Departmental Disaster Management Plan

Power Corporation Limited
Uttrakhand

उत्तराखण्ड राज्य

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Abbreviations

CMG	:	Crisis Management Group
CRF	:	Calamity Relief Fund
DDMA	:	District Disaster Management Authority
DEOC	:	District Emergency Operation Centre
ERS	:	Emergency Response Centre
IRT	:	Emergency Response Team
IDRN	:	Indian Disaster Resource Network
IPCC	:	Intergovernmental Panel on Climate Change
IRS	:	Incident Response System
KVA	:	Kilowatt Ampere
NDRF	:	National Disaster Response Fund
RO	:	Responsible Officer
PCC	:	Plain Cement Concrete
PTCUL	:	Power Transmission of Uttrakhand Limited
SDRF	:	State Disaster Response Fund
SDRF	:	State Disaster Response Force
SMS	:	Short Message Services
SOP	:	Standard Operating Procedure
STP	:	Standard Temperature and Pressure
UKSDMA	:	Uttrakhand State Disaster Management Authority
UJVNL	:	Uttrakhand Jal Vidyut Nigam Limited
UP	:	Uttar Pradesh
UPCL	:	Uttrakhand Power Corporation Limited

Introduction

The geophysical conditions, variation in climatic components and recent occurrence of disasters have made clear that that the state Uttrakhand is a multi-hazard prone state of the country. On one hand, the state is a very attractive tourist destination as almost 86 per cent of its area is hilly and 65 per cent is forested and tourism is a major business here. On the other hand, the state's vulnerability is also increasing due to natural calamities like flash floods, landslides and earthquakes. Considering the vulnerabilities of the state and recent occurrences of different disasters, the state has become sensitive and taken several measures and initiatives to enhance capacity of the disaster management system. In this process, and, empowering the operational centres, district administration and other institutions, capacity building of the state and district departments' community and other stakeholders is being done. In order to increase activism in the disaster management work of the state's main departments related to various disasters, it is necessary that they have a clear understanding of their role and responsibilities at the time of disaster and the systematic arrangement of work and coordination of other departments. The State Disaster Management Authority (SDMA) has prepared the Departmental Disaster Management Plan of the Power Corporation Limited with departmental cooperation in compliance with Article 40 of the Department of Disaster Management Act, 2005.

To prepare this departmental disaster management plan, various guidelines, regulations and schemes issued at the central and state level such as – Disaster Management Act 2005, the SOPs and guidelines issued by the National Disaster Management Authority, SOPs prepared for various disasters by different states of the country, Departmental Disaster Management Plan and IRS guidelines – were consulted. Apart from this, various information related to the department was collected by meeting the department and district level officials.

This departmental disaster management plan will help the department to work effectively in disaster situations.

Objective

The main objectives of this planning document are as follows for preparing a departmental disaster management plan for the Power Corporation Limited :

- Ensure the integration to disaster risk reduction measures in the routine developmental works and services provided by the Health Department.
- Ensure rapid and effective response in case of any disasters
- Ensure the protection of the physical resources of the Department.
- Quick reset in case the departmental resources affected by disaster.

Planning Strategy

In order to prepare the Departmental Disaster Management Plan of the Uttrakhand Power Corporation Limited, the state's geographical situation and changes in the nature of disasters according to the same and the potential damage and its effects are kept in mind. The strategies adopted for preparing the plan can be seen under the following points :

- In order to come to a common understanding of standard operating procedures and departmental disaster management plan, an initial meeting was held with the officials of the concerned departments.

- To prepare the departmental disaster management plan and the standard operating procedures, various guidelines, regulations and schemes such as – Disaster Management Act 2005, the SOP and guidelines issued by the National Disaster Management Authority, SOPs prepared for various disasters by different states of the country, Departmental Disaster Management Plan and IRS guidelines – were examined.

- The present working system and the disasters in districts were discussed in the meetings with the state level office of the Uttrakhand Power Corporation Limited.

- In view of preparing the Disaster Management Plan, the pattern of the disasters, the structure of the department and the work at the district level were kept in mind while selecting the sample Districts.

- Districts were visited and meetings were held with the officials and the community. Attempts were made to understand departmental activities rendered during different phases of the disaster like before, during and after the disaster, officials/workers responsible for those activities and the process of execution of the activities. Apart this, the role of the Power Department in disaster, the physical resources available in the department, abilities and weaknesses were also discussed.

- Field data collection on damage, causes of disaster, human resources, plans and distributions etc. were also done in the sample districts.

- The first draft of the Disaster Management Action Plan was prepared and shared with the department and it was updated on the basis of suggestions received from the Department.

- In a joint meeting of the Uttrakhand Power Corporation Limited and the State Disaster Management Authority, this disaster management plan was held to review the plan. Based on the suggestions receives, it was revised and the final draft of the disaster management plan was submitted to the Disaster Management Committee for the recommendation.

- The Department submitted the proposed disaster management plan to the State Disaster Management Authority.

1. Introduction

1.1 Brief Introduction and Work of the Department

About the Department

In Uttrakhand Power Councils were set up for power generation, transmission and distribution work under the Power (Supply) Act 1948. Electricity distribution, transmission and production work was witnessed in Uttar Pradesh by the Uttar Pradesh Electricity Board till 2000 and in January 2000, the said council was reconstituted and separate corporations were formed for production and distribution. As a result of the formation of Uttaranchal in 2000, a separate corporation – Uttaranchal Power Corporation Limited – for distribution and transmission of electricity in Uttaranchal was formed in the year 2001 in order of the provisions of the U.P. Reorganization Act 2000, which took full responsibility of the works being done by the U.P. Power Corporation in Uttrakhand

Present System of the Department

The Uttrakhand Power Corporation limited was formed on 12.2.2001 for the electrification and power distribution in the state of Uttaranchal under the Company Act 1956. Uttrakhand Power Corporation Limited is responsible for supplying uninterrupted power to the State. In the year 2003-2005, after the formation of a separate corporation for power transmission by the Uttrakhand government, the Uttrakhand Power Corporation Limited also handles the responsibility of transmission and distribution sector. In the state, on June 1, 2004, Power Transmission Corporation Limited (PTCUL) was formed to maintain and operate 132 KVA and the over ground transmission lines and sub stations. UPCL provides electricity to 20.70 lakh consumers in the 13 districts of Uttrakhand. These consumers include all types of classes of domestic, commercial, agricultural and industrial users.

The electricity supply gets interrupted because of disasters. Disruption in supply causes difficulty in rescue work, hospital operations, telecommunications etc. Therefore, it is necessary to prepare and plan to ensure uninterrupted supply of electricity in different phases of the disaster i.e before, during and after the disaster.

Main Plans/Schemes

The department operates/conducts the following key plans/schemes :

- Deen Dayal Upadhyay Grameen Jyoti Yojna (for the villages)
- Integrated Power Development Scheme (for the urban areas)
- Other schemes – R.A.P.D.R.P. etc.

Normal Time Work

Generally, the electricity department performs the following tasks in general :

- To ensure quality power supply to consumers.
- To provide electricity bills to consumers.
- To collect the electricity bill amount.

- To assess the demand and ensure the purchase of electricity on the basis of the demand and accordingly get necessary corrective work done in the distribution system.

1.2 Departmental Structure

The headquarters/corporate office of the Corporation is located at Victoria Cross Vijeta Gabar Singh, Urja Bhavan, Kanwali Roas, Dehradun. The board of directors operates the department. The maximum number of directors in the board of directors can be 12 and the minimum 3. Meetings of the board of directors are held from time to time and at least one meeting is definitely held quarterly. The Corporation's work is overseen by the Managing Director, who works under the control and supervision of the board of directors. Four full time directors, secretaries and other officers of the corporation collaborate in managing the tasks.

