संघ राज्य प्रशासन, लद्दाख
आपदा प्रबंधन, राहत, पुनर्वास और
पुनर्निर्माण विभाग

ई-मेल/email: admsecyutl@gmail.com

सत्यमेव जयते

THE ADMINISTRATION OF
UNION TERRITORY OF LADAKH
Disaster Management Relief,
Rehabilitation & Reconstruction
Department.
दूरभाष /tele: : 01982-255567
लेह/Leh

Shri Kamal Kishore,
Head of Department,
National Disaster Management Authority,
New Delhi

Subject: Submission of State Disaster Management Plan (SDMP/UTDMP) of UT Ladakh.

Respected Sir,

Kindly refer to your office letter no.1-70/2020-PP dated 21 October, 2021 wherein I am directed to formally submit the UT Disaster Management Plan (annexed), which has been approved by the State Executive Committee under the chairpersonship of Advisor to Hon'ble LG, Ladakh.

This Comprehensive Plan has been created in the Union Territory of Ladakh to address potential disasters and emergencies occurring here so as to ensure the safety and well-being of all individuals involved, as well as the protection of property and assets.

It is worthwhile to mention here that our team has conducted thorough risk assessments and engaged with relevant stakeholders to develop a plan that encompasses prevention, preparedness, response, and recovery strategies to the specific needs and challenges of our UT Ladakh.

In this regard, the undersigned has been directed to request you to kindly consider State Disaster Management Plan of UT Ladakh, which has been duly approved by the State Executive Committee for further consideration at your end.

(Enclosure 175 lvs).

NO:→Secy/Utl/DMRRR/24/96
Dated:-27/02/24.

Yours faithfully,
27/02/24

(अब्दुल मजीद तांत्रे) / (Abdul Majid Tantray) JKAS
उप सचिव डीएमआरआरआर / Deputy Secretary, DMRRR

NO. Secy/DMRRR/2024/96 Dated 27.02.2024

Copy to the:
1. OSD with to Advisor to HLG / Chairperson SEC, Ladakh for kind information of Advisor Sir.
2. Office record file.

27/02/24.

THE ADMINISTRATION OF UNION TERRITORY OF LADAKH

Disaster Management, Relief, Rehabilitation and Reconstruction, Department

LADAKH DISASTER MANAGEMENT PLAN

BACKGROUND

The declaration of 1990- 1999 as International Decade for Natural Disaster Reduction (IDNDR) brought to the fore, Disaster Risk Reduction (DRR) as an agenda in Progress. The Yokohama strategy plan of action, 1994 was the first blueprint for DRR policy guidance with emphasis on social and community orientation. Following this, in 2000, the formation of International Strategy for Disaster Reduction (ISDR) focused more on increased public commitment and linkage to sustainable development, enlarged networking and partnerships mechanisms. In the year 2002, Johannesburg plan of implementation, The World Summit on Sustainable Development (WSSD) includes a new section on "an integrated, multi-hazard, inclusive approach to address vulnerability risk assessment and disaster management including prevention, mitigation, preparedness, response and recovery" as an essential element of a safer world in the twenty-first century. Finally, the World Conference of Disaster Reduction (WCDR) - Hyogo Framework for Action 2005-2015, building the resilience of nations and communities to disasters, is a step to ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation. The common statement of the special session on the Indian Ocean DRR for safer future, which was also part of the WCDR, recommends that necessary regional disaster reduction mechanisms be established and strengthened as soon as possible for all relevant natural hazards. This should include, inter alia, specialized collaborative regional centers, networks for information exchange, early warning systems, establishment of databases and knowledge management, use of modern science and technology, and strategies to reduce disaster risks and to reduce impacts arising from natural disasters.

Considering the catastrophic events that have been striking on a continual basis in the recent times it can be derived that irrespective of where one lives, disaster preparedness is mandatory and can no longer remain a choice. However, there could be variations in the types and intensity of the risk, which is largely dependent on the geographic location of the area.

As per the South Asian Association for Regional Cooperation (SAARC) Disaster Management Centre, Indian subcontinent is among the world's most disaster-prone areas. Almost 85% of India is vulnerable to one or multiple hazards. Of the 29 states and 7 union territories, 23 are prone to disaster. It is vulnerable to cyclone spawned in the Bay of Bengal and the Arabian Sea, earthquakes caused by active crustal movement in the Himalayan Mountains, floods and drought brought by monsoonal variation in the country. Almost 57% of the land is vulnerable to earthquake (high seismic zones III–MSK V), 68% to drought, 8% to cyclones and 12% to floods. India has also become much more vulnerable to tsunamis since the 2004 Indian Ocean tsunami (http://www.saarcsadkn.org/countries/india/disaster_profile.aspx).

Since independence, India had well established institutional policy mechanisms for carrying out response, relief and rehabilitation after disasters. Traditionally, the management of natural disasters was seen as non-planned expenditure item as the perception towards

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mitigation and management was limited to the idea of "calamity relief." Over the years, with calamities frequently turning into huge disasters due to its devastating effects, causing huge human and economic losses and setting back every development milestone, the management of disasters could no longer remain relief centric but moved on to incorporate prevention, preparedness, response and recovery, also initiating development efforts aimed towards risk reduction and mitigation. The reappraisal of the institutional and policy frameworks resulted in a paradigm shift, which reflected in the 10th Five Year Plan (2007-2012) providing a blue print for the future of Disaster Management in India. In 2004, the National Disaster Management Framework was developed with a holistic approach aimed at sustainable development highlighting the interdependence of economy and environment. In 2005, The Indian Parliament passed the Disaster Management (DM) Act, after which the National Policy on Disaster Management was approved in 2009.

The section 23 of DM Act 2005 mandates the states to formulate a State Disaster Management Plan guided and approved by the National Disaster Management Authority (NDMA). The Act lays down the broad coverage of the plan as follows:

- The vulnerability of different parts of the State to different forms of disasters;
- The measures to be adopted for prevention and mitigation of disasters;
- The way the mitigation measures shall be integrated with development plans and projects;
- The capacity building and preparedness measures to be taken;
- The roles and responsibilities of each department of the State Government in context of the above;
- The roles and responsibilities of different departments of State Government in responding to any disaster situation or disaster.

Along with other States, the Union Territories are also required to come up with their respective DM plans, which will have to follow similar processes and steps as that of the State Plans. The guiding principles for the preparation of the State Plans, laid down by the NDMA will have to be the reference document, which would guide the formulation of the plan for the Union Territory (UT) of Ladakh.

organization of the Report

The chapters of this document are organized as per the guidelines suggested by the NDMA for the preparation of SDMP/UTDMP. Considering that the Two regions of the UT are geographically noncontiguous, location specific information is provided in sub sections under each district. Generic introduction to subject/topic, status information is avoided to reduce the bulkiness of the plan document.

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Contents:

CHAPTERS:

TOWARDS A SAFE, DISASTER-RESILIENT UT of LADAKH

TOWARDS A SAFE, DISASTER-RESILIENT LADAKH

Essential First Steps

A State-level Disaster-Management Plan is a comprehensive document that covers the entire range of disaster management and disaster risk reduction activities at the level of the entire State. As a result of this mandate, such a document will be a lengthy and complex one, covering the range of policies and actions that must be undertaken by a number of Government departments.

However, the efficacy of a Disaster Management Plan depends entirely on the extent to which various elements of the Plan can be made operational or brought to the level of active implementation. In this zeroth chapter in the Disaster Management Plan for the UT of Ladakh we emphasize some key elements that need to be taken up urgently in order to speedily operationalize and implement several parts of the Plan.

Setting up and operationalizing an Emergency Operations Centre

A full-fledged Emergency Operations Centre is the priority, especially considering the recent Flashfloods and the past natural disasters Ladakh has witnessed, and the depth of impacts they posed. it must be immediately made operational at any possible location, with adequate floor space and the facilities and amenities that have been indicated in the Plan and in the separate initial report submitted earlier.

Most importantly, the Emergency Operations Centre will also be the center piece of the implementation of the Disaster Management Plan. The EOC will become the nodal point for

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facilitating and monitoring the process of implementation, under the supervision of the State/UT Disaster Management Authority. It will register, over time, the development of various components of the State Disaster Management Plan. At any given point of time, it will provide ready information of the progress of implementation, the available infrastructure, the level of readiness in human resources and capacities and a transparent view of the remaining gaps and deficiencies. These will need to be classified according to different levels of disasters.

District-level Emergency Operations Centers must be set up following closely on the setting up of the State-level EOC. The threshold for escalating a disaster threat or a disaster response from the district level to the State level must be laid down in an adequate manner.

Implementing the Disaster Management Plan is a structured, time-bound process

The Disaster Management Plan projects several infrastructural requirements, operational structures, and modalities of action for a safe and disaster-resilient state. These will not become a reality immediately. It requires financial, technical, and human resources to be deployed, which will inevitably take some time. It would be a grave error to assume that, with an available Plan, we have a ready to hand blueprint that will enable the state machinery and other stakeholders to immediately act for the next subsequent disaster. With the receipt of the Plan, the government and its various departments need to plan a structured, time-bound process of implementation and realization.

Developing Human Resources and their Capacities for Implementation is the Key

No Disaster Management Plan at any level will be of value if there are not adequately trained human resources to understand, implement and when necessary, upgrade the Disaster Management Plan. Currently, there is considerable need for enhancing the capacities of State Government officials, staff and employees in all departments in general aspects of disaster management and specific aspects of their work. It is imperative that no allocated budget for training and capacity-building in disaster management be allowed to lapse, and be utilized to the fullest. These trainings must be carefully designed, have the necessary inputs from suitable experts; utilize the expertise of agencies such as the NDMA and the NDRF, and avail of knowledge from best practices throughout the country.

District Disaster Management Plans must be followed up with immediately

The process of developing a disaster management structure cannot stop with the development of State level plans. District Disaster Management Plans that will assist in developing community-based disaster risk reduction and deal with disaster management at the district level is essential to complete the structure of the disaster management framework.

Awareness generation, capacity building and simulation exercises with all stakeholders

The implementation of a State/UT-level disaster management plan will not be feasible without the co-operation of various sections of different stakeholders. While Government should take the lead, especially in major or critical situations, the extent of successful

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implementation of a State/UT level DM plan, requires careful co-ordination with all stakeholders. These may include teachers, medical personnel at all levels, craftsmen, technicians and skilled workers from various specific trades, large establishments in the service or industrial sectors, members of civil society organizations and so on. There is considerable scope and urgent need to sensitize key sections among such stakeholders. Large-scale simulation exercises involving all or several stakeholders are a must for coping with disasters in the future. Awareness generation, capacity building and simulation exercises must be rapidly undertaken to enable successful implementation of the disaster management plan.

CHAPTER-1

1. Introduction

This plan will be known as the 'Ladakh Disaster Management Plan' and will be applicable in the Union Territory of LADAKH, India.

Till recently, the approach to Disaster Management has been reactive and relief centric. A paradigm shift has now taken place at the national level from the relief centric syndrome to holistic and integrated approach with emphasis on prevention, mitigation and preparedness. These efforts are aimed to conserve developmental gains as also minimize losses to lives, livelihood and property. Section 2 (e) of the Disaster Management Act 2005 defines disaster management as follows: Disaster Management means a continuous and integrated process of planning, organizing, coordinating, and implementing measures which are necessary or expedient for

1. Prevention of danger or threat of any disaster.
2. Mitigation or reduction of risk of any disaster or its severity or consequences.
3. Capacity-building
4. Preparedness to deal with any disaster.
5. Prompt response to any threatening disaster situation or disaster.
6. Assessing the severity or magnitude of effects of any disaster.
7. Evacuation, Rescue and Relief.
8. Rehabilitation and Reconstruction

As envisaged in the DM Act 2005, the Union Territory of Ladakh Disaster Management Authority (UTLDMA) has been established to discharge the powers and functions of the State Authority. UTLDMA functions under the Chairmanship of the Humble Chief Minister of Ladakh towards evolving a systematic, comprehensive and holistic approach towards all disasters.

