrigation systems (sprinklers, drip, etc.)<br>• Promote protective irrigation through micro irrigation systems<br>• Provide advice to farmers to cope with drought, crop management under drought conditions, and efficient water management<br>• Training in water and soil moisture conservation<br>• Promote village-level information | SDMA, Revenue Dept., DDMA, Panchayats, ULBs, DRD, PRD, AHD, Revenue Dept., Irrigation Dept., Forest/ Environment Dept., Other relevant | **November to April** |

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|---|---|---|---|---|
| | | systems for natural resource management forestation and other options using economically useful vegetation | departments | |
| | Agricultural credit, agricultural inputs, finance, marketing, and crop insurance | • Need-based credit<br>• Promote financial inclusion<br>• Monitor the availability of credit and other financial support from banks and other financial institutions to farmers in drought-prone areas<br>• Ensure the insurance programmes reach the target audiences (especially dry land/ rain fed farmers) and dependent agricultural labor Marketing support<br>• Ensuring availability of quality agricultural inputs | State/UT, DMC, Agriculture Dept., State Rural Coop. Banks, Rural Banks, NABARD, SLBC, DDMA | **Regular** |
| | Reducing climate change impact | • Implement various water and soil conservation programmes taking into account climate change impacts | SDMA, Revenue Dept., DDMA, Panchayats, ULBs, DRD, PRD, AHD, Revenue Dept., Irrigation Dept., Forest/ Environment Dept., Other relevant departments | **February to March** |
| **Capacity Development** | Training | • Formulate and implement training and capacity building programme for drought management, especially, better water conservation, integrated water management (surface and ground water), and copping system<br>• Implement different training programmes for officials at various levels, elected representatives, community leaders, civil society organizations, animal welfare organizations<br>• Ensure availability of qualified and experienced trainers conversant with drought mitigation and management techniques (crop, animal care, integrated water resources – surface and ground water)<br>• Professionals for veterinary care and support to drought-affected animals | SDMA, Revenue Dept., DDMA, Panchayats, ULBs, DRD, PRD, AHD, Revenue Dept., Irrigation Dept., Forest/ Environment Dept., Other relevant departments | **October to December** |
| | Curriculum Development | • Include basic aspects of disaster management including drought in graduate and post-graduate courses in agriculture and veterinary courses offered by state institutions | SDMA, Edu. Dept. | **Regular** |

| | Awareness Generation &Mock drills | • Carry out mass media campaigns<br>• Promote culture of disaster risk prevention, mitigation, and better risk management<br>• Promote attitude and behaviour change in the awareness campaigns/IEC<br>• Promote use of insurance/ risk transfer<br>• Promote Community Radio Strengthening network of civil society organizations for awareness generation about DRR and DM Information on care and protection of disaster-affected animals<br>• Joint planning and execution of emergency drills | SDMA, Revenue Dept., DDMA, Panchayats, ULBs, DRD, PRD, AHD, Revenue Dept., Irrigation Dept., Forest/ Environment Dept., Other relevant departments | **October to February** |
|---|---|---|---|---|
| | Empowering women, marginalized, and persons with disabilities | • Incorporating gender sensitive and equitable approaches in capacity development, covering all aspects of disaster management at the state, district, and local levels | SDMA, Revenue Dept., DDMA, Panchayats, ULBs, DRD, PRD, AHD, Revenue Dept., Irrigation Dept., Forest/ Environment Dept., Other relevant departments | **Regular** |
| | Mainstreaming drought management in developmental plans | • All relevant dept. will mainstream disaster management efforts in their developmental plans | SDMA, Revenue Dept., DDMA, Panchayats, ULBs, DRD, PRD, AHD, Revenue Dept., Irrigation Dept., Forest/ Environment Dept., Other relevant departments | **Regular** |

## 3.2.5 Industrial Disasters Risk Mitigation

| Themes | TASK | Responsibility | Agency/ Dept. | Time line |
|---|---|---|---|---|
| **Understanding Disaster Risk** | Zoning/ Mapping | • Industrial zones on basis of hazard potential and effective disaster management for worst case scenarios<br>• Carry out the mapping and related studies in collaboration with Districts | SDMA, Industries Dept., DDMA, Panchayats, ULBs, Industries, Industrial Associations | **July to August** |
| | Hazard Risk Vulnerability Assessment | • Undertake HRVA as part of preparing and periodic revision of DM plans<br>• Studies on vulnerability covering social, economic, ecological, gender, and equity aspects<br>• Change in vulnerability and risk due under climate change scenarios | SDMA, DDMA,SPCB, Forest/ Environment Dept., Industries Dept., other relevant departments, Panchayats, ULBs, Industries, Associations | **September to October** |
| **Inter-Agency Coordination** | Overall disaster governance | • Preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks | SDMA, DDMA, Industries, Associations | **Regular** |
| | Response | • Organizing the IRS and seeking assistance of central agencies | SDMA, DDMA, Industries, Associations | **November** |
| | Warnings, Information, Data | • Quick, clear, effective dissemination among state, District and PRIs agencies | SDMA, Industries Dept., SPCB, DDMA, Panchayats, ULBs | **December to March** |
| | Non-structural measures | • Adapting the norms/ codes as per District's requirement, enforcement, monitoring | SDMA, Industries Dept., SPCB, DDMA, Panchayats, ULBs | **Regular** |
| **Investing in DRR–** | Shelters, evacuation, and support facilities Multiple routes for reliable access and escape | • Identification of shelters with basic facilities like drinking water and first aid for chemical exposure<br>• Ensuring water storage facilities and sources for water for accident containment and firefighting operations<br>• Providing wide roads and multiple routes in the industrial area to allow quick access by first responders and to ensure escape pathways | SDMA, DDMA,SPCB, Forest/ Environment Dept., Industries Dept., other relevant departments, Panchayats, ULBs, Industries, Associations | **February** |

| | | | | |
|---|---|---|---|---|
| **Investing DRR Non structural Measur** | Compliance and Monitoring Institutional Arrangements | • Formulate rules, norms, and laws such as factories rules consistent with that of ensuring greater safety in hazardous industries and to reduce likelihood of disasters<br>• Review rules to grant compensation to chemical accident victims to improve them in favour of victims<br>• Amend land use norms to ensure greater safety and to ensure buffer zones without human settlements in close proximity of hazardous industries<br>• Strengthen the conduct of safety audits and enforcement of disaster prevention norms | SDMA, DDMA,SPCB, Forest/ Environment Dept., Industries Dept., other relevant departments, Panchayats, ULBs, Industries, Associations | **Regular** |
| | Public Private Partnerships | • Promote private participation in off-site disaster management facilities<br>• Provide legal support for Mutual Assistance Groups among industries within clusters<br>• Encourage private participation in enhancing off-site disaster response and mitigation | SDMA, Industries Dept., SPCB, DDMA, Panchayats, ULBs | **Regular** |
| **Capacity Development** | Training | • Training and orientation programs for govt. staff, , professionals for veterinary care and support to disaster-affected animals<br>• Incorporating disaster response, search and rescue in the training programs of youth such as village volunteers, and for protection of disaster-affected animals | SDMA, Industries Dept., SPCB, DDMA, Panchayats, ULBs | **November to February** |
| | Curriculum Development | • Implement the recommendations of reviews in all educational institutions | Professional bodies | **Regular** |
| | Awareness Generation & Mockdrills | • Carry out mass media campaigns<br>• Promote culture of disaster risk prevention, mitigation, and better risk management<br>• Promote attitude and behavior change in the awareness campaigns/IEC<br>• Promote use of insurance/ risk transfer<br>• Promote Community Radio Strengthening network of civil society organizations for awareness generation about DRR and DM<br>•  Information on care and protection of disaster-affected animals<br>• Joint planning and execution of emergency drills | SDMA, Industries Dept., SPCB, DDMA, Panchayats, ULBs | **February& March** |
| | Empowering women, marginalized, and persons with disabilities | • Incorporating gender sensitive and equitable approaches in capacity development, covering all aspects of disaster management at the state, district, and local levels | SDMA, Industries Dept., SPCB, DDMA, Panchayats, | **Regular** |

| | | | ULBs | |
|---|---|---|---|---|
| Community-Based Disaster Management | • Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach<br>• Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach<br>• Training for panchayat, SHG, NCC, NSS, Youth, local community organizations | | SDMA, Industries Dept., SPCB, DDMA, Panchayats, ULBs | **February to March** |