The Corporation has four electricity distribution zones :

Office					
		Garhwal Zone	Kumaon Zone	Haridwar Zone	Udham Singh Nagar Zone
1	Power Distribution Board	4	3	2	2
2	Power Distribution Block	16	11	5	5
3	Power Test Block	4	3	2	2
4	Power Secondary Workstation	1	1	0	0
5	Power Workshop Block	1	1	0	0
6	Power Storage Block	1	1	0	0
7	Electrification Block	2	2	0	0

(There are two or more than two sub-blocks under every block)

From the state to the district level, the administrative structure of the Power Corporation can be seen in the following manner –

At the state level : Chief Secretary/Chairman, Uttrakhand Power Corporation Limited:
- Managing Director, Uttrakhand Power Corporation Limited
- Director Finance, Director Human Resource, Director Operation, Director Project
- Chief Engineer

At the district level :
- Executive Engineer
- Sub-Division Officer
- Assistant Engineer
- Junior Engineer
- Sub-Station Operator
- Lineman
- Porter

2. Hazard, Risk, Vulnerability and Potential Assessment

2.1 The Nature, Intensity and Density of Disaster at the State Level

Uttarakhand: An Introduction

Uttrakhand is a hilly State in the Indian Himalayan region. Earlier, the Uttrakhand was a part of Uttar Pradesh. On 9 November 2000, 13 hilly districts of Uttar Pradesh were separated to form Uttarakhand as the 27th state of India. Located between 28°43' - 31°27' Northern latitude and 77°34' - 81°02' Eastern longitude, Uttarakhand is situated in the northern region of India. Uttarkhand has a total area of 53483 km^2 and it is spread 301 km. in the east-west direction and 255 km. in the north-south direction. It is surrounded by China (Tibet) in the north, Nepal in the east, Himachal Pradesh in the west and northwest and Uttar Pradesh in the north. The state has 13 districts which are divided into two administrative units – Garhwal and Kumaon. Generally, the north-western part of the state comes under the Garhwal unit while the south-eastern part comes under the Kumaon unit. There are seven districts under the Garhwal unit – Dehradun, Haridwar, Uttarkashi, Tehri, Paudi, Rudrprayag and Chamoli and six districts fall under the Kumaon unit and they are – Pithoragarh, Bageshwar, Almoda, Nainital, Champawat and Udhamsingh Nagar. Hindi is the official language of the state.

Map 1 : State map with District boundaries

Uttrakhand is vulnerable to climate induced risks. The hilly areas are more prone to climate change impacts and is explicitly manifested in many parts of the state. During last century, the average temperature in the hilly areas has increased. The IPCC report (2013) have explicitly highlighted that, due to glacier melting in the Himalayan region, the flood events in this area will increase, which will have a significant impact on water resources in the coming decades.

Since the year 1816, the state of Uttrakhand has witnessed many Hydro-Met disasters. But the 19th century period was worst. In Uttrakhand the years 1970, 1986, 1991, 2001, 2002, 2004, 2005, 2008, 2009, 2010, 2012 and 2013 was notorious for natural calamities. The state suffered through these disaster event and incurred heavy losses.

Hydro met Disasters

The following are Hydro-Met disasters which the state experienced :

- Flash flood/flood
- Heavy rain
- Cloud burst
- Loo and frost conditions
- Avalanche
- Drought
- Thunderstorm and lightning

Geological Disasters

In addition to the Hydro-Met disasters, there are some disasters that are the result of movements inside the Earth, such as :

- Landslide
- Earthquake
- Breaches of Dams

Man-Made Disasters

Other than natural disasters, there are certain disasters which are the result of human activities, such as :

- Stampede
- Road accident
- Forest fire

Some Major Disasters

Some of the main natural calamities in the state and details related to them are given below :

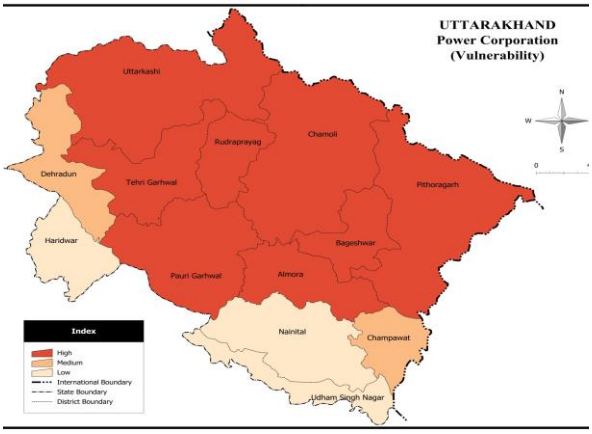
- There were two fierce incidents of landslide in Sher-Ka-Daanga in Nainital in 1867 and 1880. In 1880, the landslide happened due to heavy rain and tremors of earthquake. A large number of houses were destroyed during this landslide. A portion of Naini Lake was permanently wrecked with debris.
- Due to floods in the Alaknanda river in 1893, landslide occurred near Birehi Ganga river and the confluence of Alaknanda river, due to which there was a huge blockage of 10-13 meters in the river. One guarder bridge breached and another got damaged.
- Flash floods came along with landslide in the Rishi Ganga river in 1968. Due to landslide in Reni village, there was a blockage in Rishi Ganga river in Garhwal.
- Patel Ganga, a branch of the Alaknanda river, suffered landslides in the year 1970, due to which the river Patel Ganga was blocked and it turned into a lake-like water source. Due to the sudden disruption of this lagoon water source, sudden floods in the Alaknanda river caused floods and consequently, they were faced with many landslide incidents.
- During 1971, there was a severe landslide on the banks of the Kanauldiya Gaad, a branch of river Bhagirathi in the upper reaches of Uttarkashi. The debris from the landslides created a cone's shape, causing the water surface

to be up to 30 meters high and the water stream split causing the rapid flooding in the areas below.

- During the period of June 2013, incidents of cloudburst continued for several days, resulting in massive floods and landslides. Due to the disaster caused by this multi day cloudburst, there was a huge loss of lives and money. After the tsunami in 2004, this disaster was counted as one of the biggest disasters.

2.2 Historical Analysis of the Risks of Departmental Resources

Sensitivity/Vulnerability of the Uttarakhand Power Corporation Limited, in view of disasters, is mainly due to the breakdown of wires and poles, electricity sub-stations, damages or landslides, due to which the electricity supply in the area is interrupted. Apart from this being a hilly area, electricity is also needed in relief and rescue operations. After examining such analysis, it can be said on the basis of the map selected that Uttarkashi, Tehri Garhwal, Paudi Garhwal, Pithoragarh, Rudraprayag, Bageshwar, Chamoli and Almora fall into the most sensitive category. Dehradun and Champavat come in the moderate category in terms of sensitivity whereas Haridwar, Nainital and Udhamsingh Nagar come under the low sensitivity category respectively in view of disasters.



Map 2 : Vulnerability map of Power Corporation

2.3 Climate and Climate induced Challenges

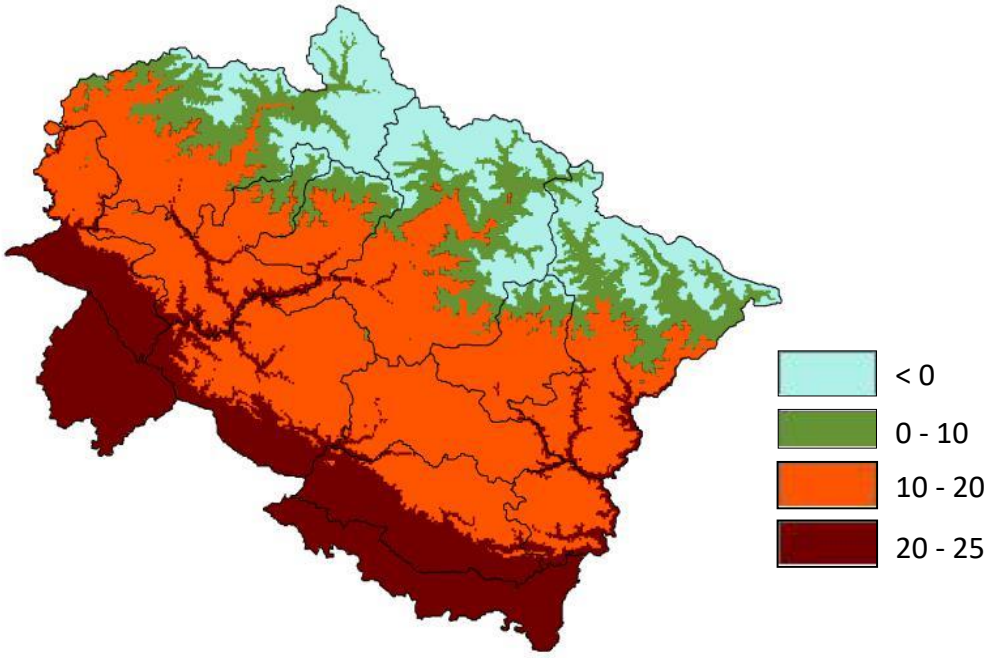
Climate

The state is mainly divided into two climate regions. Majority of the state's area is hilly while some area is plain. The climate in the plain area is somewhat similar to the climate in other plain areas of the country. There are prolonged winters and even snowfall in the hilly areas. The state receives a good quantity of rains during the monsoon season and light showers during the summers. The average annual rainfall in the state is 1230 mm. Generally, the rainy season starts at the end of April in the state and it continues till September. There is heavy rainfall between June and September. Maximum rainfall occurs during the first week of July and there is continuous rainfall from August till the first week of September. It is hottest in the plain areas of the state wherein they experience humid summers and the temperatures go higher than 40°C. Winters are exceptionally cold and the temperature dips below 5°C. The lowest temperature recorded in the state has been -5 to -7°C. There is a marked difference in the climatic conditions of the areas situation on the highest hill in the state and the lower