A typical Disaster Management continuum as shown below, comprising of six elements i.e., Prevention, Mitigation and Preparedness in pre-disaster phase, and Response, Rehabilitation and Reconstruction in post-disaster phase, defines the complete approach to Disaster Management.

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Vision

TO BUILD SAFE AND DISASTER RESILIENT LADAKH as a safer and disaster resilient Union Territory by developing a holistic, proactive, multi-disaster and technology driven strategy for disaster management. This will be achieved through a culture of prevention, mitigation and preparedness to reduce the impact of disasters on people.

Policy:

Saving of precious human lives will be the highest priority; however, the plan will also address minimum loss to property and environment.

Theme

The core themes of this DM Plan shall be as follows:

- To study the risk and vulnerability of different parts of the UT to different kinds of disasters.
- The measures to be adopted for prevention and mitigation of disasters.
- The manner in which mitigation measures shall be integrated into development plans and projects to achieve a holistic approach.
- The capacity building and preparedness measures to be taken.
- The roles and responsibilities of each department of the government of the UT in relation to the measures specified above,
- The roles and responsibilities of different departments of the government of the UT in responding to any threatening disaster situation or disaster.
- Methodologies for the annual review and updating of the UT DM plan.
- Appropriate provisions for financing the measures to be carried out under the UT government.
- Availability to the government departments of the UT and provision and methodology of such departments to draw up their own plans in accordance with the UT DM plan.

Objectives and Goal of the Plan:

Section 23 of DM Act 2005, makes it mandatory to have a disaster management plan for every State including Union territories. SDMP shall include Hazard Risk and Vulnerability Analysis (HRVA),

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prevention, mitigation, preparedness measures, response plan and procedures. The objectives of this plan are given below:

- To identify the areas vulnerable to major types of the hazards in the UT.
- To adopt proactive measures by all the govt. departments to prevent disaster and mitigate its effects.
- To define and assign the different tasks and responsibilities to stakeholders during the pre-disaster and post-disaster phases of the disaster.
- To enhance disaster resilience of the community in the UT by way of effective capacity building.
- Reduce the loss of public and private property, especially critical facilities and infrastructure, through proper planning.
- Manage future development to mitigate the effect of natural hazards in the State.
- To set up an Emergency Operations Centre at the UT level to function effectively in search, rescue, response.
- To develop the standardized mechanism to respond to disaster situation to manage the disaster efficiently.
- To set up the early warning system to prepare the community to deal with the disaster and responsive communication system based upon fail-proof proven technology.
- To prepare the response plan based upon the guidelines issued in the State Disaster Management Plan to provide prompt relief, rescue and search, support in the disaster affected areas.
- To adopt disaster resilient construction mechanism in the UT by way of using Information, Education and Communication for making the community aware of the need of disaster resilient future development.
- To mainstream disaster risk reduction as integrated component of development planning in the UT.
- To ensure co-ordination and promoting constructive partnership with all other agencies related to disaster management.
- To minimize the suffering of vulnerable population and the loss of property/infrastructure in the UT due to disasters.
- To ensure co-ordination and promoting constructive partnership with all other agencies related to disaster management.

Scope of the Plan:

The DM Plan provides a consistent, UT wide framework to enable UT, local governments, Central government, and the private sector to work together to prepare, mitigate and to respond and also recover from the effects of emergencies regardless of cause, size, location, or complexity. In accordance with the DM Act, 2005, this plan is always in effect and applies to all levels of Union Territory of Ladakh and its administrative subdivisions/Tehsils/Blocks/Villages. The plan incorporates and complies with the principles and requirements found in National and State laws, regulations, and guidelines.

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The scope of this plan envisages active participation of all departments/ agencies of Union Territory of Ladakh, private sectors, NGO's working in UT and citizens in all facets of disaster management. The plan applies to all Two regions of UT of Ladakh namely Leh, and Kargil.

Authority and Reference:

The Administration of Union Territory of Ladakh have notified LDMA (Ladakh Disaster Management Authority) and State Executive Committee (SEC) vide No Secy/RDMRRR/UTL/LDMA/SEC/2020/3665-77(S.O.16) dated 20.04.2020 Under the provisions of DM act 2005 in the whole of UT of Ladakh. In the same lines District Disaster Management Authorities for the two districts of the UT, Leh and Kargil have been constituted. Under Section 23(1) of the DM Act 2005 – it is mandatory for every state to have a State/UT Disaster Management Plan (SDMP) which shall be prepared by State Executive Committee and approved by the State Authority.

Plan Development:

As per the Section 23(2) of the DM Act, the State Plan is to be prepared by the State Executive Committee (SEC) having regard to the guidelines laid down by the National Disaster Management Authority (NDMA) and after such consultation with local authorities, district authorities and the people's representatives as the State Executive Committee may deem fit.

The State Plan prepared by the State Executive Committee under subsection (2) shall be approved by the State Authority (LDMA).

Steps in a collaborative planning process while developing State/UT Plan include – formation of core team comprising representatives of line departments and NGO's, understanding hazards, vulnerabilities and risk foot prints of the State, plan development (develop and analyze course of action, identify resources, identify information needs), plan preparation (write, review, approve and disseminate), Plan implementation and maintenance (exercise, review, revise and maintain).

Institutional Arrangements, Roles, and Responsibilities:

The Disaster Management Act 2005 provides the legal and institutional framework for disaster management in India at the national, state/UT and district levels. In the National policy of India, the primary responsibility of disaster management vests with the State Governments. The Central Government lays down policies and guidelines and provides technical, financial, and logistic support while the district administration carries out most of the operations in collaboration with central and state level agencies.

State/UT Disaster Management Authority:

Section 14 of DM Act 2005 mandates each State to establish State/UT Disaster Management Authority (SDMA/UTDMA). At the UT Level the Ladakh Disaster Management Authority (LDMA), headed by the Hon'ble Lieutenant Governor stands Constituted as below:

Ladakh Disaster Management Authority (LDMA)		
I	Lieutenant Governor, Ladakh	Chairperson

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II	Chief Executive Councilor, LAHDC, Leh	Member
III	Chief Executive Councilor, LAHDC, Kargil	Member
IV	Member of Parliament, Ladakh	Member
V	Advisor to Lieutenant Governor, Ladakh	Chief Executive Officer
VI	Administrative secretary, I and FC	Member
VII	Administrative secretary, Revenue, Disaster Management, Relief, Rehabilitation and Reconstruction, Department	Member
VIII	Administrative secretary, Health and Medical Education, Department.	Member
IX	Divisional Commissioner, Ladakh	Member
X	Inspector General of Police, Ladakh	Member

At the State Level the Ladakh Disaster Management Authority (LDMA), lays down policies and plans for disaster management in the State.

It is also responsible to coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures and review the developmental plans of the different departments of the State to ensure integration of prevention, preparedness, and mitigation measures. In case of emergency the Chairperson of the State/UT Authority shall have power to exercise all or any of such powers of the State/UT Authority but the exercise of such powers shall be subject to ex post facto ratification of the State/UT Authority.

Powers and functions of State Authority:

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 there for.

e) coordinate the implementation of the State Plan.

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

g) review the development plans of the different departments of the State and ensure integrated holistic approach of prevention and mitigation measures to achieve optimum result.

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

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State Executive Committee:

The State Executive Committee, Ladakh with such powers and functions as conferred by the section 22 of DM Act comprises of the following:

State Executive Committee, Ladakh		
I	Advisor to Lieutenant Governor, Ladakh	Chairperson
II	Administrative secretary, Finance Department	Member
III	Administrative secretary, Power Development Department	Member
IV	Administrative secretary, Revenue, Disaster Management, Relief, Rehabilitation and Reconstruction, Department	Member
V	Administrative secretary, Rural Development and Panchayati Raj, Department	Member

Powers and Functions of the State Executive Committee:

1) The State Executive Committee shall have the responsibility for implementing the National Plan and State Plan and act as the coordinating and monitoring body for management of disaster in the State.

2) Without prejudice to the generality of the provisions given above, the State Executive Committee may-

a) coordinate and monitor the implementation of the National Policy, the National Plan and the State Plan.

b) 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.

c) lay down guidelines for preparation of disaster management plans by the departments of the Government of the State and the District Authorities.

d) monitor the implementation of disaster management plans prepared by the departments of the National, State and the District Authorities.

e) monitor the implementation of the guidelines laid down by the State Authority for integrating of measures for prevention of disasters and mitigation by the

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departments in their development plans and projects.

f) evaluate preparedness at all governmental or non-governmental levels to respond to any threatening disaster situation or disaster and give directions, where necessary, for enhancing such preparedness.

g) coordinate response in the event of any threatening disaster situation or disaster; 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.

h) promote general education, awareness and community training in regard to the forms of disasters to which different parts of the State are vulnerable and the measures that may be taken by such community to prevent the disaster, mitigate and respond to such disaster.

i) advise, assist and coordinate the activities of the Departments of the State, District Authorities, statutory bodies and other governmental and non-governmental organizations engaged in disaster management.

j) provide necessary technical assistance or give advice to District Authorities and local authorities for carrying out their functions effectively.

k) advise the State Government regarding all financial matters in relation to disaster management;

l) examine the construction, in any local area in the State and, if it is of the opinion that the standards laid for such construction for the prevention of disaster is not being or has not been followed, may direct the District Authority or the local authority, as the case may be, to take such action as may be necessary to secure compliance of such standards;

m) provide information to the National Authority relating to different aspects of disaster management;

n) lay down, review and update State level response plans and guidelines and ensure that the district level plans are prepared, reviewed and updated;

o) ensure that communication systems are in order and the disaster management drills are

carried out periodically;

p) perform such other functions as may be assigned to it by the State Authority or as may be considered necessary.

UT Disaster Response Force (UTDRF):

UT Disaster Response Force for UT of Ladakh has be established, the strength of UTDRF is being further increased to enhance the Response mechanism in case of any Impending exigency or eventuality. The personnel so identified shall be trained at facilities of NDRF and other state/UT governments as deemed fit and necessary. UTDRF shall also include women members to look after the needs of women and children victims of all types of disasters. DM training Shall be included in the basic and in-service course curricula of gazetted and non-gazetted police officers through the Police Training School (PTS).

State/UT Emergency Operations Centre (EOC): (helpline:1070 & 112)

EOC is an off-site facility functioning from State /UT HQ. An EOC is the physical location where an organization comes together during an emergency to coordinate response and recovery actions and resources. These centers may be alternatively called command centers, control rooms, situation rooms, crisis management centers, or using other similar terms. Regardless of the term, this is where the coordination of information and resources takes place. The EOC is not an incident command post; rather, it is the operations center where coordination and management are facilitated. Emergency Operations Centers are needed in addition to command posts in case of disasters with multiple site impacts and in case of large complex disasters that demand significant involvement/mobilization at macro scales, that is, the Central and State levels. Unlike a command post, an EOC is established away from the disaster site, often near government offices, like the local government / district or state headquarters, depending on the scale of the response needed. The main tasks of the EOC are; establishing priorities for the distribution of resources among the various sites and handling other off incident concerns, such as interaction with offsite facilities such as shelters; ordering of resources from distant jurisdictions or through state or central jurisdictions, and overall coordination and communication between agencies handling different aspects of emergency response.

The UT-EOC has been Established and is located at Upper Tukcha, GH, Road, Leh. The UT-EOC will take stock of the emerging situation and assist the incident managers (IRTs) in mobilizing the respective line department's resources, manpower and expertise along with appropriate delegated authorities for the on-scene actions / response. UT-EOC will keep the DEOCs of the respective districts and filed incident response teams informed of the changing situation and support extended. Emergency communication, alert and warning system, decision

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support system (DSS), Integrated Operational Forecasting System (IOFS), Disaster Risk Date Base (DRDB), Emergency Support Function (ESF), Management Information System (MIS) and resources management system are few of the critical components inbuilt into UT- EOC infrastructures, The UT-EOC is also Integrated with Emergency Response Support System (ERSS-Dial 112), to respond to distress/emergency calls from people 24*7. The Emergency Operations Center (EOC) serves a critical role in every phase of emergency management, from being the hub for all coordination during an incident to facilitating and directing recovery/clean-up. However, the EOC does not manage an incident — it coordinates.