## 3.2.6  Fire Risk Mitigation

| Themes | TASK | Responsibility | Agency/ Dept. | Time line |
|---|---|---|---|---|
| **Understanding Disaster Risk** | Technical support | • Applying the classification system for hazardous industries in rural and urban areas on the basis of norms laid down by the SFAC for fire services<br>• Vulnerability analysis of densely population clusters prone to high risk of fire | SDMA, DDMA and relevant departments, ULBs, Environment/ Forest Dept., Panchayats | **September to December** |
| | Hazard Risk Vulnerability Assessment | • Undertake HRVA as part of preparing and periodic revision of DM plans<br>• Mapping of hazardous sites that pose fire and explosion risks Assess and fix the requirement of equipment and manpower<br>• Identifying areas prone to forest fires and take preventive measures | SDMA, DDMA and relevant departments, ULBs, Environment/ Forest Dept., Panchayats | **January to March** |
| **Inter-Agenc Coordination** | Overall disaster governance | • Preparation and implementation of DM plans and ensure the functioning of agencies with DM tasks | SDMA, DDMA Forest Dept., | **Regular** |
| | Response | • Organizing the IRS and seeking assistance of central agencies | SDMA, DDMA Forest Dept., | **March** |
| | Warnings, Information, Data | • Quick, clear, effective dissemination among state, District and PRIs agencies | SDMA, DDMA and relevant departments, ULBs, Environment/ Forest Dept., Panchayats | **February to June** |
| **Investing tructura** | Enforcement of Fire Safety Line | • Provide Support Frame model rules, laws, guidelines | Forest Department | **November to February** |

| | | | | |
|---|---|---|---|---|
| **Investing in DRR–Non Structural Measures** | Enforcement of Fire Safety Rules and Regulation | Enactment of Fire Act and other legal measures as per recommendations of SFAC and other official bodies Institutional reform and major changes in organizational set up Legal regime for mandatory fire clearance from FES for different types of buildings, colonies, industries and other installations Strict implementation of fire safety rules Strict procedures for fire safety certification should be followed before issuing building use permissions <br>• Ensure frequent inspection for fire safety system and equipment in public | SDMA, DDMA and relevant departments, ULBs, Environment/ Forest Dept., Panchayats | **November to February** |
| **Capacity Development** | Training | • Training and orientation programs for govt. staff, , professionals for veterinary care and support to disaster-affected animals <br>• Incorporating disaster response, search and rescue in the training programs of youth such as village volunteers, and for protection of disaster-affected animals | SDMA, DDMA and relevant departments, ULBs, Environment/ Forest Dept., Panchayats | **November to February** |
| | Awareness Generation &Mockdrills | • Carry out mass media campaigns <br>• Promote culture of disaster risk prevention, mitigation, and better risk management <br>• Promote attitude and behavior change in the awareness campaigns/IEC <br>• Promote use of insurance/ risk transfer <br>• Promote Community Radio Strengthening network of civil society organizations for awareness generation about DRR and DM <br>• Information on care and protection of disaster-affected animals <br>• Joint planning and execution of emergency drills | SDMA, DDMA and relevant departments, ULBs, Environment/ Forest Dept., Panchayats | **Regular** |
| | Empowering women, marginalized, and persons with disabilities | • Incorporating gender sensitive and equitable approaches in capacity development, covering all aspects of disaster management at the state, district, and local levels | SDMA, DDMA and relevant departments, ULBs, Environment/ Forest Dept., Panchayats | **January to March** |
| | Community-Based Disaster Management | • Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach <br>• Strengthen ability of communities to manage and cope with disasters based on a multi-hazard approach <br>• Training for panchayat, SHG, NCC, NSS, Youth, local community organizations | SDMA, DDMA and relevant departments, ULBs, Environment/ Forest Dept., Panchayats | **Regular** |

# CHAPTER – 4

## Early Warning, Preparedness and Response

### 4.1 Background

Response measures are those taken immediately after receiving early warning from the relevant authority or in anticipation of an impending disaster, or immediately after the occurrence of an event without any warning. The primary goal of response to a disaster is saving lives, protecting property, environment, and meeting basic needs of human and other living beings after the disaster. Its focus is on rescuing those affected and those likely to be affected by the disaster.

### 4.2 State Institutional Framework

S. 37(a) of the DM Act, 2005 mandates the departments of the government to prepare disaster management plans keeping mitigation, preparedness and response elements into consideration. Ss. 22(2), 24, 30 and 34 of the DM Act, 2005 have clearly laid down various duties relating to DM to be performed by various agencies.

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

- Coordination with the local technical agencies responsible for forecasting different hazards,

- Establishment of a reliable communication system and to ensure redundancy by having alternative communication systems in place in case of break downs in the main system,

- Coordination with media and to ensure dissemination of information through the same,

- Bringing forth awareness amongst communities and all concerned including for effective use for early warning.

VSAT DMS HUB            VSAT NIC              SATELLITE PHONE

DMS HUB, New Delhi     NIC Dehradun          Satellite phones at the district

MHA / NIDM / NDMA      13 districts NIC Centre


(Other Locations in States)


**Police Communication Network**            **NDMA Communication Network**


LIBERA M ← → OTA                             NDMS

Dehradun ( Garhwal Range)    Nanital ( Kumaun Range)    VOIP

Temple (Haridwar)            Kanter (Pithoragarh)       VSAT Internet

Field (Pauri                 Cherry (Almora)

Kargo(Rudraprayag)           Star (Bageshwar)

Roof (Chamoli)               Fog (Udhamsingh Nagar)

Lake (Tehri)                 Mountain (Champawat)

River (Uttarkashi)


Sms messages having brief of the warning as also disaster incidence are to be sent simultaneously. With regard to the disaster incidence / accident the same is to include:

Type of incidence; road accident / landslide / flood / squall / lightening / earthquake

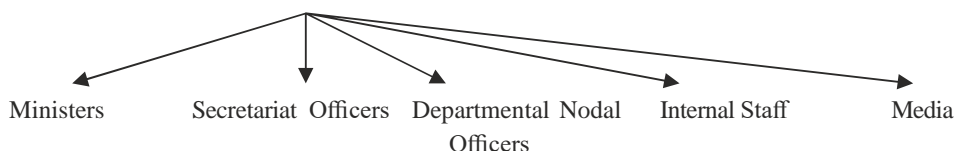Place of occurrence; incidence site, block / tehsil, district

Time and date of occurrence

Total number of persons involved

Expected / reported casualties

Injured / seriously injured persons

Initial action taken

Other details

With regard to the warning received from IMD / CWC / GSI the sms and other messages are to carry, to the extent possible, exactly what is received from the agency generating the same. No attempt is to be made to change the wording of the message received as the same may dilute or exaggerate its connotation.

Unless specified to the contrary, all messages are also be communicated to members of print and electronic media.