regions. Not only does the difference in temperature appear during different seasons, but differences in temperature are also displayed at different altitudes. Uttarakhand is situated on the southern slope of the Himalayan range. From the glacier at the highest altitude to the sub-tropical forests located at the lowest altitude, there is a difference in the climate and vegetation found. In the upstream Gangetic plains, there are humid forests and there are savannas and grasslands in the dry lowlands.

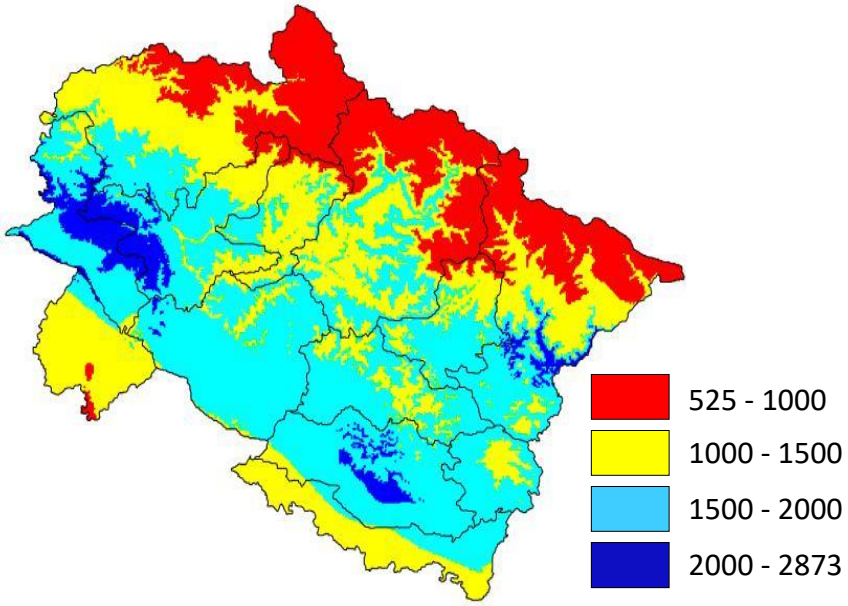
The average annual rainfall of the state varies spatially. For example, the average annual rainfall in Srinagar (Garhwal) is 920 mm whereas the average annual rainfall in Nainital is 2500 mm. However, the distribution and variation of rainfall depends on the geographical condition, slope and nature of the space. Generally, there is high rainfall in low-lying areas like Nainital and Dehradun, which gradually decreases with the increase in height. Three-fourths of the entire rain occurs during the monsoon season while the remaining one-fourth is spread over other seasons. Generally, rains start here from the third week of June, which continues till July/August.

Map 3 : Annual average Temperature (in ^{0}C)



Source : Uttarakhand State Action Plan on Climate Change, 2014

Map 4 : Annual average Rainfall (in mm)



Source : Uttarakhand State Action Plan on Climate Change, 2014

Trend of Climate Change

Climate change is the main global, environmental and developmental problem. Although all possible outcomes of climate change have not been understood yet, nevertheless, it has now been established that due to extreme weather events, floods and droughts, sea level rise and extreme climatic differences, there is a large possibility of adverse effects from sinking of coastal areas. Given the studies and results, there may be a significant difference in the methods and tendencies of the weather parameters from one place to another. There is a mixed trend in the whole of Uttarakhand in seasonal standards. For example, in the entire plains including Pantnagar, the trend of rainfall is in increasing order and the maximum temperature is decreasing. Based on the temperature data available of the last 53 years (1955-2007), it is seen that temperature is rising in a low hill station like Almora. This data indicates that the 17.55°C average annual temperature of Almora has increased by 0.46°C during the last 53 years. This initial observation indicates that the average temperature in the state is increasing. Similarly, on the basis of the rainfall statistics of the last 53 years (1955-2007), it was seen that rainfall has reduced in Almora. Observing the normal monthly distribution of rainfall in the region shows that maximum rainfall occurs in the month of July.

The state is experiencing following changes in the climate scenario:

- Annual rainfall is decreasing and become erratic.
- The availability of surface and ground water is decreasing.
- There has been a reduction in the average rainfall during winters.
- Incidents of heavy rainfall in short time durations are increasing.
- The outbreak of vector borne diseases is increasing.
- The temperature is continuously increasing.

- There is continuous increase in the average annual temperature.
- The number of winter/cold days is decreasing, the winter days are becoming hot and there is reduction in snowfall.

Future Climate Change Projection

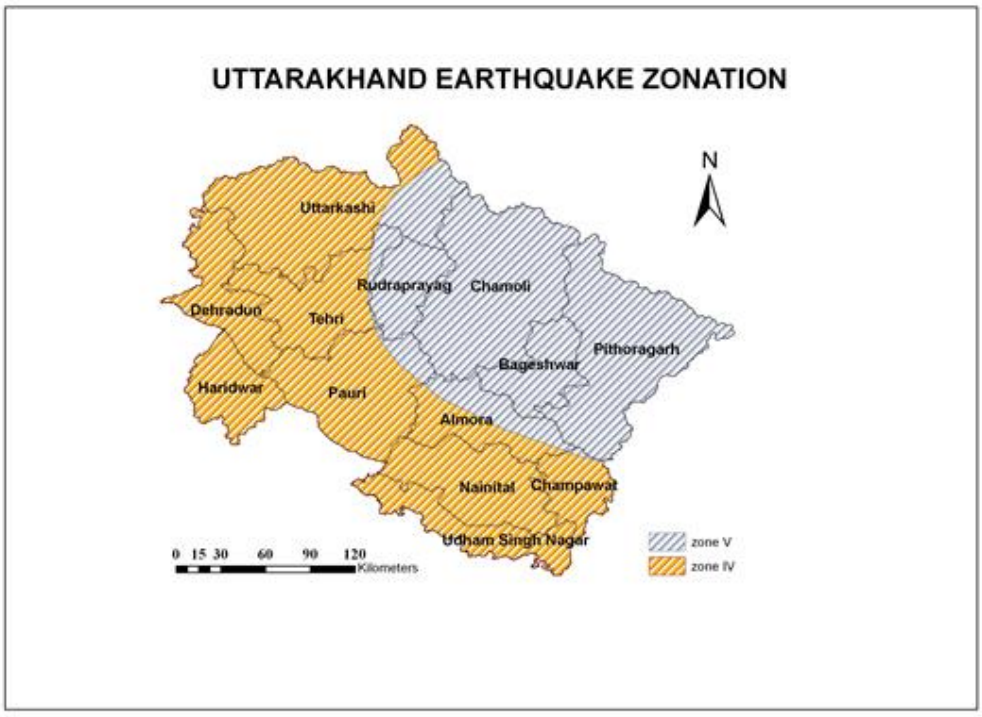
According to the State Action Plan on Climate Change, the annual temperature will increase by 0.7°C by the year 2030. In comparison to the year 1970, an increase of 1.7°C-2.2°C has been registered in the temperature. There is also an estimation of increase in seasonal air temperature in all seasons. It is also predicted that there is a chance of a temperature drop of 2.6°C in the winter months (October, November and December) in 2030.