Table below provides a more detailed overview of the roles and responsibilities of the positions in the EOC

EOC Position	Roles and Responsibilities
Incident Commander	• Overall management of the incident • Manages response by coordinating all members of the EOC, EPG and field units • Assesses incident priorities • Assesses resources needs and orders • Coordinates with outside agencies • Approves demobilisation of resources • Designates a leader for each of the EOC sections • Facilitates the transition from the response phase of the emergency into the recovery phase • Conducts post-incident analysis meeting and coordinates after-action reports
EOC Manager / Management Section	• Responsible for facilitating the overall functioning of the EOC. • Assists and serves as an advisor to the emergency director and EOC staff as needed. • Communicates between EOC and other Stakeholder agencies. • Coordinates logistics of VIP and visitor orientations and briefings • Implements all policy and laws as they relate to the incident or disaster

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	• Assists in the implementation of policy strategies developed to mitigate the effects of the crisis or disaster • Establishes a priority list of issues that reference specific crisis and/or disaster situations • Approves all communications initiatives and emergency directions. • Acts as the coordinator for district EOCs at state/UT level.
Safety Officer	• Monitors and assesses hazardous and unsafe situations for staff that might arise during incident response • Provides a safety briefing and enforces safety protocol • Ensures safety concerns and protocols are incorporated into incident Action plans • Needs to be familiar with possible hazards and following safety policy
Operations Section	• Coordinates on-scene tactical operations and organizes tactical operations structures, depending on the incident, such as separate response groups or branches • Collects information from on-scene tactical operations and regularly keeps EOC Team updated with status, actions and progress of operations • Identifies additional incident response resource needs, such as more response staff or equipment • Coordinates with and notifies outside agencies/stakeholders providing tactical support, such as UT Police and Airforce enforcement, Army and fire and emergency services etc.
Planning Section	• Develops Emergency Operations

	Canter Incident Action Plan (EOCIAP). • Conducts damage assessments and develops specialized technical assessments of the event if necessary • Develops incident response schedule, such as operational periods or shifts • Plans for resource needs in upcoming operation periods or shifts • Plans for eventual demobilization or de-escalation of incident response • Plans for short and long-term incident recovery • Collects, develops and maintains incident planning documentation as it relates to: o situation crisis o communications o action planning o mapping
Logistics Section	• Provides equipment and logistical support, such as helping secure a location for the EOC, and provide necessary communications and information technology equipment • Helps identify resource needs, such as additional personnel, equipment, transportation and housing/shelter and contacts vendors • Collects, organizes and prioritizes requests for additional resources • Maintains and organizes communications equipment • Coordinates with finance/administration section to ensure payment for resources • Responsible for coordination of food for EOC Team and other identified response personnel

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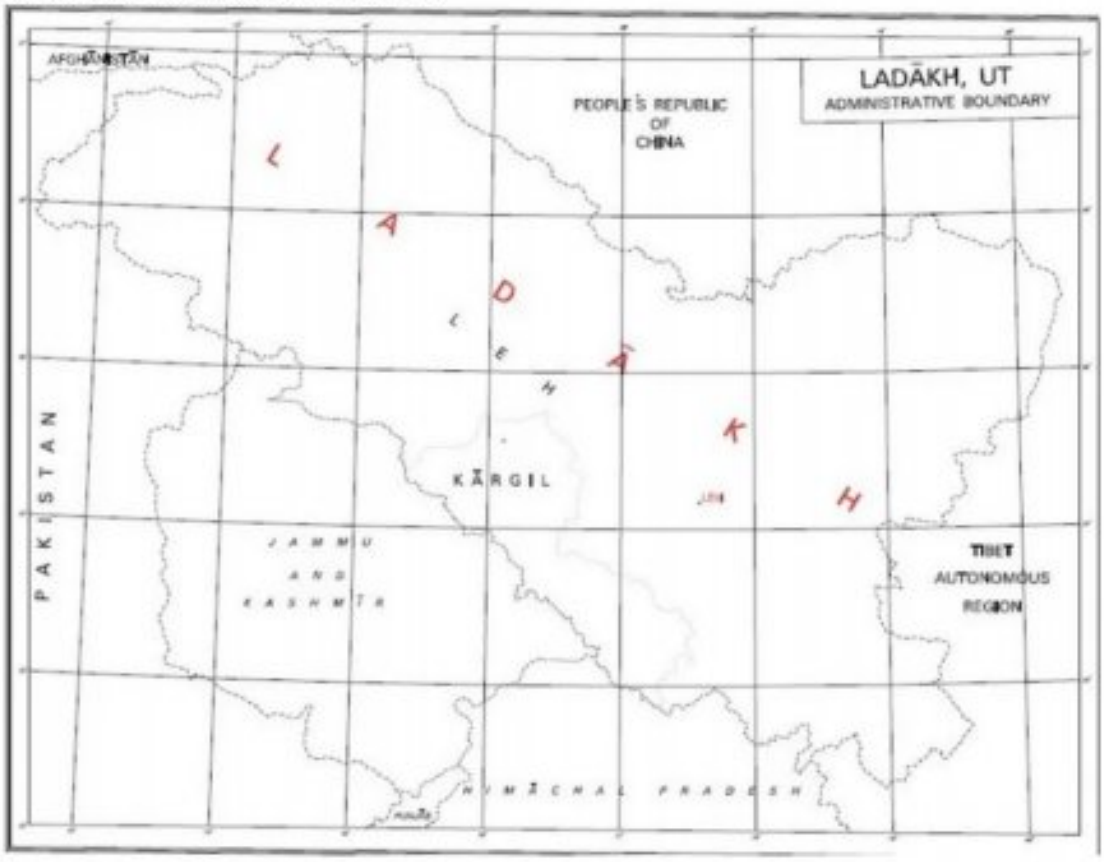
CHAPTER 2 Hazards, Risk and Vulnerability Profile

The Union of Ladakh is very distinct from the rest of the country with respect to topography, climate, economy, social setting and strategic location. The state is a multi-hazard prone region with natural disasters like earthquakes, floods, landslides, avalanches, high velocity winds, snow storms, besides manmade disasters including road accidents and fires etc. occurring in various parts of the UT.

State Profile - Social, Economic and Demographic:

Ladakh became a Union Territory on 31st October 2019. The Union Territory of Ladakh comprises two districts namely Leh and Kargil. It is renowned for its remote mountain beauty and distinct culture. The Indian-administered union territory of Ladakh

Coordinates:34°10′12″N77°34′48″E.



Ladakh is bordered by Tibet to the east, the state of Himachal Pradesh to the south, Jammu and Kashmir and Baltistan to the west, and the southwest corner of Xinjiang across the Karakoram Pass in the far north. The largest town in Ladakh is Leh, **followed by** Kargil, **each of which**

headquarters a district. The Leh district contains the Indus, Shyok, and Nubra **river valleys. The Kargil district contains the** Suru, Dras, and Zanskar river **valleys.** Ladakh is one of the most sparsely populated regions in India. The population of **Ladakh** according to the survey conducted by the Government of India in 2011 is 2.90 lakhs. The population of **Ladakh** is uniformly divided between Muslims and Buddhists, with a few hundred Christians as well. The biggest ethnic group in **Ladakh** is Buddhist, accounting for 77.30% of the population, followed by Muslims with 13.78% and Hindus with 8.16%. **The district wise breakup of topography, demography and socio-economic profile of Ladakh is given below:**

District Kargil-Topography, Demography & socio-economic Profile:

Kargil, portion of the western Ladakh union territory, northwestern India, formerly part of northwestern Jammu and Kashmir state. The sector, centered on the town of Kargil, lies in the Zaskar Range of the Himalayas. Kargil town, located roughly equidistant between Srinagar (southwest) and Leh (southeast), is considered the gateway to Ladakh. Kargil's landscape is mountainous, rugged, and high, the minimum elevation being some 8,000 feet (2,440 meters). This region is separated from the rest of the States by high mountains which are crossed through passes at various points. The lowest pass to Ladakh is Zojila which is at 11,500'. It has an area of 14086 Sq. Km. It is situated between 30-to-35-degree North latitude and 75-to-77-degree East West longitude. It is surrounded by Baramulla, Srinagar and Doda Districts of Jammu & Kashmir UT in the South-West, Leh District in the East, Himachal Pradesh in the South and Pakistan in the North-West.

The district is divided into four high level natural Valleys namely the Suru Valley, the Drass Valley, the Indus Valley and the Upper Sindh Valley of Kanji Nallah Valley. Zojila and Fotulla passes situated at the height of 3567 and 4192 meters above the sea level are called gateways for Kashmir Valley and Leh District for entry in Kargil District. High peaks of Namikala and Penzila are called the sky pillars of the district. The District Headquarter is situated at a distance of 205 Kms from Srinagar and 230 Kms. from Leh. Kargil district comprises of Kargil town and 127 inhabited villages and 2 uninhabited villages.

The climate is cold and dry, with scanty precipitation that falls mainly as snow in winter. One locality, Dras (Drass), is reputed to be one of the world's coldest permanently inhabited places, with winter temperatures falling to as low as −40 °F (−40 °C) or colder. Vegetation, mainly grasses and shrubs, is largely confined to river valleys at lower elevations, as the higher places are rocky and largely barren. Most of the residents of Kargil are of Balti origin, and the large majority are Muslims. Because of its close proximity to the line of control, Kargil has often been the site of border conflicts between India and Pakistan.

Demography:

Kargil district encompasses the majority of the Zanskar Range and spans across the length of the Union Territory of Ladakh. The river Suru transverses the district, originating from the Panzella glacier. The Chutak power project is built on the Suru River. District Kargil is extended over an area of 14036 Sq. Kms and comprises of 129 villages. As per Census-2011