The officials to whom the messages are to be sent are to be grouped on the basis of their department and location. Every effort is to be made to ensure that messages are sent only to the concerned officials.

**State Level Official**

Ministers      Secretariat Officers      Departmental Nodal Officers      Internal Staff      Media

**District level Officials**

| Administrative Group | Police Department | Medical Group | District Information officer |
|---|---|---|---|
| District Magistrate | D G | CMO/CMS | Information Directorate |
| ADM | IG Garhwal / IG Kumaon | 108 / EMRI | Electronic / Print media |
| SDM | S.S.P / S.P | District Hospital | |
| Tehsildar | Thana Incharge | PH C/CHC | |
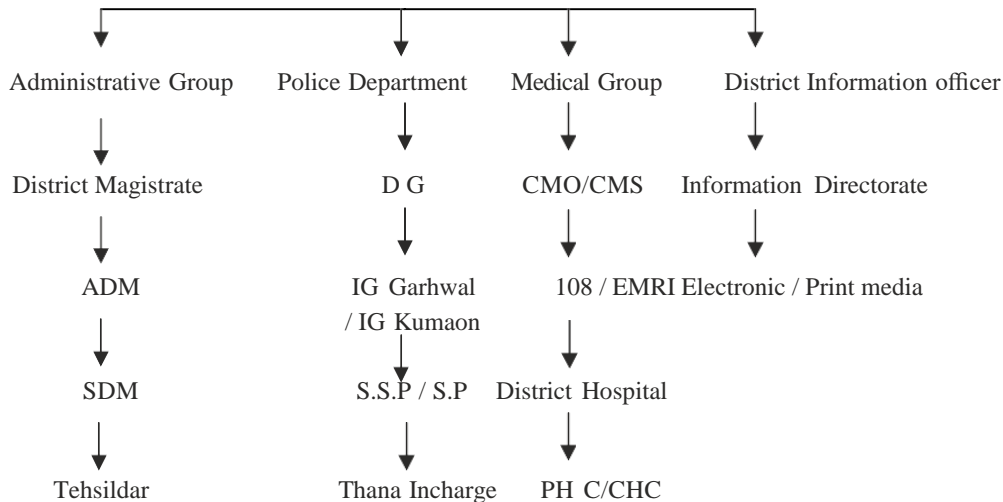
## 4.3 Major Tasks and the Responsibilities: State

The IRS functions through Incident Response Teams (IRTs) in the field. In line with our administrative structure and DM Act 2005, Responsible Officers (ROs) have been designated at the State and District level as overall in charge of the incident response management. The RO may however delegate responsibilities to the Incident Commander (IC), who in turn will manage the incident through IRTs. The IRTs will be pre-designated at all levels; State, District, Sub-Division and Tehsil/Block. On receipt of Early Warning, the RO will activate them. In case a disaster occurs

without any warning, the local IRT will respond and contact RO for further support, if required. A Nodal Officer (NO) has to be designated for proper coordination between the District, State and National level in activating air support for response.

A part from the RO and Nodal Officer (NO), the IRS has two main components;

a) Command Staff and

b) General Staff.

## Responsible Officer
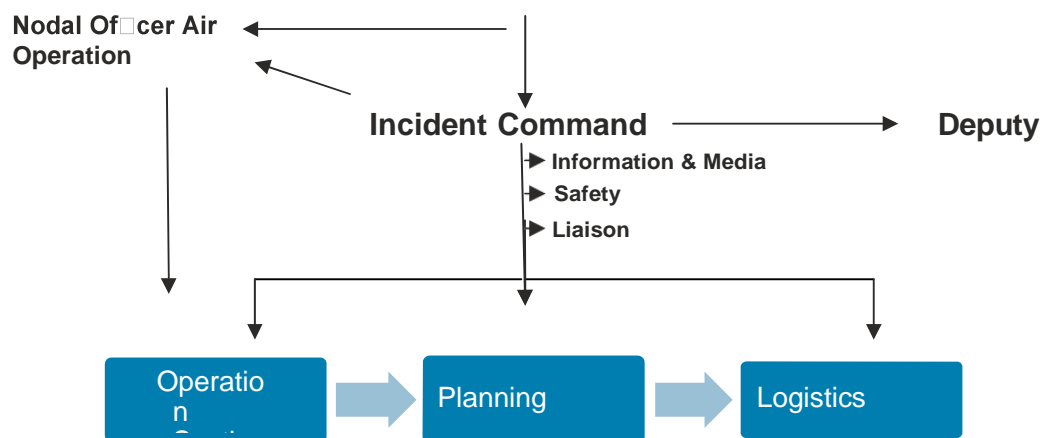


The Incident Commander has a wide variety of responsibilities. First, we will look at the overall list, followed by a more detailed review of several of the responsibilities.

Assess the situation and/or obtain a briefing from the prior Incident Commander.
- Determine incident objectives and strategy.
- Establish the immediate priorities.
- Establish an Incident Command Post.
- Establish an appropriate organization.
- Ensure planning meetings are scheduled as required.
- Approve and authorize the implementation of an Incident Action Plan.
- Ensure that adequate safety measures are in place.
- Coordinate activity for all Command and General Staff.
- Coordinate with key people and officials.
- Approve requests for additional resources or for the release of resources.
- Keep agency administrator informed of incident status.
- Approve the use of students, volunteers, and auxiliary personnel.

- Authorize release of information to the news media.
- Order the demobilization of the incident when appropriate.

## Roles and Responsibilities of Responsible Officer

The CS who is the head of the State administration is to perform responsibilities laid down under clause 22 (2) and 24 of the DM Act, 2005;

1. As we have discussed the features in Module – A and facilities in Module – C, it is the prime responsibilities of the RO to ensure the appropriate implementation of all features and activation of various facilities to respond any disaster.

2. The Section 22 (h) of the Disaster Management Act provides that the Chairperson of State Executive Committee will give directions to any department of the Government of the state or any other authority or body in the state regarding actions to be taken in response to any threatening disaster situation or disaster. Thus He/she will ensure active participation of all departments as Emergency Support Functionaries in EOC at State level;

3. Ensure that IRTs at State, District and Sub-Division are formed and IRS is integrated in the State and District Disaster Management Plan. This may be achieved by issuing a Standing Order to all District Magistrates and line departments to identify suitable officers for different positions in the IRTs .

### *Apart from the above, the RO/CS will:*

4. Activate IRTs at state and district when the need arises and issue order for their demobilisation on completion of response;

5. Set overall objectives and incident related priorities;

6. Identify, mobilise and allocate critical resources according to established priorities;

7. Ensure that local Armed Forces are involved in the Planning Process and their resources are appropriately dovetailed, if required (In-case of implementation of Unified Command);

8. Ensure that when NDRF, Armed Forces arrive in support for disaster response, their logistic requirements like, camping ground, potable water, electricity and requirement of vehicles etc. are taken care of;

9. Coordinate with the Central Government for mobilisation of Armed Forces, Air support etc. as and when required;

10. Identify suitable Nodal Officer to coordinate Air Operations and ensure that all District ROs are aware of it;

11. Ensure that incident management objectives do not conflict with each other (specially in-case of multi agency management);

12.      Consider the need for the establishment of Area Commander, if required;

13.      Establish Unified Command (UC) if required and get the approval of Chief Minister (CM);

14.      Ensure that telephone directory of all Emergency Support Functionaries is prepared and available with EOC and IRTs;

15.      Ensure use of Global Positioning System (GPS) technology in the vehicles (Police, Fire, Ambulance etc.) to get connectivity for their effective utilization ;