According to the PRECIS Model, the annual rainfall in the state can fluctuate, i.e., the annual rainfall of the state may be 1268 mm to 225.2 mm less or more and maximum 1604 mm to 175.2 mm less or more. According to these estimates about rainfall, the state is expected to get 60 mm to 206 mm more rainfall in the year 2030. That is, by the year 2030, the state's annual rainfall is expected to increase by 5-13 per cent. All the regions of the state are expected to get more rainfall in all seasons and there is also a possibility that there may be more than 12 mm increase in rainfall in the months of June, July, August and September. Whereas there is an expected increase of 5 mm in the rainfall occurring in the winter season months of January and February. In the months of October, November and December, minimum increase in volume will be recorded. According to the model, there is a chance of more than 50 per cent increase in the annual rainfall of some areas/regions of the state by the year 2030. There is also a chance of a 2-12 per cent increase in the rain intensity in the Himalayan region.

State Sensitivity/Vulnerability in Relation to Climate Change

Due to its geographical conditions, the state of Uttrakhand comes under the category of multi-disaster affected states. There is an outbreak of floods, flash floods, avalanche, landslides, earthquakes, droughts, forest fires and general fire, hailstorm, lightening, road accidents etc. in the state, but earthquake and landslide are the main disasters here. It is worth considering that one-fourth of the state's area comes in Seismic Zone 5 in terms of earthquake. If the state is compared to other states at the national level, then Uttrakhand is one of the first five states in the country in terms of most proneness to natural hazards, namely earthquake, flash floods due to cloud burst, landslides, avalanches, forest fires and continuous drought disaster in the summer. With these recurrent calamities, there is a great loss of natural resources, basic infrastructure and human life in the state. Although the intensity of earthquake in Uttrakhand in the year 1991 and in 1999 in Chamoli was less but in the coming days, it was likely to become a major hub of earthquake in the state due to tectonic movements of continental plates. The growing population and the continuous infrastructure development has increased the state's vulnerability in the context of earthquake. Here are some key points of state's sensitivity to note :

- According to Vulnerability Atlas of India, approximately 56 per cent of homes in Uttarakhand are made of clay, raw bricks and stones. The above data shows the state's very high sensitivity in disasters like earthquake, landslide, accelerated flooding and cloudbursts. According to the figures in India's Vulnerability Atlas, this state comes under the most seismic risk areas of the country.



Map 5 : Uttrakhand Earthquake Zonation map

- The frequency of landslide event has increased due to its topographic c and the climate conditions of the region. The process of rapid deforestation, construction of dams or reservoirs, housing scheme, road construction in Uttarakhand has increased the vulnerability of the state to earthquake and landslides. Every year this is causing extensive damage to life and property. The major landslide events in various parts of the state noticed in the years 1979, 1986, 1998, 2002, 2004, 2008 and 2009.
- Usually, the onset of monsoons in the state is at the end of April which continues till September. Due to heavy rainfall from June to mid-September, flooding in the low-lying areas is more frequent which induce soil erosion. The rapid pace of deforestation in the Himalayan region for construction have also caused flash flood during the monsoon while in other months the state also experiences drought condition. The increasing soil erosion, have also reduced the water holding capacity of the rivers due to siltation or rising of river bed.
- The cases of extreme rainfall events due to cloudbursts induces flash floods and breaching of dam/ embankment in the state. Although, this does not happen on a regular basis. Yet there were major incidents of cloudburst in the state in the years 2002, 2004, 2007, 2008, 2009, 2010 2012, 2014 and 2016.
- More rainfall in fewer days is now become a new normal which causing flash flood and landslide. Sometimes excessive rainfall in the upper reaches of the mountains, cause flooding in low lying areas. Such flooding sometimes cause more damage compared to usual floods.
- Man-made and natural factors are responsible for increasing drought condition in the state. Due to climate change, the state is not receiving normal rainfall. In the last few years, it has been observed that due to some man-made activities such as, deforestation, excessive tapping of ground water, and pollution, the conditions of drought have become more prominent in the state.

In addition to the above disasters, the increasing vulnerability the state is also due to social, physical, environmental and economic capacity of the people. Increasing urbanization, lack of awareness and limited capacity to deal with disasters within the community, weak administrative structure and poor connectivity of remote hilly areas with road infrastructure, all these factors are the main bottlenecks to promote effective response.

2.4 Institutional Arrangement

Three tier Institutional arrangements (National, State and District) have been provisioned under the National Disaster Management Act, 2005 to respond and adopt mitigation measures to reduce the impact of disasters. With the enactment of the Disaster Management Act 2005, the National Disaster Management Authority (NDMA) was constituted. The NDMA's approach involving all stakeholders is to develop a "safe and calamity-resistant India" with a holistic, active, technology-based strategy and promote the culture of prevention, preparation and mitigation. Considering the importance of disaster management as a national priority, the Government of India constituted a high-level committee for the development of the NDMA in August 1999 and the National Committee was formed after the earthquake in Gujarat. Its purpose was to recommend effective mechanisms to reduce disaster plans and disaster. The Tenth Five Year Plan and the 12th Finance Commission were focused on the causes of disaster prevention. In the end, on 23 December 2005, the 12th Finance Commission reviewed the financial system for disaster management. Subsequently, the National Disaster Management Authority was constituted under the chairmanship of the Prime Minister, the State Disaster Management Authority was constituted under the chairmanship of the Chief Minister and the District Disaster Management Authority was constituted under the chairmanship of the District Magistrate.

Table 1: Level of Disaster Management Authorities and its Function

Disaster Management Authority	Main department	Functions
National level	National Disaster Management Authority	NDMA was constituted for better coordination of disaster management at the national level. It is a multi-disciplinary body with the nodal officers of all the concerned departments/ ministries/ organizations. In addition to these institutions, the Ministry of Disaster Management, Government of India, prepared a National Contingency Plan. Simultaneously, the National Emergency Operations Centre, including all the necessary equipment and state-of-the-art technologies for disaster management, has been started under the aegis of Home Ministry.
State level	Uttrakhand State Disaster Management Authority	Uttrakhand State Disaster Management Authority has been constituted under the chairmanship of the Chief Minister in which the ministers of the respective departments are members. The Disaster Management Department has been marked as a nodal department. It has the responsibility deal with all types of disaster, relief and rehabilitation

		work in Uttrakhand. While the Chief Secretary (Disaster) is the Nodal Officer and the convener of the Uttrakhand State Disaster Management Authority.
District level	District Disaster Management Authority	The District Disaster Management Authority has been constituted under the chairmanship of the District Collector/ Magistrate of the concerned district. The organizational structure of the District Disaster Management Authority is outlined below : i. District Magistrate – Ex-officio ii. President, District Council – Co-chair iii. Police Superintendent – Ex-officio member iv. Chief Medical Officer – Ex-officio member v. Deputy Development Commissioner – Ex-officio member vi. Additional District Magistrate (Finance/Revenue) – Ex-officio member vii. Senior Engineer of the district – Ex-officio member Additional District Magistrate (Finance/Revenue) will be the Chief Nodal Officer of the District Disaster Management Authority.

Institutional Framework at the National Level

National Disaster Management Authority

According to the Disaster Management Authority Act 2005, a National Disaster Management Authority will be constituted comprising a total of nine members including a Chairman and eight members. The number of members of this committee will not be more than nine. Some key points related to the National Disaster Management Authority are listed below :

- The Prime Minister of India will be the Ex-Officio Chairman/President of the National Authority.
- The Chairman will suggest the names of the other members. There will not be more than nine members.
- Under section (E) of sub-section (2), one member of the nominated member shall be posted as Vice President of the National Authority.

Institutional Framework at the State Level

Uttrakhand State Disaster Management Authority (USDMA)

Alike national level, there is an institutional framework for disaster at the state level as well. In Uttarakhand, many initiatives have been taken to prepare the institutional structure for disaster management. The Disaster Management Authority has been constituted in Uttarakhand under the Chairmanship of the Chief Minister. The responsibility of management of various types of disasters falls on the Department of

Disaster Management, which acts as a nodal office for disaster management in the state. The implementation and supervision of disaster management activities in the state is done by the Chief Secretary, Department of Disaster Management. In the time of emergency, the task of identifying and nominating various nodal departments is done by the Chief Secretary (Disaster). The State Disaster Management Authority carries out the following key activities :

- For all the aspects of disaster management for Uttrakhand – work on assessment, planning and implementation of schemes related to prevention, mitigation, pre-preparation and response.
- Ensure better coordination between the state and the centre during the time of disaster.
- In the whole of Uttrakhand, covering all the units and agencies of the government, forming a uniform control, direction and coordination framework so that in order to respond in an emergency, preparedness, mitigation and prevention activities can be smoothly executed.