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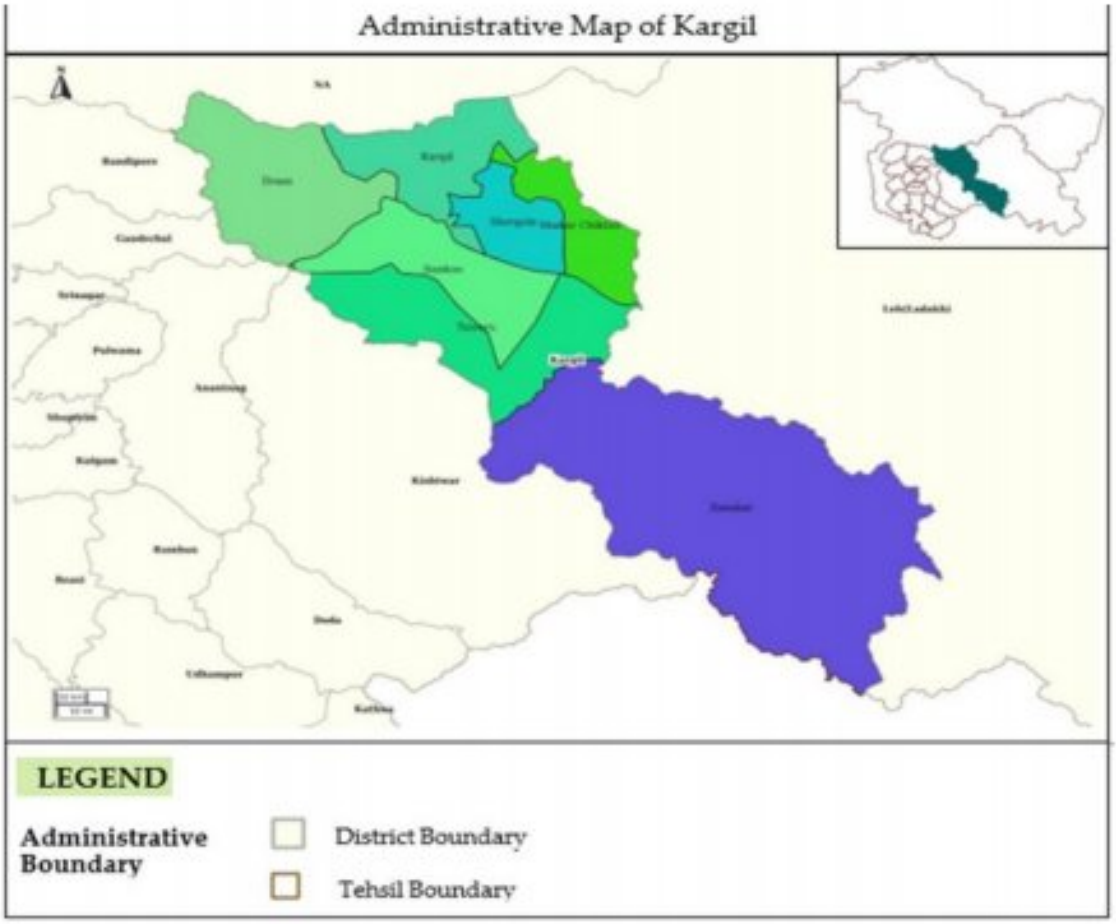
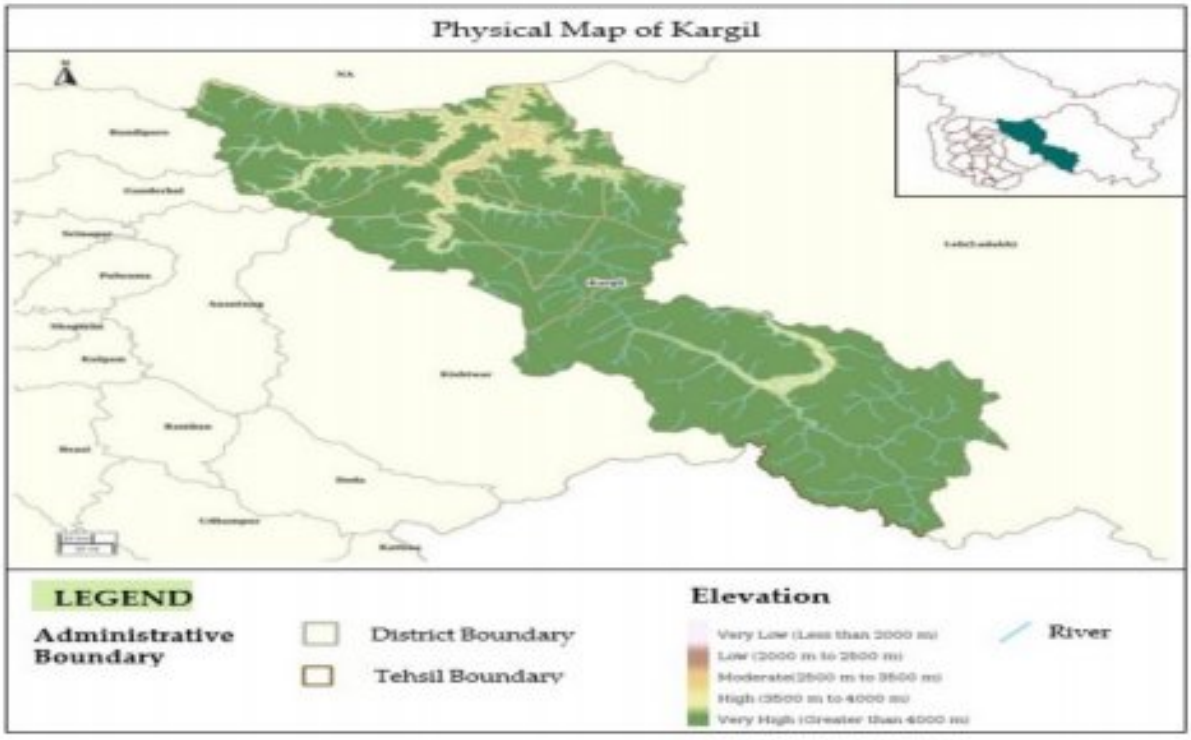
population of the district was recorded as 1,40,802 souls. There was change of 18.02 percent in the population compared to population as per 2001. In the previous census of India 2001, Kargil District recorded increase of 33.55 percent to its population compared to 1991. The biggest ethnic group is of Muslims, followed by Buddhists and others. According to Census 2011 The total Population of the district is 140802 out of this the Rural Population is 124464 & Urban Population is 16338 the decadal Growth rate is 19.67 %in Urban & 20.18% in Rural. The Sex ratio of the district is 883 per thousand males.



Heads	District Statistics
Administrative	Numbers
Number of Major Urban Centers (cities/towns)	1
Number of Villages (Census, 2011)	127

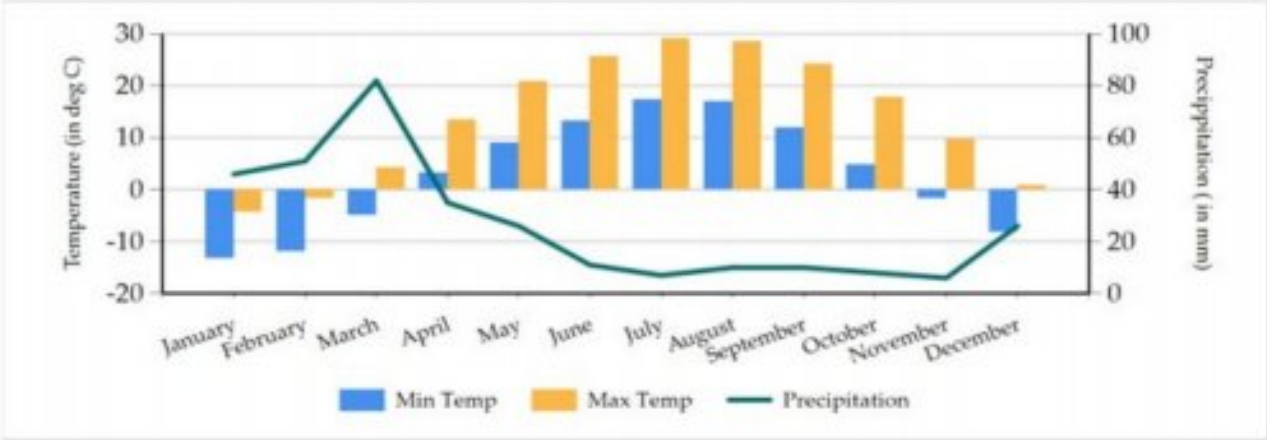
Number of Tehsils	7		
No of Subdivisions	04		
Demographic	Numbers		
Total Population (2011) & (Projected 2018)	1,40,802	1,62,424	
Number Households (2011) & (Projected 2018)	18,338	19,378	
Total Population Age < 6 years & > 60 Years (Projected 2018)	22,996	9,525	
Sex Ratio (2011) & (Projected 2018)	810	810	
Literacy Rate	Percent		
Average, Male, & Female	69.73%	83.16%	56.30%
District Asset Valuation	Value in INR Crore		
Buildings	8,175.00		
Critical Facilities	1019		

Summary statistics: District demographic assets



District physical and landuse statistics

Average Rainfall and Temperature Pattern-Kargil:



key physical and weather characteristics of the district Kargil are provided in the table

Physical Characteristics	Percentage
District areas with slope more than 30 degree	17.00%
District areas with slope between 15–30-degree slope	37.00%
District areas with slope between 0–15-degree slope	46.00%
Forest cover	0.00%
Economic Sector	**Type**
Main agriculture crop	Pulses
Main horticulture crop	Apricot, Walnut
Key economic sectors	Agriculture and livestock

District Vulnerability Exposure Profile

The district Kargil is prone to multiple hazards including flash flood, landslides, Avalanches, Cold waves, Cloudbursts, Drought and GLOF. The district lies in seismic zone IV and is susceptible to earthquake. Several earthquake shocks have been experienced in the district but there is no record of significant damage. Reasons for the losses, if any, are attributed to insufficient public awareness, lack or inadequacy in preparedness, lack of early warning system, lack of coordination among inter-government agencies, inadequate financial resources, low quality of human resource in terms of skill in mitigation of natural disasters, and ineffective dissemination of knowledge and skills to the vulnerable population groups.

Kargil district, located in the Union Territory of Ladakh in northern India, is known for its unique geographical and climatic conditions. While it is not prone to all types of disasters, it does face specific vulnerabilities and challenges. Here are some key aspects of the disaster vulnerability of Kargil district:

1. **Landslides and Avalanches:** Kargil's mountainous terrain makes it susceptible to landslides and avalanches, especially during the winter months. Heavy snowfall and

steep slopes contribute to these risks, which can disrupt transportation and cause property damage.

2. **Harsh Winter Conditions:** Kargil experiences extremely cold winters, with temperatures often dropping well below freezing. These conditions can pose risks to human health and infrastructure, especially if there are power outages or fuel shortages.
3. **Earthquakes:** The region falls under a seismically active zone, and earthquakes can occur. While major earthquakes are relatively rare, they can still pose significant risks to buildings and infrastructure in the area.
4. **Limited Infrastructure:** Kargil's remote location and challenging terrain make it difficult to build and maintain robust infrastructure. This limitation can hamper disaster response efforts and access to healthcare and other essential services during emergencies.
5. **Flash Floods:** Although not as common as in some other parts of the region, Kargil has experienced flash floods due to sudden and heavy rainfall. These floods can result in damage to property and infrastructure.
6. **Glacial Lake Outburst Floods (GLOFs):** The melting of glaciers in the Himalayan region, including parts of Ladakh, can lead to the formation of glacial lakes. If these lakes burst, they can trigger catastrophic floods downstream. While Kargil may not be as prone to GLOFs as other areas, the risk is still present.
7. **Isolation:** During the winter months, Kargil can become isolated from the rest of India due to heavy snowfall, avalanches, and road closures. This isolation can affect the availability of essential supplies and emergency response.
8. **Border Tensions:** Kargil shares a sensitive border with Pakistan, and border tensions can sometimes escalate into military conflicts. These conflicts can have devastating consequences for the local population.