16.      Keep the chairperson of SDMA informed of the progress of incident response;

17.      Ensure overall coordination of response, distribution of relief and other activities an equitable and non-discriminatory manner;

18.      Conduct post response review on performance of IRTs and take appropriate steps to improve performance; and

19.      Take such other necessary action as the situation demands.

# CHAPTER – 5

## Recovery and Building Back Better

### 5.1 Recovery Process

Disaster recovery process is not a set of orderly actions triggered by the impact of a disaster upon a community. It will consist of several related activities such as the following:

Damage assessments

Debris clearance, removal and its environmentally safe disposal

Restoration and even upgrading utilities including communication networks

Re-establishment of major transport linkages

Temporary housing

Detailed building inspections

Redevelopment planning

Environmental assessments

Demolition

Reconstruction

Integrating DRR into various development initiatives

Financial management

Economic impact analyses

The disaster recovery programmes usually proceed in three distinct stages to facilitate a sequenced, prioritized, and flexible multi-sect oral approach. Three recovery stages, in which appropriate policies and programmes tend to be planned and implemented, are:

- Early (3 – 18 Months)
- Mid-Term (Up to 5 Years -concurrent with early recovery)
- Long-Term (Within 10 Years)

The salient provisions of the recovery framework include the following:

- Institutional arrangements: Ensuring institutional mechanisms at the national, state, district, and local (urban and rural) levels that clearly defines roles and responsibilities in recovery
- Coordination: There is considerable interdependence between stakeholders – government, international agencies, private sector, civil society organizations – in realizing the objectives of recovery and inter-agency coordination is extremely important
- Public-Private Partnerships (PPP): Participation of the private sector has to be leveraged

for larger public good and the Public-Private Partnerships is one effective way to facilitate the private sector involvement in recovery

- Information and Communication Technology (ICT): Effective use of ICT in recovery

- disseminating messages among all stakeholders, and providing information on all aspects of recoveryprogramme

- Decision Support System (DSS): Setting up an adequate DSS that includes Management Information System (MIS), databases, deployment of spatial data management technologies

- Pool of Expertise: Pooling of professional skills and expertise in diverse areas

- Community Participation: Ensuring the pro-active involvement of communities, proper community outreach, empowerment, and gender equity in programme formulation and implementation

- Monitoring and Evaluation (M&E): M&E is an important component required for promoting transparency in the recovery processes and it should include technical and social audits.

## Developing a vision for Build-Back Better (BBB)

High level meetings as well as broad-based, wider consultations with experts, civil society, and key stakeholders

Build consensus among the range of stakeholders within and outside government

Discussions at top level to align the recovery vision with the government's broader, longer term development goals and growth and poverty reduction strategies

Disaster resistant physical recovery

Options for fast economic recovery

Gender and equity concerns Vulnerability reduction

Natural resource conservation and environmental protection

Social recovery

## 5.2 Mainstreaming DRR into development

The process of development and the kind of development choices made sometimes create disaster risks. A close analysis of the development process with its six aspects namely

i) policy, ii) strategy, iii) programming, iv)project / program cycle management,

v) External relations and vi) institutional capacity;

Clearly calls for the need of systematic and more conscious ways of integrating disaster risk reduction (DRR) into development process. Mainstreaming risk reduction should result in institutionalization of appropriate risk reduction measures and should ensure that development

plans and programmes do not create new forms of vulnerability.

## 5.3 Reconstruction

Recovery efforts require the coordination at several levels of government and the stakeholder institutions having specific responsibilities for state, private sector, voluntary organizations, and international aid agencies.

**State Government**

The damage assessment and all the phases of recovery and reconstruction (short to long-term) are the responsibility of the State government. Some of the key tasks are:

- Lead in and support need and damage assessment operations
- Provide relevant data regarding the severity of the disaster and assessment of individual needs
- Participate in and support public information and education programmes regarding recovery efforts and available State Government assistance
- Coordinate with the Central Government and other stakeholders for reconstruction Management

**Private Sector**

There is a need for facilitating the involvement of private sector in disaster management and for businesses to integrate disaster risk into their management practices. There is a need to involve the private sector in the areas of:

Technical support

Reconstruction effort

Risk management including covering risks to their own assets

Financial support to reconstruction efforts

Risk-informed investments in recovery efforts

**Voluntary Organizations and International Aid Agencies**

They may participate in the following activities:

- Joint need and damage assessment
- Support government effort in reconstruction process especially in so far as the mandate requires them
- Provide technical support to reconstruction and recovery efforts
- Assist the government in disseminating public information regarding reconstruction and rehabilitation plan
- Training and capacity development of local communities

# CHAPTER – 6

## Capacity Developments

The capacity development covers all aspects of disaster management. The key aspects and broad thematic areas for capacity development applicable to these dimensions of DM are summarized in table.

| Sl. No. | Task | Activity | Responsibility | Time Line |
|---|---|---|---|---|
| 1 | Deploying good resources, advanced technology and equipment | ▪ Identifying existing ones<br>▪ Identification of gap between existing ones and those required on the basis of hazard risk and vulnerability and lessons learnt from recent past disasters<br>• Procurements of additionalequipment with advanced technologies | SDMA, DDMA, Disaster management Department, Nodal Dept./ All Line Depts. | Jan to May |
| 2 | Resource Network and Communication | • Maintaining the resource network<br>• Monitoring and maintaining the resource data<br>• Regular updating the resource data Developing fail-safe communications with advance technology | SEOC, DEOC and GIS | Regular |
| 3 | Early Warning | ▪ Improve the last mile connectivity<br>• Up-grade technical infrastructure and systems | SDMA, DDMA, State nodal Dept., Panchayats, ULBs | Jan to May and Oct to Dec |
| 4 | Strengthening of Emergency Operation Centers | ▪ Review functioning<br>▪ Improve capabilities based on experience after each disaster event<br>• Conduct capacity audits of EOCs<br>• Set up State and District level EOCs with adequate trained manpower<br>• Regular reviews and improvement of SOPs, | State Govt., SDMA | Jan to May and Oct to Dec |
| 5 | Mainstreaming of DM into local governance and Strengthening Community skills | • Conduct trainings and workshops on incorporating<br>• DM plans into local Governance<br>▪ Training on CBDR and preparedness at local levels address gender issues, and special needs of children, disabled, aged, etc. holistically in the DM context<br>▪ Promote private sector and civil society involvement | SDMA, DDMA, Disaster management Department, Nodal Dept./ All Line Depts. | Jan to May and Oct to Dec |

| 6 | Use of media for disaster management | • Trainings and Workshops | SDMA, DDMA, Nodal Dept./ All Line Depts. | Jan to March |
|---|---|---|---|---|
| 7 | Human Resource Development | • Organize relevant training programs& refresher courses | SDMA, DDMA | Jan to March |
| 8 | To enhance DM and DRR capacities at local levels | • Conduct trainings in disaster management at district level | SDMA, DDMA, Nodal Dept./ All Line Depts. | Oct to Dec |
| 9 | Developing the technical capacities and professional disciplines | • Technical and professional programs relevant to various specialized aspects of DM<br>• Develop ToTs and Research in key | SDMA, DDMA, Nodal Dept./ All Line Depts. | Jan to May and Oct to Dec |

# CHAPTER – 7
## Response Mechanisms

### 7.1 IRS Activation

Section 22(2), 24, 30 and 34 of DM Act 2005 has clearly laid down various duties relating to DM to be performed by various agencies. No single agency or department can handle a disaster situation of any scale alone. Different departments have to work together to manage the disaster. For proper coordination and effective use of all available resources, the different departments and agencies need a formalized response management structure that lends consistency, fosters efficiency and provides appropriate direction during response. Response Management constitutes the functions of planning, execution and coordination. While planning in the pre-disaster phase is the responsibility of various authorities created under the DM Act, the execution of the plans has to be carried out by the various line departments of the Government and the existing administrative structure in the District and State. For coordination and ensuring smooth execution of the plans, bodies like NDMA, NEC, SDMA and SEC have been created at the National and State Level. At the District level, planning, execution and coordination of all the activities have been vested in the DDMA itself.