State Emergency Operation Centre (SEOC)

At the state level, the State Emergency Operation Centre is being operated 24 hours every day of the week in the office of the Uttrakhand State Disaster Management Authority. The emergency telephone number for the State Emergency Operation Centre is 1070. The State Emergency Operation Centre will be in coordination during any natural and man- made disasters. Along with this, it will also work to notify the Response Officer (RO) to maintain continuous communication with all levels and the community. The State Emergency Operation Centre will be equipped with a trusted communication system (telephone, radio communication etc.).

Institutional Framework at the District Level

System at the District Level

According to the guidelines given in the Disaster Management Act 2005, the District Disaster Management Authority has been constituted at the district level. Based on the requirement, relief is provided by the Disaster Management Department. At the district and state level, the participation of the District Magistrate is necessary at the stages of execution and rehabilitation.

District Disaster Management Authority (DDMA)

A District Disaster Management Authority is established in each and every district. It is constituted under the Chairmanship of the District Magistrate. There shall be seven members as per the guidelines laid down by the State Government and the Disaster Management Act. The main functions of the District Disaster Management Authority are listed below :

- Prepare a Disaster Management Plan, including execution plan for the district.
- Coordination and monitoring of national and state level policies and departments for the implementation of national, state and district level schemes.

- Preparation of effective measures for the prevention and mitigation related to disaster management for the vulnerable areas identified in the district, with the help of district level line departments and local bodies.
- Ensure that all the departments are taking prevention, mitigation and preparedness measure as per the guidelines given by the National Disaster Management plan to prevent disaster.
- Provide guidelines for different district level officers and local bodies to adopt measures to prevent or mitigate disaster if required.
- Monitoring and implementation of the schemes prepared by the departments in terms of disaster management at the district level.
- To prepare all the departments for the purpose that they include prevention, mitigation and pre-preparation measures related to disaster management in their departmental developmental schemes and accordingly provide technical assistance to the departments.
- Assessing the capacity of the departments to deal with the disaster at the district level and if necessary, give them guidelines for updating their information/technical capacity.
- Review the level of preparedness and provide prompt directions for preparation to relevant departments at the district level for quick response to the disaster.
- Organizing and coordinating specific training programmes for different level officers, employees and voluntary rescue workers at the district level.
- To organize training programmes and awareness programmes to train the community for the prevention or mitigation of disaster in collaboration with local bodies, administration and voluntary organizations.
- Establishing, organizing, reviewing and updating the information system and prior warning system mechanism and disseminating it to the general public.
- Preparation, reviewing and updating of district response plans and guidelines.
- Coordinating response work during potential catastrophic situations or disaster.
- Ensure that all the departments prepare the response plan of their department according to the District Response Plan.
- Prepare guidelines for the departments.
- Assigning information related to various aspects of disaster management to the State Disaster Management Authority.
- Encourage voluntary organizations, social welfare institutions to work on the ground level in various tasks of disaster management.
- Ensure that the communication system works effectively during the disaster.
- Apart from this, execute all the functions necessary for disaster management at the district level as per the guidelines of the State Government and the State Disaster Management Authority.

District Emergency Operation Centre (DEOC)

Generally, the District Emergency Operation Centre, established in the District Disaster Management Authority office, is equipped with various information, technology based state-of-the-art equipment, computed with Internet facility etc. This Centre, which function 24X7 basis, is operated through the district administration. This Centre has all the facilities like rescue kits, wireless etc. Along with this, it is equipped with facilities like ham, early warning system etc. The District Project Officer is in-charge of this Centre and she/he works under the direction of the Additional District Magistrate (Finance/Revenue).

This DEOC is connected to all the governmental departments. Inventory of resources and information related to all departments is uploaded on the network of information and technology in which information related to available human and physical resources, their area of work, vehicles, other equipment etc. with firefighters, police department, health department, food and supplies department, city council, transport department, public works department etc. This inventory is very important and helpful in relation to adequate availability of resources at the district and state level at the time of emergency.

2.5 Departmental Challenges and Areas of Improvement

In addition to the coordination between the main departments, there are some other issues related to the department, on which the officials of the state and the district level need to meet jointly in order to arrive at a solution. In reality, these challenges are related to the human resources, the technical capacity of the staff and the absence of infrastructure, due to which both the response time and the quality of service during the disaster are affected. In view of multi disasters and disaster preparedness, response to disaster and restoration and reconstruction work after disaster, the following are the challenges before the Uttarakhand Power Corporation Limited on which the department needs to work –

Issues and Challenges

- Limited resource for disaster managment
- Storage of material at various sites. (It will need to be looked at again so that repairs and maintenance can be done quickly and at low cost.)
- Forest Fire is a major problem, in which the loss of poles and wires of the department is in large quantity.
- There is no definite system for determining rates at the time of the disaster and due to uncertainty, the rates cannot be revised immediately. The system is needed to revise at both the department and the consumer level accordingly.
- Due to being a corporation, execute the complexity of receipt and verification process of the funds received from the government.

Steps Taken to Combat Challenges

To combat these issues and challenges, some steps should be taken immediately at the departmental level. These steps are as follows:

- Allocate more fund for disaster work at the local level.
- At the local level, more and more permanent employees are required. At present, employees are appointed on contract basis for doing most of the work.
- There is a need to create a more useful information system for data and information related to damage and restoration. For the data, junior engineers have to be accountable.
- Considering the prices of all the goods and the increase in wages, there is a need to revise the electricity rates for consumers and set new standards.
- To accelerate the work of relief and rescue and rehabilitation based on past experiences, there is a need to make adequate amounts of material for the distribution of pre-planned human resources and the materials to be stored in sensitive areas/sub stations as required.

3 Measures Taken by the Department at Different Stages of Disaster

After the disaster in the hilly areas, the Department of Electricity is in dire need of relief and rescue work. On the other side, during the disaster in the plains, the negligence of the department can lead to a new disaster. So in such a situation, there is a need to adopt proactive measures for different disasters, otherwise it will not only affect the functioning of the department but also influence other departments working during and after the disaster. Therefore, before the disaster, where the department works for the repair of its weak poles and wires, it also undertakes the responsibility of supplying uninterrupted power during the disaster. Similarly, the department also has important responsibilities in the later stages. In this chapter of the document, discussions related to the activities of the department are discussed in various stages of the disaster. Along with this, SOP has been prepared on the guidelines for executing activities in different phases. (Attachment No. 1)

3.5 Pre disaster Action (Prevention, Mitigation and Preparedness)

To reduce the effects of any disaster, prevention, mitigation and preparedness measures and activities are essential. These measure/activities are long term task which can be integrated with the developmental activities of the department. The Corporation has the responsibility to ensure the supply of electricity to the state. In addition, in hilly areas where human resources are not very effective, there is a special requirement of machines and due to being a major source of energy, there is a special requirement for electricity in relief and rescue work during a disaster. Therefore, along with the routine activities of the Corporation, other such measures can be adopted by them, which can be helpful in reducing the impact of disasters. It is compulsory to integrate these activities with the department's generalized developmental schemes/programmes. Under these measures, those points are kept which work towards reducing the impact of the disaster and increase the ability of the department and the community to deal with the disasters. By recognizing the sensitive areas in terms of the Uttrakhand Power Corporation Limited Department, thereby the conditions of the disaster can be controlled to a large extent by ensuring timely storage of essential commodities related to the Corporation. By adopting these- preparedness activities, the impact of disasters on the department and departmental damage can be minimized.

Pre disaster activities are continued throughout the year under various schemes/programmes run by the department and financial arrangements are made from various items for executing them. In addition to this, the determination of activities for disaster prevention, mitigation and strengthening of staff by done by the District Disaster Management Authority, the Additional District Magistrate (Finance/Revenue) will provide proper funding through the Disaster Management Department.