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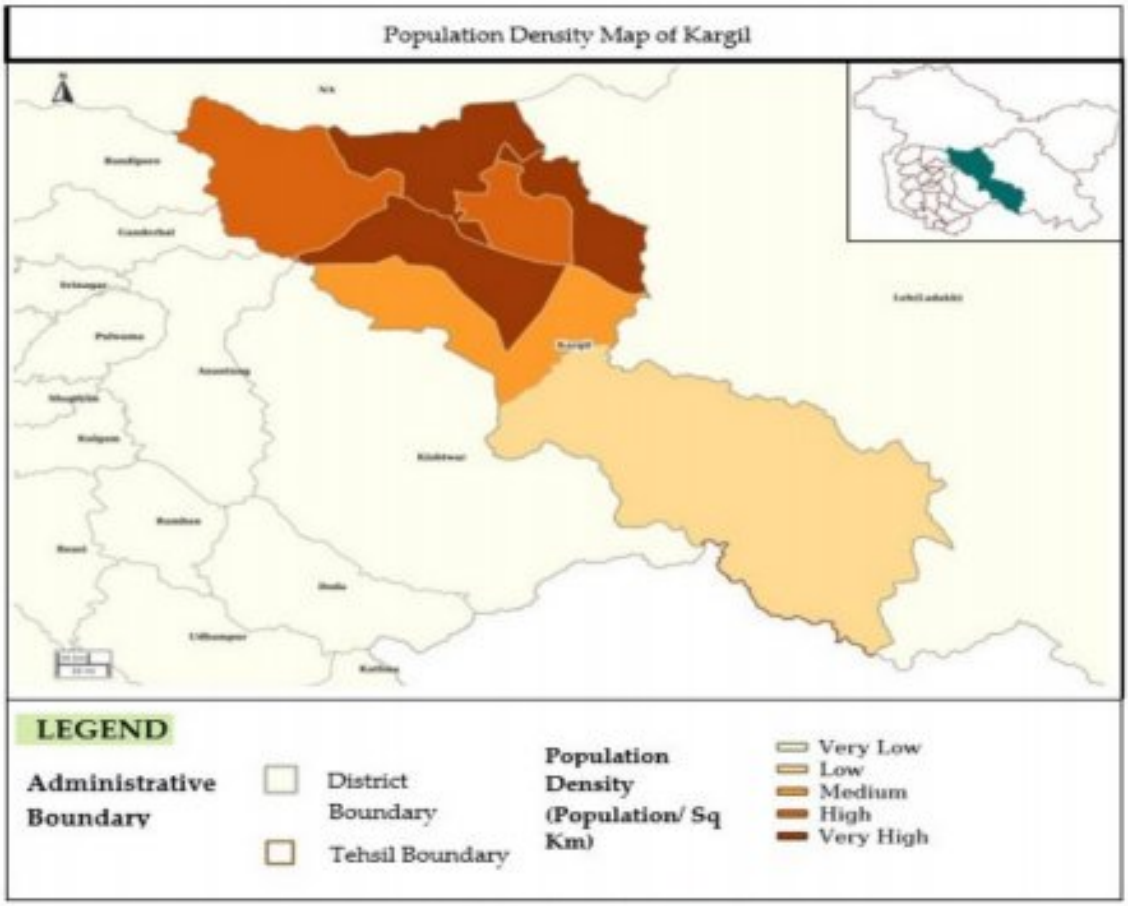
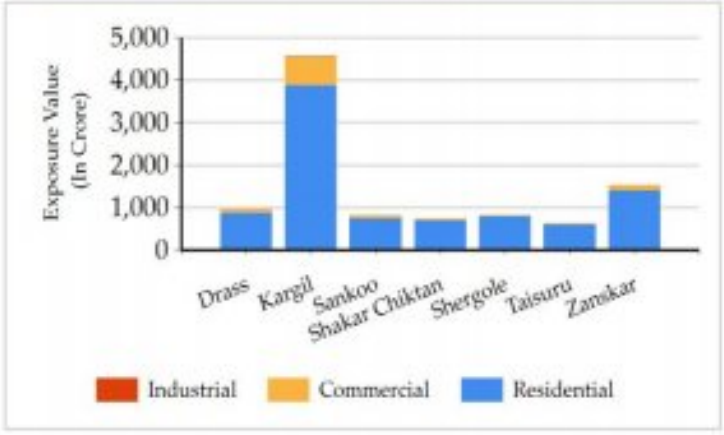
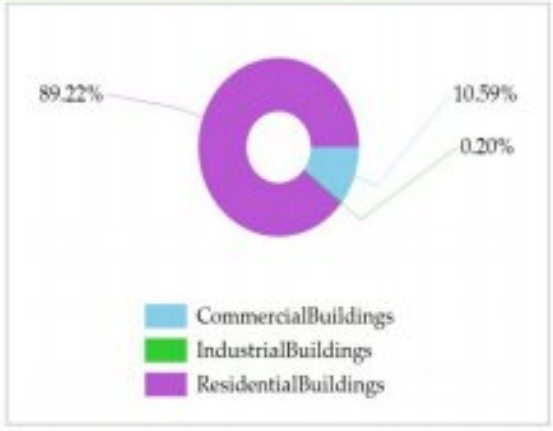


Population Density Map of Kargil

District & Tehsil level valuation of residential, commercial and industrial building assets

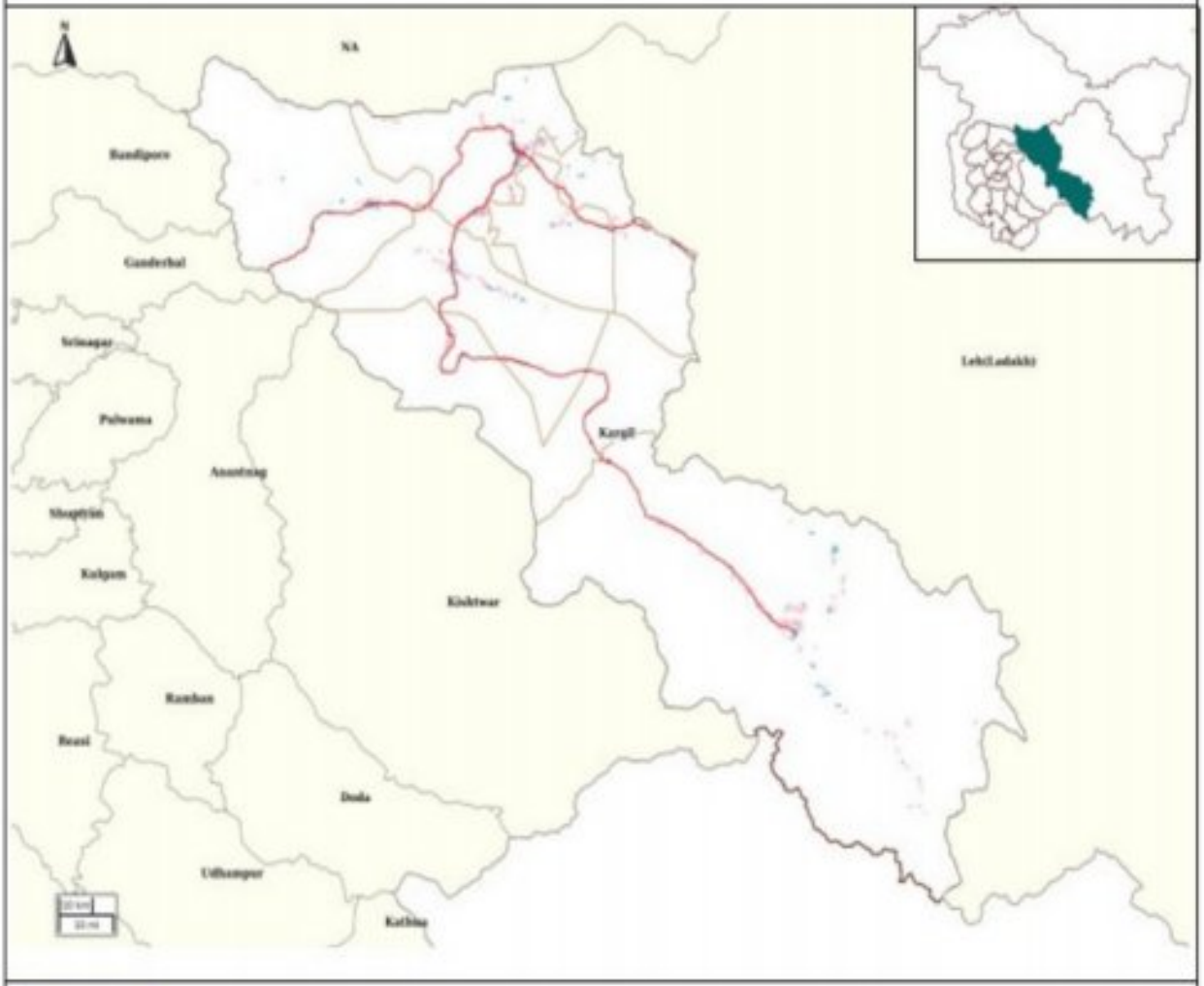


Tehsil level valuation



District level valuation

Distribution of Residential, Commercial and Industrial Built-up



LEGEND

Administrative Boundary

- District Boundary
- Tehsil Boundary

Built-up

- Residential
- Commercial
- Industrial

- National Highway

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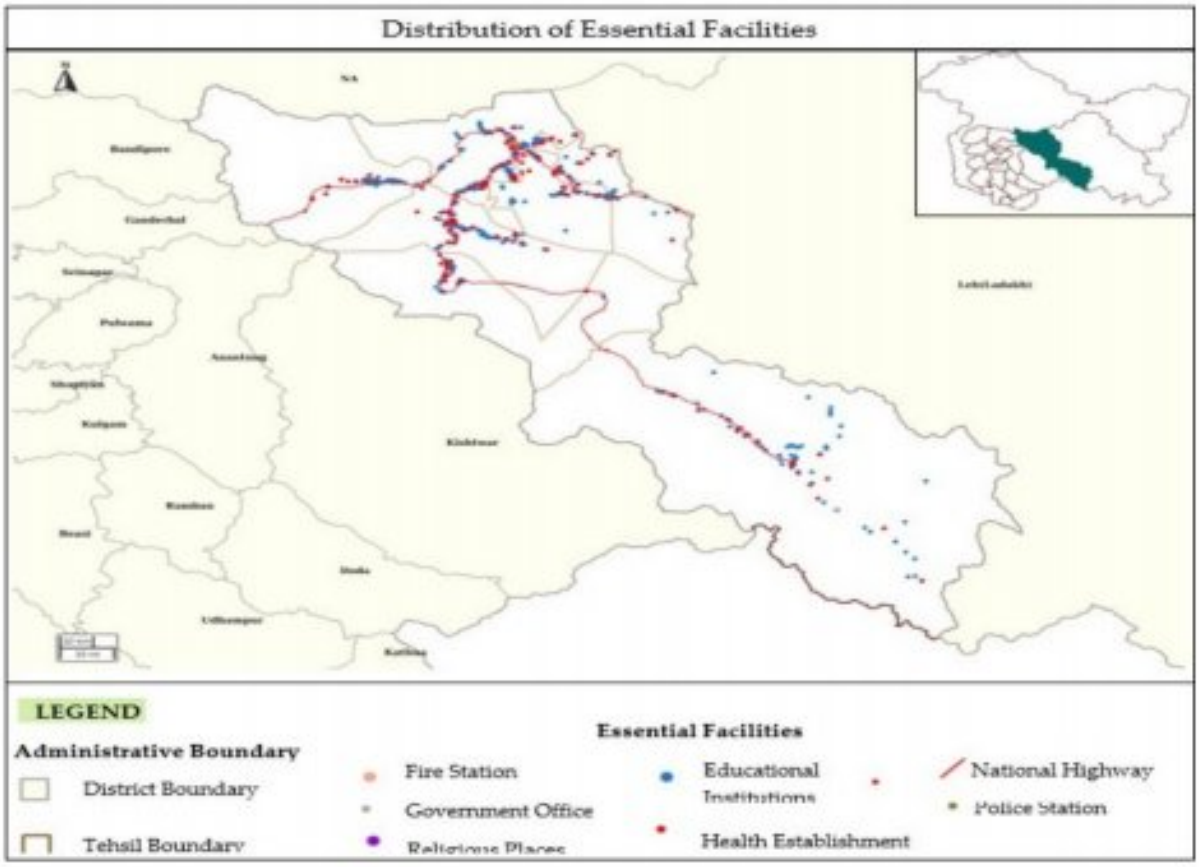
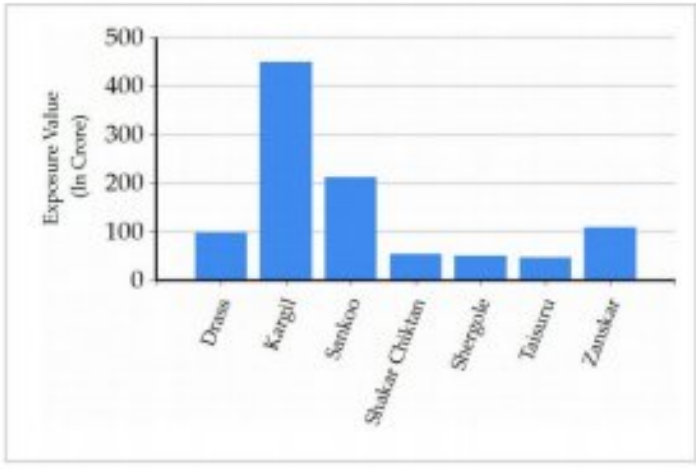
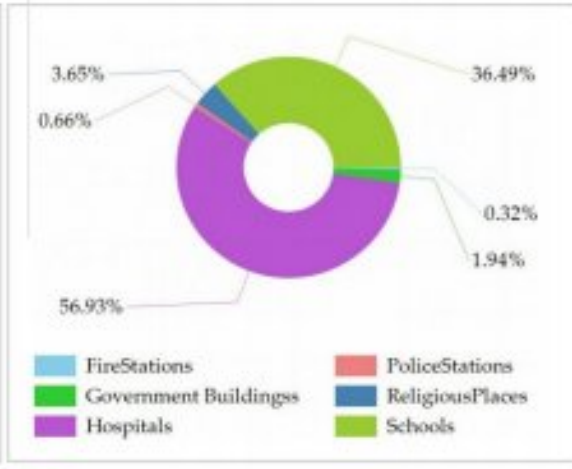
Distribution Essential Facilities Kargil:



Tehsil and District Level Valuation Essential Facilities:

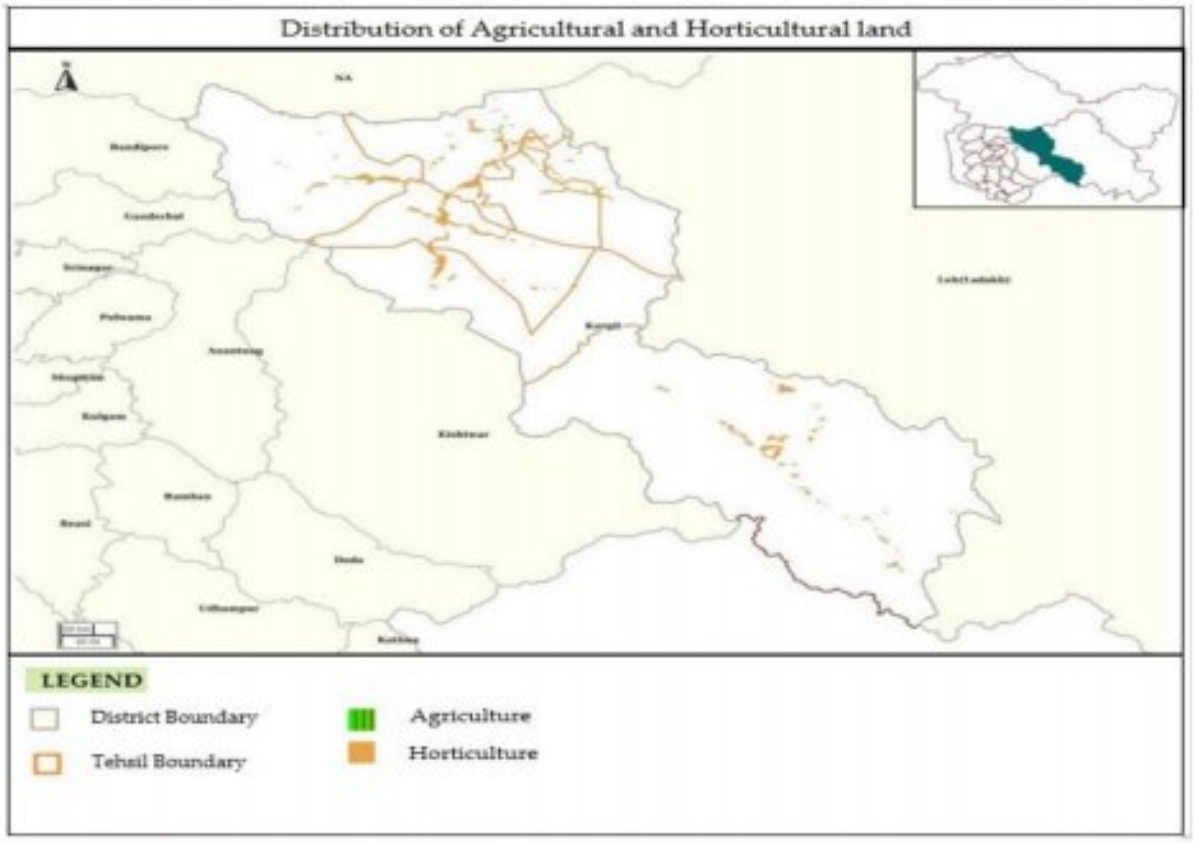


Tehsil level valuation

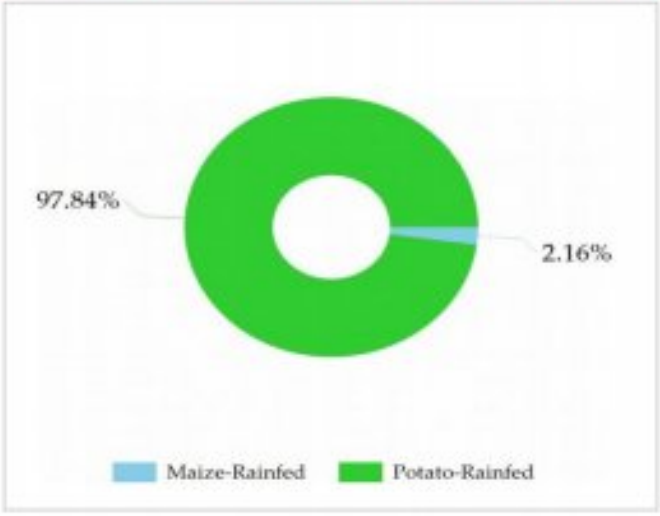


District level Valuation

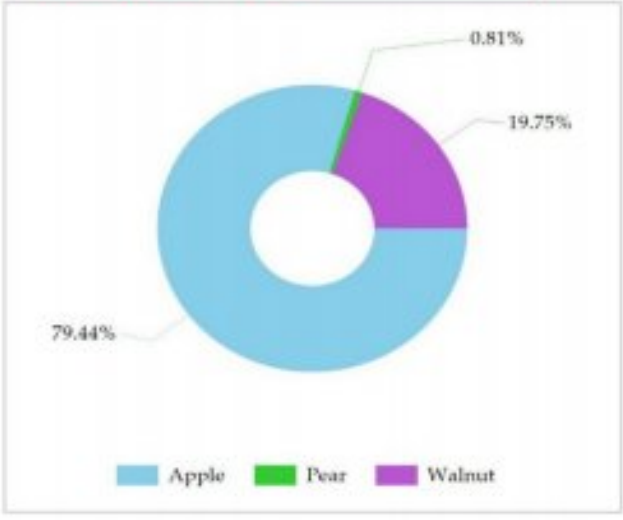
Distribution of Agriculture and Horticulture Land



Distribution of Agriculture crop and Horticulture crop-district Kargil

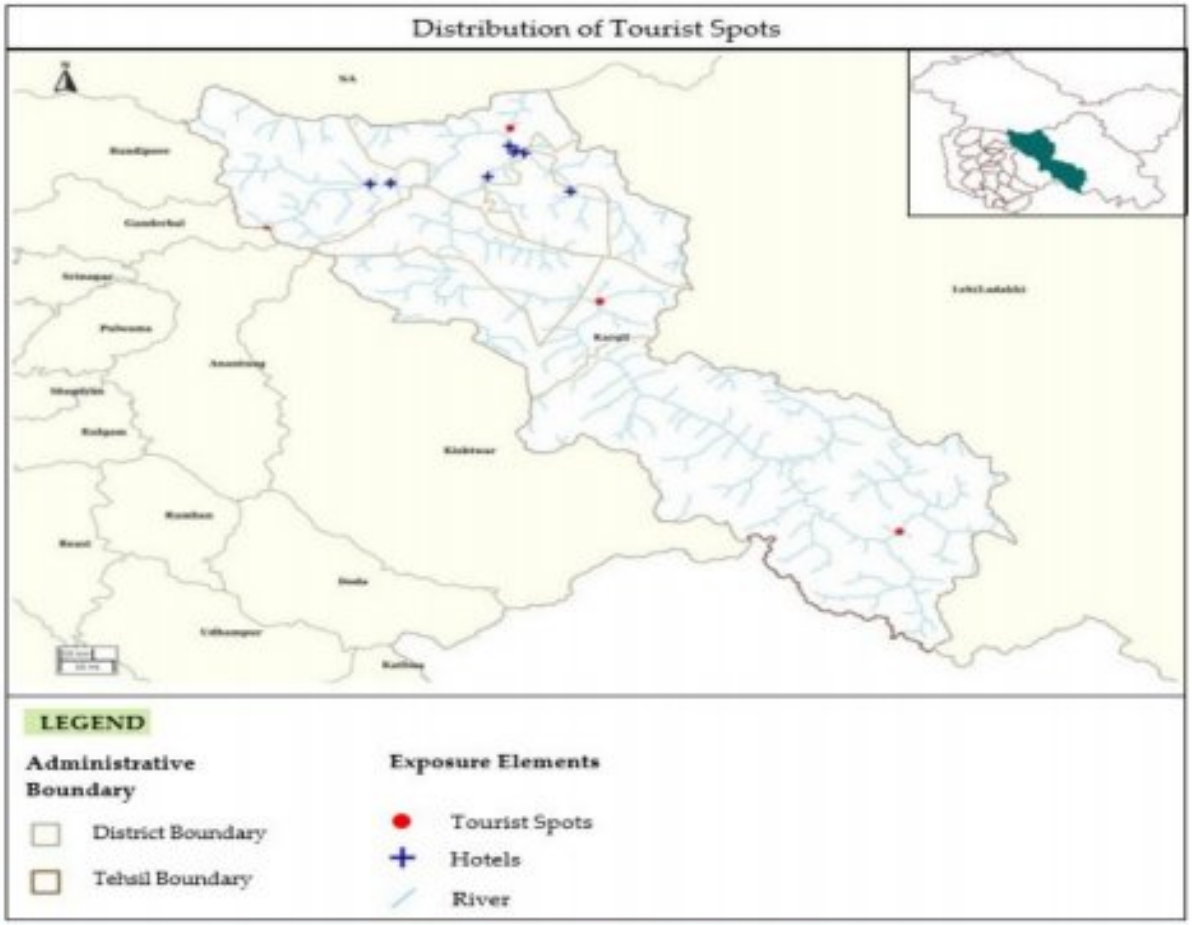


Agriculture crop Distribution



Horticulture crop Distribution

Distribution of Tourist Spots in Kargil District



District Exposure Count and Asset Valuation:

Tehsil Level Built up Exposure Count

Tehsil Name	Residential Buildings	Commercial Buildings	Industrial Buildings
Zanskar	4,190	171	-
Drass	3,007	272	-
Taisuru	1,859	45	-
Sankoo	2,666	191	-
Kargil	11,859	640	10
Shakar Chiktan	2,354	109	-
Shergole	2,018	73	-

Tehsil Level Built-up Asset Valuation (INR Crore)			
Tehsil Name	Residential Buildings	Commercial Buildings	Industrial Buildings
Kargil	3,873.13	667.79	19.64
Zanskar	1,407.20	121.54	-
Drass	870.70	87.74	-
Taisuru	604.61	25.38	-
Sankoo	739.20	74.76	-
Shakar Chiktan	701.33	44.70	-
Shergole	784.62	43.73	-

Tehsil Level Critical Facilities Exposure Count-District Kargil

Tehsil Level Critical Facilities Exposure Count						
Tehsil Name	**Fire Stations**	**Police Stations**	**Schools**	**Hospitals**	**Admin HQs**	**Religious Places**
Zanskar	-	-	68	18	1	1
Drass	-	3	54	10	-	9
Taisuru	-	-	46	9	1	1
Sankoo	-	1	86	24	-	17
Kargil	2	7	178	33	16	29
Shakar Chiktan	-	-	40	14	-	4
Shergole	-	2	46	10	-	7

Tehsil Level Critical Facilities Asset Valuation (INR Crore)						
Tehsil Name	Fire Stations	Police Stations	Schools	Hospitals	Admin HQs	Religious Places
Kargil	3.26	3.52	162.10	242.70	19.13	18.85
Drass	-	1.70	32.14	61.15	-	3.61
Sankoo	-	0.31	50.57	151.52	-	9.45
Shergole	-	1.17	29.15	17.47	-	2.50
Zanskar	-	-	44.95	62.52	0.16	0.81

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Taisuru	-	-	28.73	16.65	0.52	0.50
Shakar Chiktan	-	-	24.21	28.12	-	1.51

Addressing The Vulnerabilities:

To address these vulnerabilities, disaster preparedness and risk reduction measures are essential. This includes improving infrastructure resilience, early warning systems, and community preparedness. Additionally, efforts to address climate change and its impacts on the region, such as glacier retreat, are crucial for reducing long-term disaster risks in Kargil district.