The IRS envisages and lays down various tasks that may need to be performed by the existing administrative machinery at various levels. It also recommends prior identification of officers for the performance of different tasks and getting them trained in their respective roles, and provides a structure under which all the line departments will function in tandem with the District and State administration.

The IRTs will be pre-designated at all levels. On receipt of early warning the RO may activate them. In case of occurrence of disaster without any warning, the local IRTs will respond and report to RO and request further support, if required.

**The principal IRS management functions are;**

| Responsible Officer (RO) | The RO is responsible for overall supervision, support and management of disaster response. |
|---|---|
| **Command** | The Incident Commander is responsible for management of response activity in his / her jurisdiction. |
| **Operations** | The Operations Section is responsible for directing the tactical actions to meet incident objectives as per Incident Action Plan. |
| **Planning** | The Planning Section is responsible for the collection, evaluation, and display of incident information, maintaining status of resources, and preparing the Incident Action Plan and incident-related documentation. |

| Responsible Officer (RO) | The RO is responsible for overall supervision, support and management of disaster response. |
|---|---|
| Command | The Incident Commander is responsible for management of response activity in his / her jurisdiction. |
| Operations | The Operations Section is responsible for directing the tactical actions to meet incident objectives as per Incident Action Plan. |
| Planning | The Planning Section is responsible for the collection, evaluation, and display of incident information, maintaining status of resources, and preparing the Incident Action Plan and incident - related documentation. |
| Logistics | The Logistics Secti on is responsible for providing adequate services and support to meet all incident or event needs as per Incident Action Plan (IAP). Apart from Support & Service branches, Finance is also a branch in Logistics. The Finance Branch is responsible for keeping track of incident -related costs,personnel and equipment records, administering procurement contracts associated with the disaster or event and expedite the release of Ex-gracia payment. |

# Chief Secretary / RO
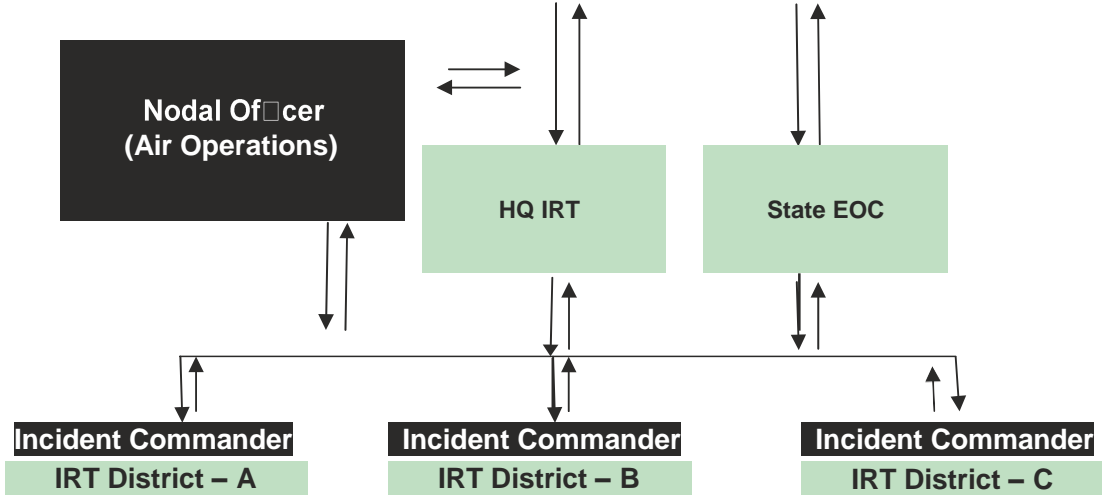


In any disaster response, the initial efforts would always be taken by the District Administration. However, when Districts are overwhelmed in any situation, the support necessarily has to come from the State and National level. While the IRS is mainly relevant at the basic functional level, it is absolutely necessary that the support functionaries from the State and the National level also conform to the principles of IRS in the emergency support duties. This will be greatly beneficial for the proper coordination of the various response efforts at the National and State level with that of the District. It is therefore necessary to clearly understand the structure of the IRS in the context of State

response.

## 7.2 Evacuation Plan

A plan is a must for effective, prompt and systematic delivery of a set of actions with minimal lapses. It is therefore necessary to have a well defined plan for evacuation. The District Disaster Management Authority would be responsible for preparing, practicing / rehearsing, updating and enacting the evacuation plan in case of any emergency. Various components of the evacuation plan are being given below.

## Identification of vulnerable areas

Areas vulnerable to floods and landslides can easily be earmarked and plan can be prepared for evacuating persons from areas that are likely to be affected. The areas affected by slope instability are repeatedly affected by landslides and floods affect the low lying areas in the proximity of major rivers and streams. It is the responsibility of the District Disaster Management Authority to mark areas likely to be affected by both landslides and floods and prepare landslide and inundation maps.

## Risk Communication

Communication of risk is at the same time essential for ensuring voluntary compliance of disaster mitigation techniques and popularization of risk transfer mechanisms. Public notices should be put up in such areas warning the general public of the likely threat. Mass awareness drive should also be launched in the vulnerable areas for communicating the level of threat to which the masses are likely to be affected.

## Identification of Safe Places

Safe places in the vicinity of the areas earmarked as being prone to high risk should be identified for temporarily accommodating the evacuated persons. It should be ensured that the areas identified for temporary accommodation of evacuees has sufficient provisions of sanitation, water, electricity and the like. In case the identified area is far enough provision for acquisition of vehicles should be made. Health, Drinking Water and Food and Civil Supplies departments should be entrusted with the responsibility of providing basic civil amenities at the place identified for accommodating the evacuees.

## Information Exchange

Standard protocol should be adhered to under which the District EOC routinely exchanges information with various agencies responsible for generating warnings. These include IMD and CWC. At the same time EOC should establish regular contact with various dams and reservoirs operating in the areas so that information pertaining to the discharge of water is communicated to the EOC.

Having done landslide and inundation mapping of the area mechanism should be established for translating the expected heavy rainfall warning into probable flood or landslide triggering events. India Meteorological Department has agreed to provide meso-scale weather forecasts with regard to i) Chorabari, ii) Satopanth, iii) Kalapani, iv) Gomukh, v) Yamunotri glacier, vi) Pinder glacier, vii) Dodi Tal, viii) Madhyamaheshwar, ix) Milam, x) Dudhatoli, xi) Khatling, xii) Dronagiri, xiii) Niti, xiv) Bandarpoonch, xv) Hemkunt Sahib. On the receipt of warning of heavy or heavy to heavy

rainfall in these areas the District Magistrate invoking powers entrusted upon him by Disaster Management Act, 2005 would be responsible for taking all precautionary measures in the downstream areas likely to be affected by ensuing floods and would get the areas likely to be affected by floods immediately evacuated.

## Warning Dissemination

Standard protocol should be set up for warning dissemination and clear cut responsibilities should be allocated for the same. People should be made aware of the manner in which the warning for Dos and Don'ts after the receipt of the evacuation orders should be popularized through various modes and Mock drills should be carried out for ensuring systematic and prompt evacuation.