Activities to be implemented under this stage are as follows :

Identification Vulnerable Areas and Planning

Planning for prevention and preparedness for disasters is a necessary component. Identifying vulnerable areas/districts based on vulnerability assessment and working on priority basis in those areas is an effective step towards reducing the effects of the disaster. The Vulnerability of the region or district has been determined on the following grounds –

- **Based on the statistics provided by the department on disaster incidents and the damage caused by them** – On the basis of information received from the department and data provided by the department, the areas where the incidence of disasters has happened repeatedly are the most sensitive areas/districts.

- **On the basis of available resources** – In areas/districts where the required resources are not available in adequate quantity to the department, the area belongs to the sensitive area in terms of disaster.

- **Areas distant from the main route** – Areas where there is no accessibility facility or where there is no road facility. Generally, such areas are more vulnerable than those equipped with roads.

The following preparations will be required to deal with the disaster for the identified Vulnerable districts/areas on the above grounds :

- Constitute a Disaster Management Team and appoint a Nodal Officer within the department so that coordination with other departments can be established.
- Identify the contractors and labourers in order to overcome the shortcomings encountered during the calamity and to keep their list ready so that they can be called immediately when necessary.
- Keeping in mind the local situation and geographical situation, make an action plan and ensure preparedness
- Ensure connectivity to the WhatsApp group so that timely notifications can be received.
- Exchanges of information from top to bottom and bottom to top to ensure a two-way warning system.
- To keep a trolley ready for installation of electric trolley transformer at safe and convenient places and prepare a district wise list of these trolleys.
- Prepare the latest report related to the preparations of the department and share it with the EOC and IRS nodal and cooperative agencies and other departments.
- Prepare and update a list of common devices, materials, mobile transformers, wires, insulators, etc.

Infrastructure Strengthening and Human Resource Development

Keeping in mind the disasters in the state of Uttrakhand, it is necessary to ensure structural restructuring and adequate system of human resources in the development schemes within the department. For enhancing capacity building of the staffs, the following activities are recommended under this :

- Ensure that all departmental structures are constructed or installed at safe places for power supply so that the loss is minimal.
- Maintaining of existing structures and transfer as required.
- Check the trolley transformers inside the department so that it can be used without interruption if necessary.
- Check the lines going through the forest before the start of summer and make sure to replace or repair weak wires and poles.
- Prior to the monsoon season every year, make sure to clean the forest and trim the branches close to the wires.
- Ensure preparedness on occasional disaster information from time to time

Need Assessment and Capacity Building

The capacity building of staff and community on the preparedness of the department is an important element. Considering the changing nature of the disaster, it is necessary to conduct training/orientation on certain subjects for capacity building at different level. This is necessary since the community directly faces any disaster. Therefore, it is also a great responsibility of the department to conduct awareness drives at the community level. Under the Need assessment and capacity Building, the following activities are recommended :

- Ensure the provision of training of departmental staff at the department level.
- Ensure active participation of the department in the mock drills organized by the Disaster Management Department.

Nodal Agency for Early Warning

The early warning system plays an important role in reducing the risks of any type of disaster. The department or organization which has a more active early warning system from the state to the district level, the lesser the risk to that department or organization in the context of the disaster. The early warning system should work in both directions, from top to bottom and from bottom to top, i.e , prior warnings or information received from the government level are important for preparing the community for disaster relief and it is also necessary for the administration to take information from the community in order to plan locally.

Institutions authorized by the Government of India to give early warning during the various disasters in respect of disasters at the department level are as follows :

Table 2: Institutions authorized by the Government of India to issue early warning for different disasters

Disaster	Authorized Institution
Flood	Central Water Commission
Heavy Rain/ Cloud Burst, Landslide	Geological Survey of India
Avalanche	Snow/Ice and Avalanche Study Establishment
Loo and Cold Wave	Indian Meteorological Department

The Government of India classifies the warning of danger according to the level of intensity of disasters. Details of various disasters and related warnings are as follows:

Heavy Rain/Flood/Flash Flood

A network of flood warning stations and daily water bulletins have been developed in the following sections to provide flood related information and daily water bulletins to all designated office bearers and agencies of the Central Government, State Governments and District Administrations by the Central Water Commission for all major river valleys during the southeast monsoon season :

Table 3: Categorization of danger in terms of flood disaster

Category	Description
Fourth	Low flood (water level between warning level and danger mark)
Third	Moderate flood (water level below 0.50 metres, less than high flood level and above danger mark)
Second	High flood (water level below high flood level but at 0.50 metres of high flood level)
First	Extraordinary flood (water levels at high flood level or above)

Landslide

Indian Geological Survey Division issues pre-warnings related to landslide to all authorized officials and institutions of the Central and State Government and the District Administration in the following categories :

Table 4: Categorization of danger in terms of landslide disaster

Category	Description
Fourth	Landslide of small intensity, whose impact site is far from human settlement and there is no loss of life and property.
Third	Landslides under this class are of relatively high intensity and this leads to loss of structural facilities like important highways and roads, railways and other civil facilities, electricity, water etc.
Second	The impact of landslides in this class is on people living near the settlement areas, resulting in loss of lives and property, but in small quantities.
First	Under this category are those landslides which are occurs near populated areas like urban areas or moredense populations. By doing any activity on such slides, human life and property are likely to suffer widespread losses.

Avalanche

The Defense Research and Development Organization, Chandigarh is responsible for issuing warnings to all the designated officers and agencies of the Central and State Governments and the District Administration about the avalanches, and the Snow. Avalanche related warnings are categorized is as follows :

Table 5: Categorization of danger in terms of avalanche disaster

Category	Description	Stage
Low	Generally, it is a favourable situation. In this situation, triggering is required in areas with heavy loads and extreme slopes. At such a time, lives/people are safe in the valley. Caution is required while walking on slopes.	Yellow

Moderate	This is partly an adverse situation. Most avalanche impact slopes and places with additional weight are more prone to its outbreak. It can also occur in the valley. In this situation, one should go on the slopes with extreme caution. One should be vigilant while roaming in the valleys and avoid variance on steep slopes. Caution should be taken in the selection of travel routes.	Yellow
High	This is an adverse situation. Its danger is prevalent in all the areas prone to avalanches. There is also a higher chance of its outbreak in the valley regions. In such a situation, all types of activities should be stopped. At this time, there is also the possibility of air borne avalanche.	Orange
All four sides	This is a very adverse situation. There is a possibility of a major avalanche on all possible avalanche slopes. At such a time, all types of activities should be stopped. At this time, there is also the possibility of air borne avalanche.	Red

Earthquake

Forecasting an earthquake disaster is not possible. Rather, it is possible to find out about earthquake and tremors and monitor them. Indian Meteorological Department is the nodal agency of the Government of India, which monitors seismic activities in the entire country and in nearby regions. The Indian Meteorological Department is responsible for assessing the parameters of earthquake sources immediately after the earthquake and provides information to all the concerned agencies of the Centre and State responsible for relocation and rehabilitation. It is also the responsibility of the Indian Meteorological Department to give earthquake information to the public information channels, press, media and post it on its website.

Table 6: Categorization of danger in terms of earthquake disaster

Category	Description	Stage
Low intensity	More than 5.0 on the Richter scale	Yellow
Moderate intensity	More than 5.0 on the Richter scale but less than 7.0	Orange
High intensity	More than 7.0 on the Richter scale	Red

3.6 Action during the Disaster

Under the Response Plan of the department, different types of actions are identified to deal with the disaster. Under this, the formation of the disaster cell and the disaster team and the appointment of the nodal officer is done in accordance with the standards of the Emergency Response System (ERS). According to the ERS standards, the team works in response to disaster while dealing with various associate departments. The pre-warning system has been prominently included in the Response Plan and the catalyst system has also been discussed, which makes the implementation of the Response Plan successful. Uttrakhand Power corporation in association with PITCUL, UJBNL and UREDA performed joint efforts during different phases of disasters.