Topography, Demography & Socio-economic Profile of District Leh

Leh district of Union Territory of Ladakh is one of the biggest districts in India in terms of area, covering an area of 45,110 sq. km. The geographical Coordinates of Leh, are Latitude: 34.1650° N or 34° 09' 54.14" N Longitude: 77.5840° E or 77° 35' 2.47" E. It is also one of the remotest districts in India. It has got land route connectivity only during summer whereas during winter because of heavy snow fall in Zozilla Pass and Rohtang pass, The district is one of the highest regions of the world the altitude varying between 8,800-18,000 feet. it remains cutoff from rest of the world with only aerial route available as connectivity. Leh is the largest city and the joint capital of Ladakh, a union territory of India, the climate of Leh district is also very harsh with prolonged winter and short summer which means very short working season. The agricultural productivity is also low and it is subsistence Leh lies on the bank of the Indus River, at an elevation of about 3,500 m (11,500 ft) agriculture. Most of the materials has to come from outside the district which also makes the district very vulnerable.

Leh is connected to the rest of India by two major highways: the National Highway 1, which links it to Srinagar in the southwest, and the National Highway 3, which connects it to Manali in the south1 Both these roads are often closed due to landslides or snowfall, making Leh accessible only by air for several months of the year.

Leh gets extreme winters like it happens in cold deserts. From November to March the winter continues and the temperature reaches to -40°C. The summer months are pleasant and warm the temperature reaches up to 30 °C. The sky remains clear during summers. As Leh falls under the Himalayan Rain Shadow Area, the region experiences extremely dry weather. Leh, also known as the roof top of the world, gets extreme climatic conditions. The climatic conditions in Leh are mostly characterized by a frigid and moderate climate. In Leh there is a lot of rain even in the driest month. The annual rainfall is 474 mm | 18.7 inches. The given location is in the northern hemisphere. Summer begins here at the end of June and ends in September. The months of summer are: June, July, August, September. In October, the precipitation level plummets to a mere 19 mm | 0.7 inch. This month holds the title for being exceptionally arid. The greatest amount of precipitation occurs in August, with an average of 64 mm | 2.5 inch.

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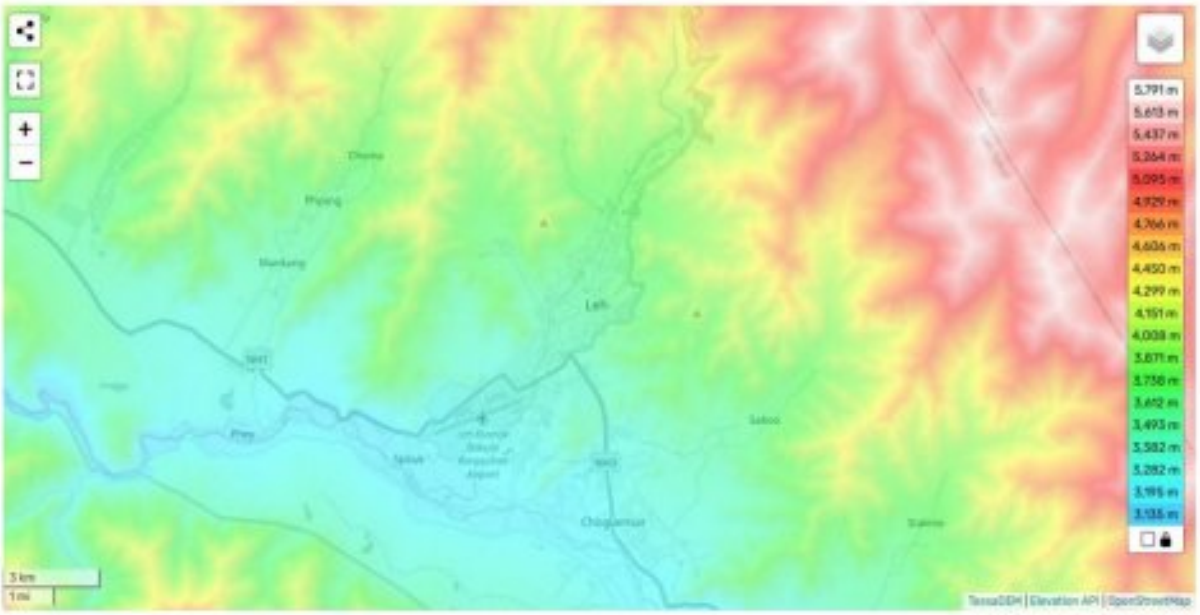
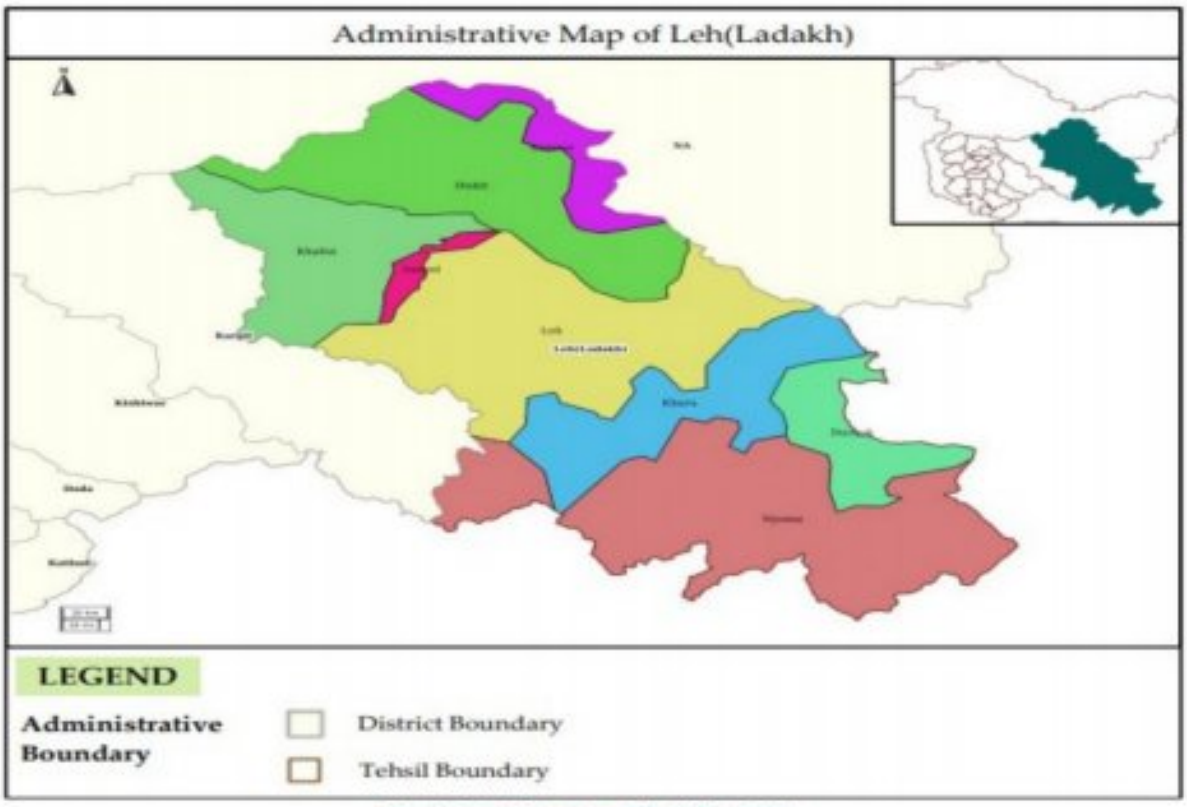


Demography Leh, District



Administrative map of Leh(Ladakh)

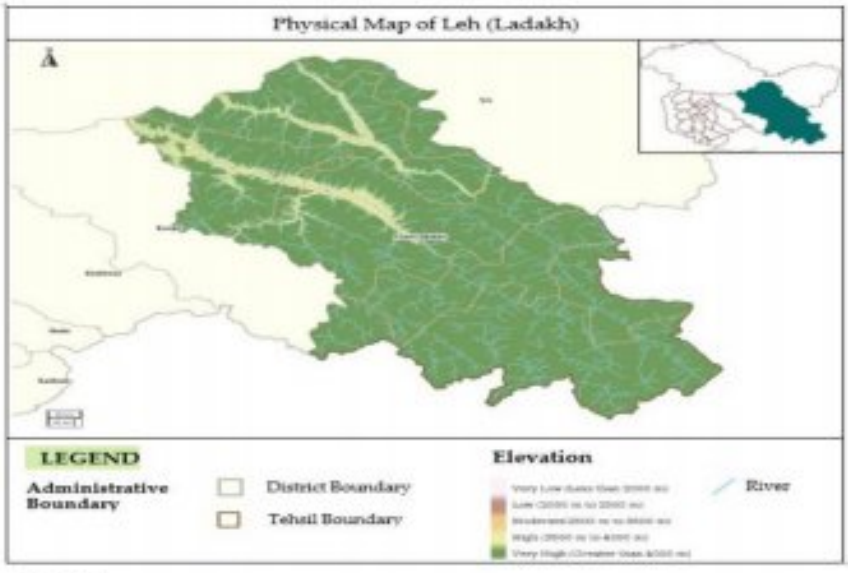
Summary statistics: District demographic assets

Heads	District Statistics

Administrative	Numbers		
Number of Major Urban Centers (cities/towns)	3		
Number of Villages (Census, 2011)	112		
Number of Tehsils	8		
Demographic	**Numbers**		
Total Population (2011) & (Projected 2018)	1,33,487	1,49,034	
Number Households (2011) & (Projected 2018)	21,909	20,560	
Total Population Age < 6 years & > 60 Years (Projected 2018)	13,412	12,283	
Sex Ratio (2011) & (Projected 2018)	690	690	
Literacy Rate	**Percent**		
Average, Male, & Female	74.94 %	86.31 %	63.57 %
District Asset Valuation	**Value in INR Crore**		
Buildings	20,643.00		
Critical Facilities	855		

District Asset Valuation	Value in INR Crore
Transport Infrastructure	10420
Utility Infrastructure	125

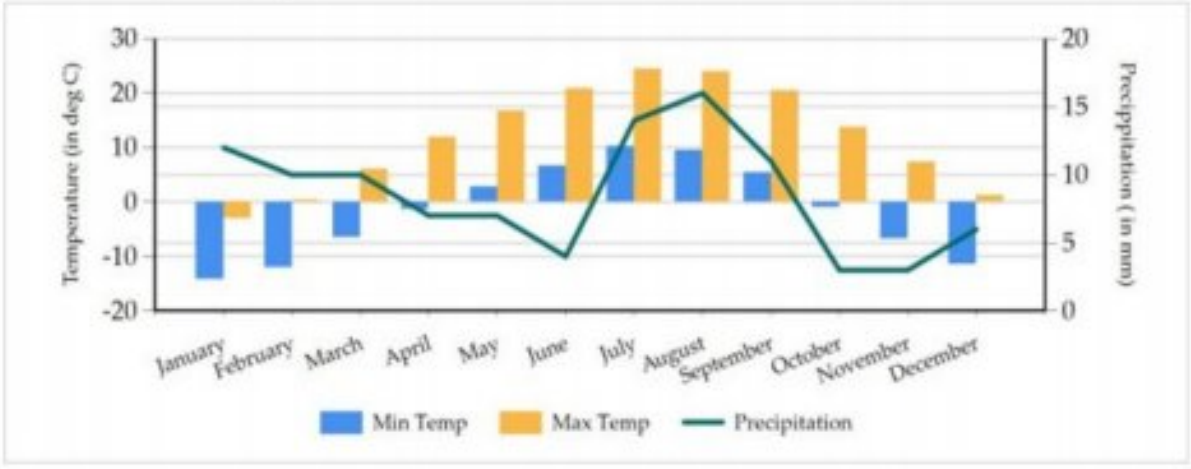
Key Physical, Economic and Weather Characteristics of District-Leh



District Land use Statistics

Heads	District Statistics
Physical Characteristics	Percentage
District areas with slope more than 30 degree	28.00%
District areas with slope between 15-30 degree slope	37.00%
District areas with slope between 0–15-degree slope	35.00%
Forest cover	0.00%
Economic Sector	Type
Main agriculture crop	Wheat
Main horticulture crop	Apricot
Key economic sectors	Tourism and Service

Weather Characteristics:



Average Rainfall and Temperature pattern

District Vulnerability Exposure Profile:

Leh District is susceptible to natural hazards like landslides, avalanches and also to urban fire. The 2010 flash flood caused heavy damage in the district, although no previously recorded history of such damage due to flooding exists. Lying in seismic zone IV, the district is prone to high seismic activity. While Leh District is known for its stunning landscapes and rich cultural heritage, it is also susceptible to various natural disasters and has certain vulnerabilities that need to be considered:

1. Earthquakes: Leh falls in a seismically active region due to its proximity to the Himalayan tectonic plate boundary. The region has experienced significant earthquakes in the past,

and the risk of future seismic activity remains. Earthquakes can result in building collapses, landslides, and infrastructure damage.