## Air Evacuation and Alternate Routes

For prompt air evacuation requisition form for seeking the help of Indian Air Force should be kept handy and the location (with latitude and longitude) of clear areas for with size and air clearance details should be inventoried.

## Traffic regulation

In the event of any disaster or on receipt of warning of any impending disaster incidence the District Magistrate and Superintendent of Police, invoking appropriate provisions of Disaster Management Act, 2005 would ensure that all traffic leading to the areas affected by disaster.

The state is visited by pilgrims and tourists in large numbers, particularly during the Char Dham Yatra season. This period coincides with the monsoon period when landslides are frequent in the area. Disruption of road traffic due to landslides causes immense hardships to the visiting tourists and pilgrims. In order to manage these situations places have been identified on the Char Dham Yatra route for halting the vehicular traffic in case of road blockades.

**Places on Char DhamYatra route where traffic is to be stopped in case of any emergency.**

| Sl. No. | Route | Place where traffic is to be stopped |
|---------|-------|--------------------------------------|
| 1. | Rishikesh – Badrinath / Kedarnath | Rishikesh |
| 2. | | Srinagar |
| 3. | | Rudraprayag |
| 4. | Rishikesh – Badrinath | Gauchar |
| 5. | | Gwaldam |
| 6. | | Gopeshwar |
| 7. | | Joshimath |
| 8. | Rudraprayag – Kedarnath | Agastyamuni |
| 9. | | Guptakashi |
| 10. | Rishikesh – Gangotri | Chamba |
| 11. | | Suakholi |
| 12. | | Chinyalisaur |
| 13. | | Dunda |
| 14. | | Uttarkashi |
| 15. | | Harsil |
| 16. | Rishikesh – Yamunotri | Naugaon |
| 17. | | Barkot |

Police and district administration are to stop the vehicles at these places on the receipt of instructions to this regard from S-EOC or suomoto on the receipt of information regarding road blockade or any other emergency in their district or in neighboring district.

## 7.3  SOPs/ Departmental Disaster Management Plan

SOP's is the key standards the actions required to taken by the departments and other stakeholders in response to the disasters of any kind. In other words, SOPs are the logical compilation of the key roles, responsibilities and activities to undertaken by different department. As per Section 23 (7) & Section 39 of the Disaster Management Act, 2005, every government department should have its own disaster management plan at state level. It also suggests the ways to develop the plans with key ingredients. Uttarakhand state is highly susceptible to natural disasters due to its geographical nature. Some of the districts like Uttarkashi, Chamoli, Rudraprayag and Pithoragarh are severely prone to floods, cloud bursts and landslides. These districts require a comprehensive plan of development and disaster management which are aligned with local requirements. Uttarakhand state preparing disaster management Plan of the identified departments of the state together with SOP's for critical function they have to undertake with regard to their disaster management roles.

Department to cover in this process listed below:

1. Disaster Management
2. PWD
3. Police
4. Health and Family Welfare
5. Animal Husbandry
6. Transport
7. Food Supply
8. Power
9. Drinking Water
10. Irrigation

## 7.4  Emergency Operations Centers

Emergency Operations Centers are set up at both state and district level. These have the responsibility of coordinating disaster response and are functional on 24 X 7 basis all through the year. Four digit toll free numbers 1070 and 1077 are installed in state and district EOCs respectively. All the EOCs have police wireless connectivity. SMS alert and warning system has also been established at SEOC Dehradun and DEOC Uttarkashi. Group wise list of persons to whom the information is circulated through SMS is given **in Annexure**

For ensuring steady communication on the aftermath of any disaster INMARTSAT Mini M satellite

phones have been provided at SEOC and 10 DEOCs table.

**Details of the satellite phone numbers installed at S-EOC / D-EOC.**

| Sl. No. | District | Satellite phone number |
|---|---|---|
| 1. | Almora | 00873-764128651 |
| 2. | Bageshwar | 00873-764128687 |
| 3. | Pithoragarh | 00873-764128659 |
| 4. | Champawat | 00873-764128714 |
| 5. | Nainital | 00873-764128655 |
| 6. | Paurigarhwal | 00873-764128675 |
| 7. | Tehrigarhwal | 00873-764128691 |
| 8. | Chamoli | 00873-764128679 |
| 9. | Uttarakashi | 00873-764128667 |
| 10. | Rudraprayag | 00873-764128683 |
| 11. | DMMC | 00873-764128663 |
| 12. | S-EOC | 00873-764128671 |

Apart from the above DMS satellite communication hub of ISRO has been setup at SEOC Dehradun, Police Control Room Dehradun, Guptkashi (Rudraprayag), Badrinath (Chamoli), Barkot (Uttarkashi), and Pithoragarh. Details of VOIP identity of DMS satellite communication hub of ISRO are as given in table.

**Details of the VOIP identity of DMS satellite communication hub of ISRO installed in Uttarakhand.**

| Sl. No. | Station | VOIP |
|---|---|---|
| 1. | Guptkashi, Rudraprayag | 00111#<br>0112# |
| 2. | SEOC, Dehradun | 0521# |
| 3. | Police Station Badrinath | 2071# |
| 4. | Police Control Room, Dehradun | 0991# |
| 5. | Police Station Pithoragarh | 1771# |
| 6. | Police station Barkot | 1781# |

**Details of the VOIP identity of V-SAT satellite communication hub of NDMA installed in Uttarakhand**

| Sl. No. | Station | VOIP |
|---|---|---|
| 1 | Dehradun | 81386, 81387 |
| 2 | Rudraprayag | 81398, 81399 |
| 3 | Chamoli | 81772, 81773 |
| 4 | Pithoragarh | 81390, 81391 |

Emergency Operations Centers (EOCs) though working on 24 X 7 basis are to be activated or put on high alert, in accordance to the standardized emergency management procedures and protocols. Some natural hazards have a well-established early warning system. On receipt of information regarding the impending disaster, the EOC would inform the Secretary, Disaster management, who in turn would activation of IRS and mobilize resources.

In the post – disaster phase timelydischarge of delegated dutiesis a must for minimising misery of the affected population and bringing the situation under control. For this responsibilities for differentfunctionswithstipulatedtimelines are delegated to the responsibledepartmentalofficials. Is the responsibility of these officials to ensure discharge of their respective functions through the machinary of their subordinate officials.

**Task and responsibility matrix for emergency response phase.**

| Time Frame | Sl. No. | Task | Responsibility |
|---|---|---|---|
| 0 +15 minutes | 1 | Report the occurrence of disaster to Secretary, Disaster Management, heads of all line departments, Chief Secretary and Chief Minister's office and National Disaster Management EOC at MHA, GoI | Deputy Secretary, DM / SEOC |
| 0 + 30 minutes | | | |
| | 2 | Establish communication link by activating alternate communication equipment i.e. satellite phone, HF / VHF set, VSAT etc. in State / District EOC's and control rooms. | Deputy Secretary, DM / SEOC |
| | 3 | Instruct development of Mobile Emergency communication units to affected areas for establishing communication link. | Secretary, Disaster Management |
| | 4 | Verify the authenticity of the incident from agencies like IMD and also from district control rooms, Police and fire brigade control rooms. | Deputy Secretary, DM / SEOC |
| | 5 | In case of L-2 level event, overall management of SEOC shall be taken over by Secretary, Disaster Management | Secretary, Disaster Management |
| | 6 | Instruct duty officers of line departments to report in SEOC | Secretary, Disaster Management |
| | 7 | Hold first meeting with duty officers | Secretary, Disaster Management |
| | 8 | Contact the heads of all line departments including the information department to reach SEOC | Secretary, Disaster Management |
| | 9 | Alert SDRF & SAR Teams for quick mobilization to affected areas | Secretary, Disaster Management |