Triggering Mechanism

In triggering mechanism, all departments and Emergency Operation Centres becomes active to respond immediately after alert massage `or any kind of information. Activities that have been identified under the Response Plan are those which are self-motivated activities to eliminate the effect of the disaster and those that can be induced instantly in the direction of reducing the losses. The main purpose of creating a triggering mechanism for natural disasters is to work in a controlled way in order to control its intensity and manage the situation in case of disaster. Triggering mechanisms can vary for natural disasters in different situations i.e. where the pre-warning system is available, the triggering mechanism will be different while the areas where the pre-warning system does not work, different triggering mechanisms will be adopted

A. In case of availability of pre/early warning system

- Nodal agencies at the national level are authorized to collect information about incidents of natural disasters and to spread future possibilities about disaster. These nodal agencies will give prior notice of the potential danger based on the prediction of the disaster under the prescribed protocol for the National Emergency Operation Centre and the Home Ministry.
- Based on the forecasts received from the nodal agencies, the National Emergency Operation Centre and the Home Ministry will monitor the circumstances and issue warnings to the state and district level emergency operation centres and other authorized officials to be vigilant.
- Based on the severity of the situation, the National Emergency Operation Centre will be informed by the State Emergency Operation Centre and the District Emergency Operation Centre and other authorized officials to fully activate the emergency operation centre established at the state and district level.

In the short term, certain specific measures can be adopted in respect to certain specific disasters to spread the warning or information related to the disaster and its threat to more people. As in the situation of fire, alarm can be played, playing the siren in the event of a disaster caused by industries, in the case of floods and landslides, people can be alerted and warned by broadcasting through channels such as radio, television, loudspeaker and waving a warning flag.

- State and district level emergency operation centres, from the state to the development block, will give directions to the administrative mechanism to be prepared with their available human and other resources to respond to the situation of the disaster.
- Broadcasting of warnings to potential communities affected by disaster and their safe withdrawal from the potential area will be the first and foremost task.
- A dialogue mechanism should be established at the district level, so that real information can reach the people in their proper form.
- Once the warning is issued, the community must be constantly warned with the latest information update about the disaster.
- When issuing warning, special attention should be given on the words used for warning. It should always be kept in mind that the language of warning is simple and that simple words that can be understood by a common man are used.
- In view of the possibility of disaster, the District Disaster Management Authority/District/Local Administration will do the work to clear the people from the disaster site. For this, a comprehensive order will be issued at the state and district level and all necessary pre-preparations will be ensured.
- After this, all the concerned officials at all levels will be followed-up so that they are ready to respond to the disaster situation.
- Standing orders related to disaster and pre-preparedness will be reviewed on an annual basis and the reviewed standing order will be broadcast among all concerned.

B. In case of non-availability of pre/early warning system

In places where no pre-warning system related to natural disaster is working, there is a triggering mechanism to work under a specific procedure for clearance and relief work at the immediate level. The following procedures are to be adopted in such situations :

- The District Emergency Operation Centre, District Magistrate, Deputy District Magistrate will be informed about the incident by the people working at the field level and the nodal departments.
- The District Emergency Operation Centre will be fully operational to deal with the incident.
- The State District Disaster Management Authority/State Emergency Operation Centre will be informed of the incident by the District Emergency Operation Centre/District Magistrate and seek help from them.
- The State Emergency Operation Centre will be active and will inform the National Emergency Operation Centre. The National Emergency Operation Centre will receive the first information from here.
- Quick response teams, search and rescue teams and health and paramedical teams will be formed soon after getting the information.
- The District Magistrate themselves will review the situation and take coordination, order and control in their hands.
- Incident Response Team will be formed.
- A meeting of all concerned will be called by the District Disaster Management Authority to review the situation.

- A team will be constituted for a quick assessment of the loss due to the disaster.
- The concerned departments/agencies will get active to start the work related to electricity, communication, transportation etc.
- With the view to provide immediate relief to the disaster-affected people, arrangements for supply of food items, drinking water etc. will be ensured.
- After this, follow-up activity will be done by each concerned department at every level to monitor the Response and Relief work.

Incident Response System (IRS)

Incident Response System (IRS) is the effective system for working systematically during response. Keeping in mind the highest level of disaster, all the tasks to be performed in view of the possible problems are included. Keeping in view all possible response requirements under the Incident Response System, a team has been formed by involving officials from different sections and departments, who will work to fulfill their fixed responsibilities. All the members in the team know their responsibilities, actions and role. According to the state's administrative structure and the Disaster Management Act 2005, the RO/Incident Commander will be in-charge of the whole incident response management at the state and district level. IRS will work at all levels – state, district, tehsil and development block. Under the IRS, a nodal officer will be appointed from the Department of Health, who will be responsible for disaster related work within the department. Along with this, she/he will have a fixed role in the IRS as well.

Activities Performed by the Department during the Disaster

During response, the Uttrakhand Power Corporation Limited conducts the following key activities :

- Take utmost care to prevent the accidents due to electricity in case of flood/flash flood disaster by ensuring the stopping the supply of electricity from the substation.
- Patrolling damaged sites to detect damage and remove the fuse of transformers at the damaged sites.
- Restoring the supply to the rest of the areas except the affected ones.

3.7 Post Disaster Action

Uttrakhand Power Corporation have major role in the post-disaster phase. They ensure power supply to speed up the relief and rehabilitation work and make arrangement of general facilities for the public. The key activities carried out by the department in this phase are as follows :

- Evaluate damage and prepare detailed reports.
- Ensure replacement and repair of damaged wires, poles and transformers.
- Support various departments in recovery and rehabilitation.
- Ensure to restore the power supply system at disaster-hit sites.
- Prioritizing services like hospitals, fire services and disaster management cells in order to restore the power supply system.
- Based on the experiences of disaster, prepare a list of resources and plan to achieve them according to the desired standard.
- Reviewing the works done during the disaster, analyzing the deficiencies and making sure to include them in the future action plan.

4 Monitoring, Review and Knowledge Management of Departmental Disaster Management Plan

4.5 Monitoring and Review

Monitoring and review is an important aspect to check the effectiveness and shortcomings in the process of implementation of Departmental Disaster Management Plan. Using this document as an effective implementation tool during the disaster, determining indices, periodically reviewing the measures to overcome deficiencies and by updating the plan from time to time, it will also be used as a monitoring tool for disaster management efforts.

On the other hand, the learning process during the process of documenting the disaster management plan and its implementation will also help the department to assess its responsibility during the time of the disaster. At the departmental level, not only can the work done during the various stages be reviewed, but at the level of the State Disaster Management Authority, it will be seen whether the planned activities are going in the right direction or not.

In order to check the level of preparedness and upgrade departmental coordination during emergency, mock drill may be a better method of rehearsal testing. It will be based on past experience of disaster and learning received. On one side of the mock drill, it is important to evaluate the response activities, while on the other hand, it will also help in better coordination with administration, various departments, voluntary organizations, other stakeholders and communities. The mock drill will not only help in understanding the aspects that are missing from the plan, due to continuous mock drills, the ability to respond is faster and better and the task of response and re-evaluation will also be done.

The department should certainly perform the following tasks :

- Incorporating mitigation and prevention measures in the departmental annual work plan.
- Developing performance index involving time line and expected results. This index should be both quantitative and qualitative.
- Execute mitigation and prevention plan.
- Conduct quarterly review of programmes operated at the state and district level.
- Review pre-preparedness and reaction mechanism.
- Preparation of index of preparfdness and response results.
- Provide review and feedback at the state and district level after the disaster.
- Training of officials on disaster management through State Disaster Management Authority/District Disaster Management Authority.
- Update the District Disaster Management Authority at the end of April every year.

The assessment and evaluation of the Departmental Disaster Management Plan will be determined on the basis of the following points :

- Availability of resources
- Coordination between different departments/agencies
- Participation of the community

- Participation of voluntary organizations
- Participation of insurance companies

4.6 Role and Responsibility of State Units of the Department and the State Emergency Operation Centre in Monitoring and Evaluation

Local Level Implementation of Departmental Disaster Management Plan

- Identifying and ensuring the implementation of disaster risk reduction in all development projects and schemes.
- Examine the resources available in the districts every six months and check whether they are adequate and active.
- On the basis of analysis, the department has to take approval from the concerned officials for the use of development funds for the removal of unused and scraped resources and the purchase of new resources in their place.
- Monitoring that all activities related to prevention, mitigation, Preparedness and response are being implemented correctly within the district.
- Identifying the activities funded by the Central or State government that can be used for disaster management by the head of the department at the state level. In the meantime, the standards of the centrally sponsored schemes should also be kept in mind.

Audit of the Implementation

The monitoring and evaluation work can be done by various audits of the department. Some of those are as follows :

- Audit of important infrastructure, including urban areas.
- Fire safety audit of all important infrastructure of the department, including urban areas.
- Emphasize the use of National Building Code during the construction of departmental buildings, hospitals etc.