| | | | |
|---|---|---|---|
| | 10 | Request for the services of NDRF and Armed Forces and Air Force if required through designated representative | Secretary, Disaster Management |
| 0 + 1 hour | | | |
| | 11 | Instruct both regular and emergency staff to EOC to report for duty | Secretary, Disaster Management |
| | 12 | Dispatch of search and rescue teams to the affected areas | Secretary, Disaster Management |
| | 13 | Instruct Quick Assessment Task Force to submit preliminary need and loss assessment report of the affected areas. | Secretary, Disaster Management |
| | 14 | Alert Quick Medical Response Teams to the affected areas | Secretary, Disaster Management |
| | 15 | Make arrangements for aerial survey of the affected areas | Secretary, Disaster Management |
| | 16 | Instruct local administration to evacuate victims to safer sites | Secretary, Disaster Management |
| | 17 | Contact Chief Secretary for deciding on time and venue for holding Crisis Management Group (CMG) meeting at the earliest | Secretary, Disaster Management |
| | 18 | Inform all CMG members to attend CMG meeting in designated venue to assess situation and review emergency measures | Secretary, Disaster Management |
| | 19 | Instruct concerned authorities or Agencies to shut down critical operations | Secretary, Disaster Management |
| 0 + 2 hours | | | |
| | 21 | Inform Nodel Officers to report at SEOC within half an hour; if not reached. | Secretary, Disaster Management |
| | 22 | CMG to assess situation, delegate responsibilities for organizing rescue and relief operations | Chairman, Crisis Management Group |
| | 23 | Senior State Level officers to be deputed to the affected areas | Chairman, Crisis Management Group |
| | 24 | Activate Operation section of IRS for Emergency Response Operation | Secretary, Disaster Management |
| | 25 | Assess the conditions of road, rail and air communication link for quick mobilization of Emergency Teams and resources to affected areas and take follow up actions | Secretary, Transport, Secretary, Civil Aviation and Secretary, Disaster Management |
| | 26 | Director Information and Secretary- (I & B) to establish media management/ information cell for public information, guidance and rumour control | Secretary, Disaster Management |

| | 27 | Request may be made for assistance form Central Government (MHA and MOD) if required | Secretary, Disaster Management |
|---|---|---|---|
| | 28 | Request the nearest headquarters of the Armed Forces to render assistance in emergency search, rescue and relief operation | Secretary, Disaster Management |
| | 29 | Contact Private/Public Sector agencies in the state to assist in emergency rescue and relief operations | Secretary, Disaster Management |
| | 30 | Inform Secretaries of the department to provide necessary logistics support to emergency operation task forces | Secretary, Disaster Management |
| | 31 | If necessary, assistance may be asked from neighboring state and outside agencies | Secretary, Disaster Management |
| | 32 | Set up separate desks for each operation task force and NGO coordination desk in the SEOC for coordinating emergency operations | Secretary, Disaster Management |
| | 33 | Provide security in affected areas and maintain law and order situation | Secretary, Home |
| | 34 | Mobilize Medical Fist Response Teams to affected areas | Secretary, health |
| | 35 | Mobilize SAR Teams and search & rescue equipment and machinery to affected areas | Secretary, Home, Secretary, Transport, Secretary, Civil Aviation and DIG SDRF |
| | 36 | Instruct district information officers to establish information centre near affected areas to provide guidance to volunteers and aid agencies | Secretary, Disaster Management and Director General, Information |
| 0 + 3 hours | | | |
| | 37 | Make suitable transportation arrangement for mobilization of quick response teams of the affected areas | Secretary, Disaster Management, Secretary, Transport, Secretary, Civil Aviation and DIG SDRF |
| | 38 | Maintain constant touch with the national/ District | Secretary, Disaster Management and SEOC |
| | 39 | Establish Press/Media Centre for media Management and information dissemination | Director General, Information |
| | 40 | Arrange for press/media release for rumour control and public information and guidance | Director General, Information and Secretary, Disaster Management |

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| | 41 | Alert major hospitals to make necessary arrangement for treatment of injured | Secretary, Health Department |
| 0 + 6 hours | | | |
| | 42 | Establish relief coordination centre at the airport, railway station, etc. for arrival of Search & Rescue and Medical Teams coming for humanitarian aid | Secretary, Disaster Management, Secretary, Trasnport, Secretary, Food and Civil Supplies, Secretary, Civil Aviation |
| | 43 | Establish central relief coordination centre nearer to State Head Quarter | Secretary, Disaster Management |
| | 44 | Instruct to cordon affected areas and setting up of check posts to control entry and exit | Secretary, Home |
| | 45 | Open access routes and manage traffic for mobilization of equipment, machinery and volunteers to the affected areas | Secretary, Home and Secretary, Transport, Secretary, PWD, Chief Engineer, BRO |
| | 46 | Conduct aerial survey and also mobilize quick assessment teams to affected areas | Secretary, Disaster Management and Leader of Quick Assessment Task Force |
| | 47 | Establish information centers at the arrival and departure points especially airports, railway stations and interstate bus terminus | Director General, Information, Secretary, Home |
| 0 + 12 hours | | | |
| | 48 | Mobilize relief materials i.e. tents, materials, water, essential medicines, blanket, etc, to the affected district | Secretary, Disaster Management and Secretaries of respective line departments |
| | 49 | Arrange to shift evacuated persons to temporary shelters and ensure provision of food, water facilities, blanket and storage of relief materials | Secretary, Disaster Management, Secretary, Foof and Civil Supplies and Secretary, Transport |

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| | 50 | Arrange road, rail and air transport at State/ District headquarters for dispatch of relief materials to the affected areas | Secretary, Transport |
| | 51 | Set up field hospitals near the affected areas | Secretary, Health |
| | 52 | Arrange to shift injured persons to field hospitals | Secretary, Health |
| | 53 | Instruct district magistrate to establish relief coordination centre and godowns near affected area and provide full security covers as well | Secretary, Disaster Management and Secretary, Food and Civil Supplies |
| | 54 | Prepare quick need assessment report for planning of relief operation and mobilization of resources to the affected areas | Secretary, Disaster Management / Deputy Secretary DM |
| 0 + 24 hours | | | |
| | 55 | Instruct to set up Coordination centers at the Resident commissioner's office in New Delhi and other Metro Cities and Cities as well | Secretary, Disaster Management |
| | 56 | Hold review meeting with Duty officers in every 12 hours | Secretary, Disaster Management |
| | 57 | Prepare and circulate the situation report | Deputy Secretary, DM |
| | 58 | Prepare press notes twice a day | Secretary, Disaster Management and Director General, Information |
| | 59 | Depute additional officers and supporting staff to affected areas from non-affected areas | Secretary, Disaster Management |
| | 60 | Restore essential service i.e. power, water supply, telecommunication faculties of SEOC, headquarter, AIR, Doordarshan , Governor, Chief Minister, senior officials of the State bureaucracy on priority basis | Secretary, Power, Secretary, Drinking Water, Secretary, Disaster Management, Director Doordarshan, General Manager BSNL |
| | 61 | Coordinate with Emergency operation Task Force mobilized to the affected areas | Secretary, Disaster Management / Deputy Secretary, DM |
| 0 + 48 hours | | | |
| | 62 | Ensure safety and security personnel deputed in affected areas for emergency response operation | Secretary, Home and DIG SDRF |
| | 63 | Earmark storage point for medical supplies at affected sites | Secretary, Health |

| | 64 | Arrange for identification, photograph, post mortem and maintenance of record for disposal of dead bodies | Secretary, Home and Secretary, Health |
|---|---|---|---|
| | 65 | Arrange information centre at shelter site for maintain record, victims and to provide guidance to relatives, NGOs, etc. | Secretary, Disaster Management |
| | 66 | Arrange for complaints regarding missing persons and initiate search in shelters, hospital and police records | Secretary, Home, Secretary, Disaster Management, Director General, Information |
| | 67 | Arrange for SDMs empowerment for waiving off post mortem of dead bodies | Secretary, Disaster Management |
| | 68 | Arrange for additional manpower if necessary for disposal of dead bodies | Secretary, Disaster Management |
| | 69 | Arrange for transportation of dead bodies to their native places if so required | Director General of Police |
| 0 + 72 hours | | | |
| | 70 | Arrange for disposal of unidentified and unclaimed dead bodies | Director General of Police |
| | 71 | Arrange for transportation of injured from field hospitals to base hospitals | Secretary, Transport & Secretary, Health |
| | 72 | Activate short and interim relief measures | Secretary, Disaster Management / Secretaries of the line departments |
| | 73 | Arrange for distribution of cash doles to the victims | Secretary, Disaster Management |

# CHAPTER –8

## Financial Arrangements

It needs to be understood that there exist no institutional arrangement for compensating disaster induced losses. In accordance with the recommendations of the Finance Commission there however exists State Disaster Response Fund (SDRF) at the disposal of the state government for providing immediate relief to disaster victims as also for ensuring temporary restoration of the identified damaged infrastructure, as per the guidelines of Ministry of Home Affairs, Government of India for the same. It needs to be understood that relief out of SDRF is admissible for the loss of residential houses but not for the loss commercial assets. It is therefore required that risk transfer mechanisms be popularized.

Norms of the Ministry of Home Affairs, Government of India provide that the funds available under SDRF / NDRF be utilized for immediate relief and restorations of identified lifeline services only. These funds are not allowed to be utilized for new constructions. Line departments should therefore prepare departmental guidelines for the identification of works to be covered by SDRF / NDRF resources.

In accordance with the provisions of Disaster Management Act, 2005 all departments have to ensure adequate financial arrangements in their departmental budget so as to ensure timely discharge of their disaster management related functions.

It is at the same time the responsibility of the line departments to undertake vulnerability assessment of their departmental infrastructure and ensure allocation of funds in their departmental plan and budget for vulnerability reduction.

### State Disaster Response Fund

The State Disaster Response Fund shall be used only for meeting the expenditure for providing immediate relief to the victims of cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloud burst, pest attack, frost and cold wave. While the state can draw from State Disaster Response Fund for the emergency response and relief, there are provisions to adjust a portion of the expense against funds released from National Disaster Response Fund between the fiscal in which National Disaster Response Fund is released and the expenses incurred by state in the previous fiscal under State Disaster Response Fund. In case the same state faces another severe disaster during the same year, no reduction will he made while releasing assistance from the National Disaster Response Fund. The state-specific disasters within the local context in the State, which are not included in the notified list of disasters eligible for assistance from State Disaster Response Fund and National Disaster Response Fund, can be met from State Disaster Response Fund within the limit of 10 percent of the annual funds allocation of the State Disaster Response Fund.

The funds have provisions for the following:

- Gratuitous Relief

- Search and Rescue ops - as per actual cost incurred

- Relief measures

- Air dropping of essential supplies

- Emergency supply of drinking water

- Clearance of affected area, including management of debris

- Agriculture, Animal husbandry, fishery, Handicraft, artisans

- Repair/ Restoration (of immediate nature) of damaged Infrastructure

- Capacity development

State has to meet the capacity development expenses from the State Disaster Response Fund and not National Disaster Response Fund, subject to a limit of 10 percent of the State Disaster Response Fund.

Capacity Development covers the following:
- Setting up/strengthening of Emergency Operation Centres (EOCs) in the State

- Training/Capacity Building of stakeholders and functionaries in the State

- Supporting disaster management centres in the state

- Preparation of Disaster Management Plans based on Hazards, Risks, and Vulnerability Analysis

- Strengthening of SDMA and DDMA

In most cases, the SEC and if necessary a central team will carry out need assessment. The State Governments must take utmost care and ensure that all individual beneficiary-oriented assistance is disbursed through the beneficiary's bank account. The scale of relief assistance against each items for all disasters including 'local disaster' should not exceed the norms of State Disaster Response Fund/ National Disaster Response Fund. Any amount spent by the State for such disasters over and above the ceiling would be borne out of the resources of the State Government and not from State Disaster Response Fund.

## Statutory Provisions

**Financing Prevention, Mitigation and PreparEDNESS**

The provisions relating to funding of prevention, mitigation and preparedness are listed below:

- Section 18 (f) provides that SDMAs may recommend provision of funds for mitigation and preparedness measures;

- Section 38 (d) provides that the State Government may allocate funds for measures for prevention of disaster, mitigation, capacity-building and preparedness by the departments of the Government of the State in accordance with the provisions of the State Plan and the District Plans;

- Section 39 (c) provides that the departments of the state government shall allocate funds for prevention of disaster, mitigation, capacity- building and preparedness

### Provisions in the Act for Disaster Risk Reduction

Some of the statutory provisions incorporated in the National Disaster Management Act for mainstreaming DRR and financing thereof are reproduced below.

- Section 18 (2) (g) provides that the SDMA may review the development plans of the different departments of the State and ensure that prevention and mitigation measures are integrated therein;

- Section 22 (2)(b) provides that the SEC may examine the vulnerability of different parts of the State to different forms of disasters and specify measures to be taken for their prevention or mitigation;

- Section 23 (4) (b) provides that the State Plan shall include measures to be adopted for prevention and mitigation of disasters;

- Section 23 (4) (c) provides that the State Plan shall include the manner in which the mitigation measures shall be integrated with the development plans and projects;

- Section 23 (4) (d) provides that the State Plan shall include, capacity-building and preparedness measures to be taken;

- Section 30 (2) (iv) provides that the District Authority may ensure that the guidelines for prevention of disasters, mitigation of its effects, preparedness and response measures as laid down by the National Authority and the State Authority are followed by all departments of the Government at the district level and the local authorities in the district.

- Section 30 (2) (xiii) provides that the District Authority may facilitate community training and awareness programmes for prevention of disaster or mitigation with the support of local authorities, governmental and non-governmental organisations;

- Section 30 (xiv) provides that the District Authority may set up, maintain, review and

upgrade the mechanism for early warnings and dissemination of proper information to public;

- Section 31 (3) (b) provides that the District Plan shall include the measures to be taken, for prevention and mitigation of disaster, by the Departments of the Government at the district level and local authorities in the district;

- Section 32 (a) provides that every office at the district level shall prepare a Plan setting out: provisions for prevention and mitigation measures as provided for in the District Plan and as is assigned to the department or relevant agency; provisions for taking measures relating to capacity-building and preparedness as laid down in the District Plan; the response plans and procedures, in the event of, any threatening disaster situation or disaster;

- Section 38 (2) (e) provides that the State Government may ensure integration of measures for prevention of disaster or mitigation by the departments of the Government of the State in their development plans and projects;

- Section 38 (2) (f) provides that the State Government may integrate in the State development plan, measures to reduce or mitigate the vulnerability of different parts of the State to different disasters;

- Section 39 provides that the departments of State Government shall integrate into its development plans and projects, the measures for prevention of disaster and mitigation;

- Section 40 (1) (a) (ii) mandates all department of the State to prepare a disaster management plan that shall integrate strategies for the prevention of disaster or the mitigation of its effects or both with the development plans and programmes by the department.