4.7 Documentation of Learning

Updating the Plan

Departmental Disaster Management Plan is a “living document” and according to the Disaster Management Act 2005, before the month of May each year, the state level departmental head or nodal officer (disaster) will update this document with the help of departmental disaster management team and upload it on the department website. Following are the guiding points approved by the Uttrakhand State Disaster Management Authority for updating this document:

- Identifying and listing of sensitive/vulnerable areas.
- Identifying and listing of necessary resources.
- Updating human resources.

- Identifying technical necessities, equipment/machines and update them accordingly.
- Understanding the issue of inter-departmental coordination and coordination with other departments and working towards improving it.
- Linking disaster management activities with other plans/ programmes.

Reporting and Documentation

Every year before March, annual report/documentation should be done about the implementation of the Departmental Disaster Management Plan, in which the process of preparing the disaster management plan, adopted strategy, main achievements, challenges, coordination, desired help from the State Disaster Management Authority/District Disaster Management Authority are to be included. A few case studies related to disaster management plan should also be included in this document.

Evaluation of Post Disaster activities

Uttarakhand Power Corporation will evaluate its performance based on the tasks performed by the department in disaster. The department should carry out the following evaluation tasks:

- Nature of interventions and cooperation by the state
- Suitability of institutional structure, nodal officer and other authorized officials
- Time and resources taken for the response
- Coordination with associate departments
- Institutional arrangement and its work
- Need and necessary correction of operational procedures
- Effectiveness of monitoring
- Communication and logistic related issues

4.8 Monitoring Indicators

The following checklist can be helpful for monitoring the work done by the department in various stages of disaster :

- Developed report based on field visit
- Run a public awareness campaign related to general information to prevent electrifying accidents.
- Ensure supply of electricity during contingency.

Table 8: Monitoring Index for Different Stages

Early Warning Transmission Pre-Preparation	Yes	No
▪ Inform all field staff to report to the headquarters. ▪ Identify sensitive/vulnerable areas/sites. ▪ Store additional resources in the most sensitive/vulnerable areas. ▪ Trim the branches up to a distance of 5 feet around the wires passing through the forest. ▪ Inspect the wires and the poles. ▪ Changing the bad and shabby wires and poles.		

Management of Relief Camps		
▪ Ensure temporary supply of electricity to the relief camps.		
During the Disaster		
Management of Relief Camps		
▪ Ensure supply of electricity. ▪ Promptly correct the local faults. ▪ Use mobile transformers.		
Relief and Rehabilitation Work After the Disaster		
▪ Change the damaged wires and poles. ▪ Ensure immediate repair of damaged sub stations/electricity supply centres.		

5 Budget and Financial Assessment

5.5 State Disaster Response Fund (SDRF)

In accordance with the provisions of the Disaster Management Act 2005 and on the recommendations of the 13th Finance Commission, the State Disaster Response Fund is formed in place of the Calamity Relief Fund (CRF). In this Fund, it is provisioned that 75 per cent contribution will come from the Central Government and the rest 25 per cent contribution is from the State Government. The Central Government gives its contribution in two stages/phases every financial year in the months of June and December. Similarly, the State Government also gives its 25 per cent contribution to the SDRF in two stages/phases every financial year in the months of June and December. In case of a certain disaster, if the Home Ministry takes cognizance of it, then on the request of the State Government, the Central Government can give 25 per cent of its contribution of the incoming year in advance, which will be adjusted in the contribution of the coming year. According to the guidelines of the Constitution and the State Disaster Response Fund administered by the Home Ministry under the Government of India, the State Disaster Response Fund will be used to provide immediate relief to the people affected by landslide, earthquake, flood, fire, avalanche, cloud burst and attack of insects. The Principal Secretary of the State will decide on the issues related to all the immediate expenses related to the relief of the State Disaster Response Fund.

5.6 National Disaster Response Fund (NDRF)

In accordance with the provisions of the Disaster Management Act 2005 and on the recommendations of the 13th Finance Commission, the National Disaster Response Fund was formed in place of the Calamity Relief Fund (CRF) at the Government of India level. The administrative arrangement of the National Disaster Response Fund is in the hands of the National Executive Committee. In the event of severe disaster, when relief work cannot be completed by the State Disaster Response Fund, after providing some necessary procedures at that time, additional assistance is provided by the Central Government through the National Disaster Response Fund. For this, it is necessary for the State Government to submit a memorandum mentioning area damages and necessary funds. After getting the state's memorandum, an inter-union central team is formed and they are given the responsibility to assess the physical funding of the damage and to assess the necessary finds for the relief work according to the existing materials and standards. After the deliberations by the Home Secretary on the report submitted by the inter-ministerial team/National Executive Committee, the Central Team Report by the High Level Committee comprising Finance Minister, Agriculture Minister, Home Minister and the Deputy Chairman of the Planning Commission and on the basis of recommendation of the inter-ministerial team, the request of the state government is considered and funds are recommended from the National Disaster Response Fund keeping in view the current contents and standards. In case of disaster, the Centre, immediately under the State Disaster Response Fund, provides the remaining part of its 75 per cent contribution. The expenditure from the State Disaster Response Fund/National Disaster Response Fund is done by the State Government. With the help of the Ministry of Finance, the expenses incurred by the State Disaster Response Fund and the National Disaster Response Fund as determined

by the Ministry of Home Affairs of the Government of India are spent only on the basis of the necessary items for relief in the standard and catastrophic disasters.

5.3 Chief Minister Relief Fund

At the state level, the Chief Minister Relief Fund has been set up for the purpose of providing immediate assistance to people affected by natural disasters or to people affected in road, air or rail accidents.

5.4 Issuing Funds to Departments and Districts

Due to natural calamities, contingency assistance for affected persons/families, to set up relief camps, to run *Langars*, to set up camps for animals, to provide compensation amount to the families of the dead, to provide compensation in case of damaged house, to provide support to displaced families and animals, to assist in the reconstruction of homes falling/destroyed from natural disasters etc., the required fund is provided through the District Magistrate. In case of damage to public property, funds are issued to the concerned department for their immediate repair and maintenance. After receiving request from the District Magistrate/concerned department, funds are allocated after receiving the recommendation from the State Executive Committee. However, for the pure relief, funds are issued as per the specific Relief Commissioned/Chief Secretary and in the next meeting of the State Executive Committee, it is presented for recommendation. In order to avoid delay in the relief work in the state of disaster, the District Magistrates have been instructed to make available the grace amount from the available funds in the district and register it after receiving relief from a specific Relief Commissioner.

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Annexure : 1

Human and Physical Resources in Department

Human Resources

Sl No.	Particulars	No.
1	**Garhwal**	
	Chief Engineer (Distribution)	01
	Superintending Engineer (Distribution)	04
	Executive Engineer (Distribution)	16
	Executive Engineer (Testing)	04
2	**Kumayun**	
	Chief Engineer (Distribution)	01
	Superintending Engineer (Distribution)	03
	Executive Engineer (Distribution)	11
	Executive Engineer (Testing)	03
3	**Haridwar**	
	Chief Engineer (Distribution)	01
	Superintending Engineer (Distribution)	02
	Executive Engineer (Distribution)	05
	Executive Engineer (Testing)	02
4	**Rudrapur**	
	Chief Engineer (Distribution)	01
	Superintending Engineer (Distribution)	02
	Executive Engineer (Distribution)	05
	Executive Engineer (Testing)	02
5	**Total Regular workers**	**3220**
6	**Total Outsource workers**	**3550**

Physical Resources

Transformer, Pole, Conductor, Insulator, Power Transformer, Meter etc. stored at 16 Store Centres (Rishikesh, Rooraki, Kotdwar, Haridwar, Dehradun, Tehri, Uttarkashi, Chamoli, Shrinagar, Haldwani, Kashipur, Almora, Rudrapur, Tanakpur, Pithauragarh, Masi). Details are as below:

Details of Item	Current Nos./K.M.
1. Pole	**7492**
PAC	1075
STP 23	3171
STP 33	453
STP 55	726
STP 72	71
STP 10	946
STP 21	1050
2. Conductor	**1542**
Vesiol	233
Rabbit	174
Raikoon	451
Dog	684
3. Transformer	**1333**
16 KVA	52
25 KVA	354
63 KVA	493
100 KVA	354
250 KVA	67
400 KVA	22