2. **Landslides**: Leh's terrain is characterized by steep slopes and mountainous areas. Heavy rainfall or snowmelt can trigger landslides, which pose a threat to infrastructure, roads, and communities.
3. **Floods**: The region experiences flash floods and glacial lake outburst floods (GLOFs) due to its proximity to glaciers. These floods can be sudden and destructive, impacting villages, roads, and agriculture.
4. **Cold Extremes**: Leh has a cold desert climate, and during the winter months, temperatures can drop significantly, leading to cold-related disasters such as frostbite, hypothermia, and avalanches.
5. **Drought**: Leh faces water scarcity issues, and prolonged periods of drought can affect agriculture and water availability for the local population.
6. **Snowstorms**: Heavy snowfall can disrupt transportation and communication links, isolating the region and affecting daily life.
7. **Glacial Retreat**: Leh is surrounded by glaciers, and the ongoing process of glacial retreat can lead to changes in the landscape, glacial lake formation, and increased GLOF risks.
8. **Tourism Vulnerability**: Leh is a popular tourist destination, and an influx of tourists can strain local resources and infrastructure, making it more vulnerable to disasters like traffic accidents or health emergencies.
9. **Limited Healthcare Facilities**: The region has limited healthcare facilities, and during a disaster, the capacity to handle casualties and emergencies may be inadequate.

Distribution of Residential, Commercial and Industrial Built-up:

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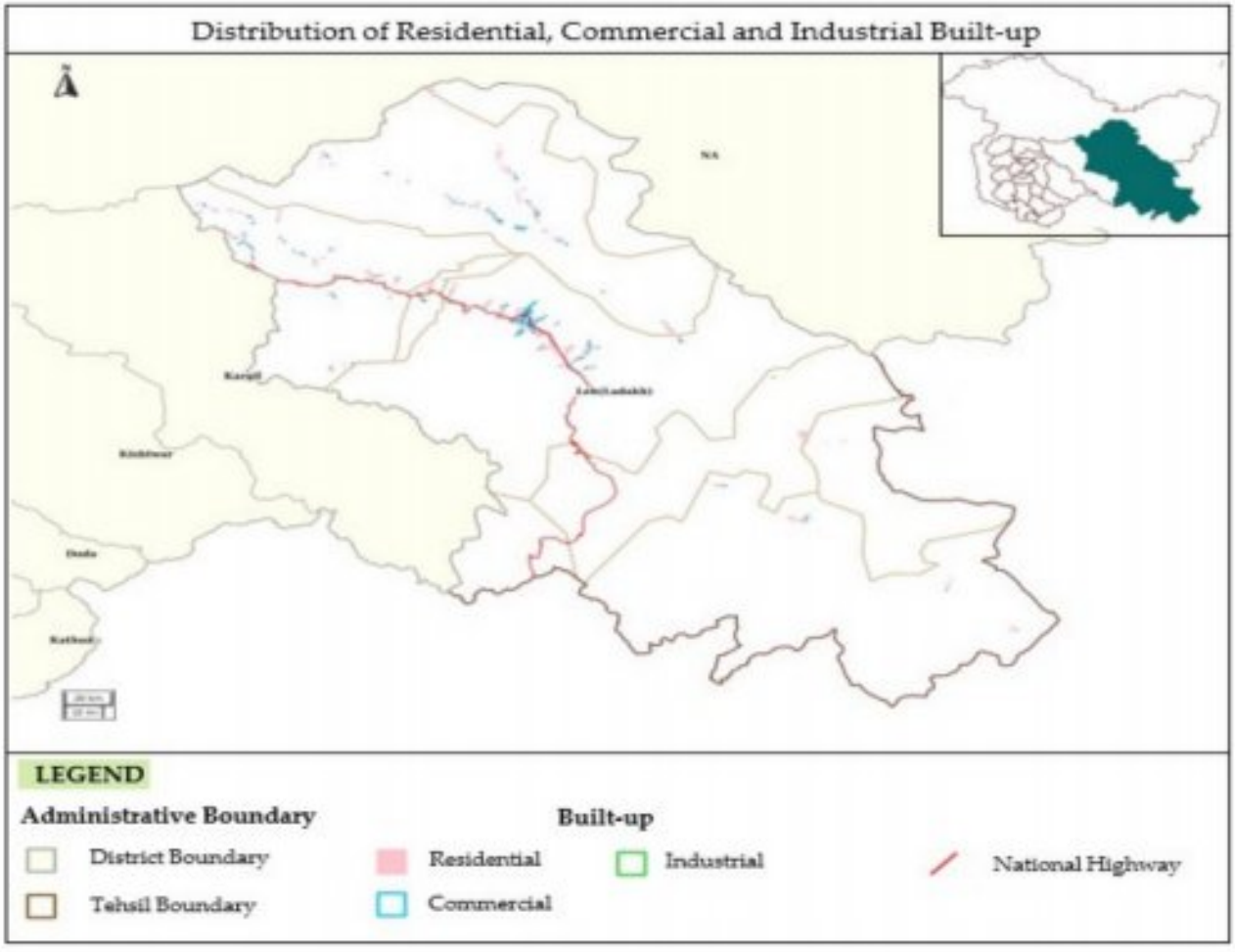
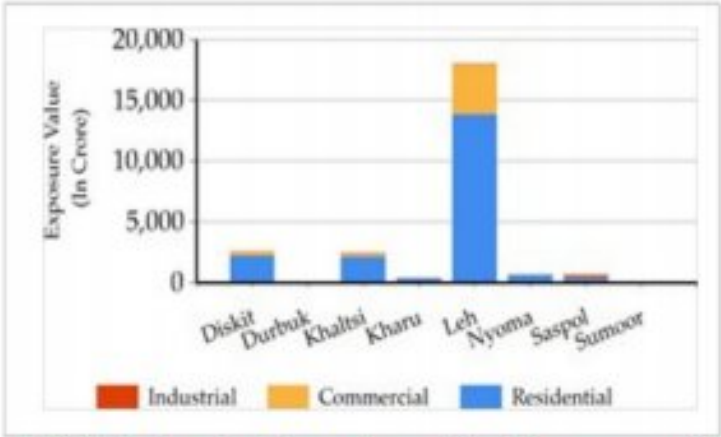
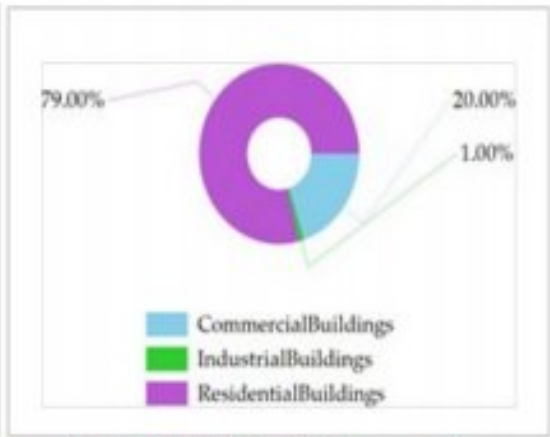


District Asset Valuation in Crores:

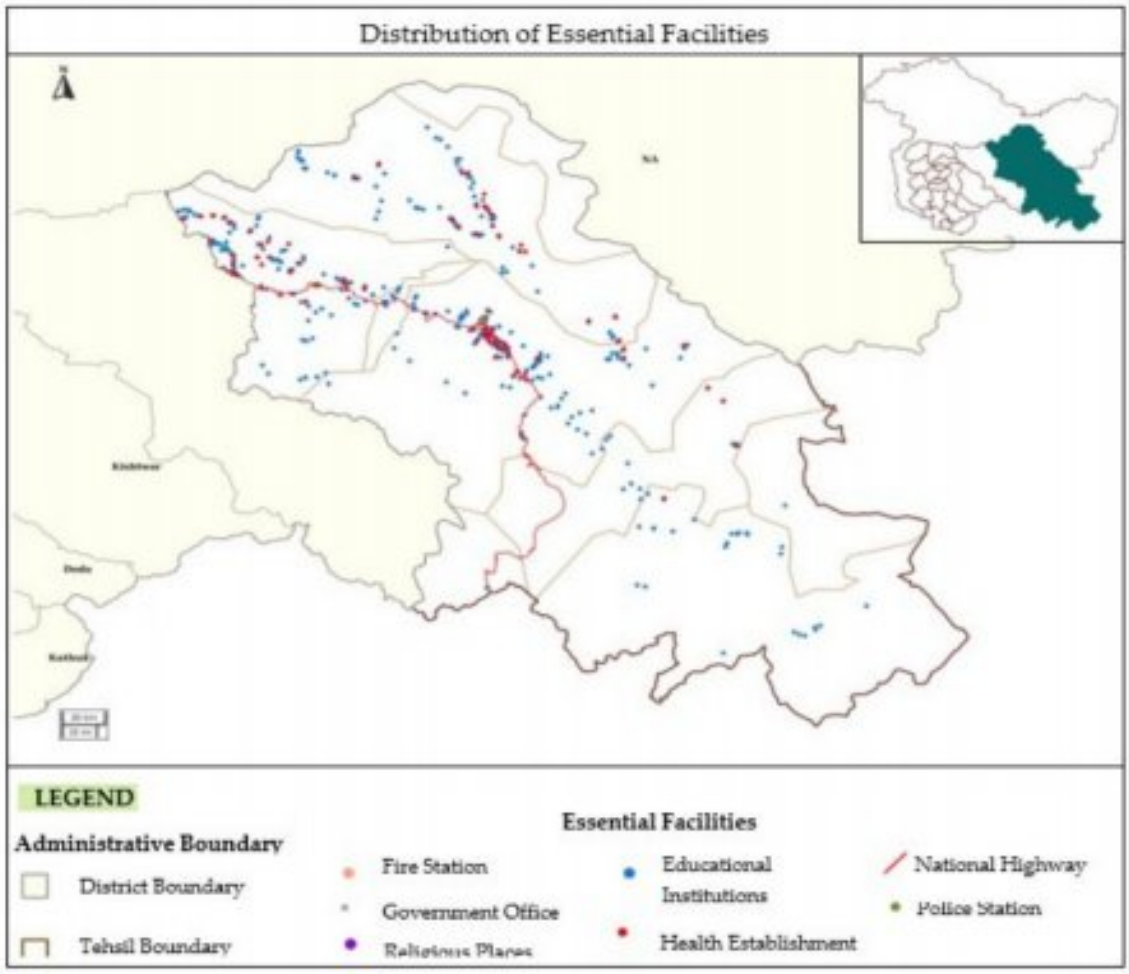




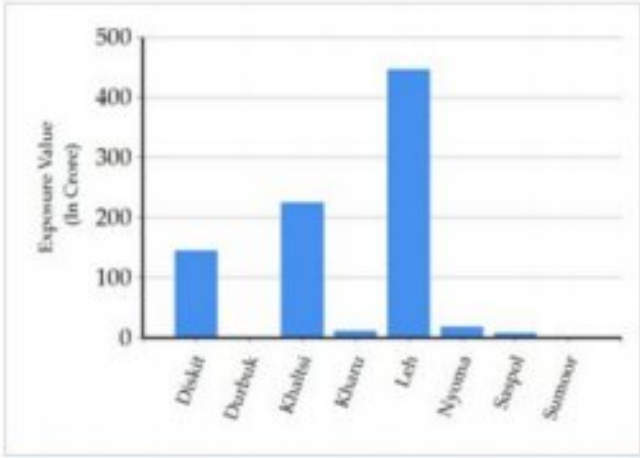
Tehsil level valuation of residential, commercial and industrial building assets

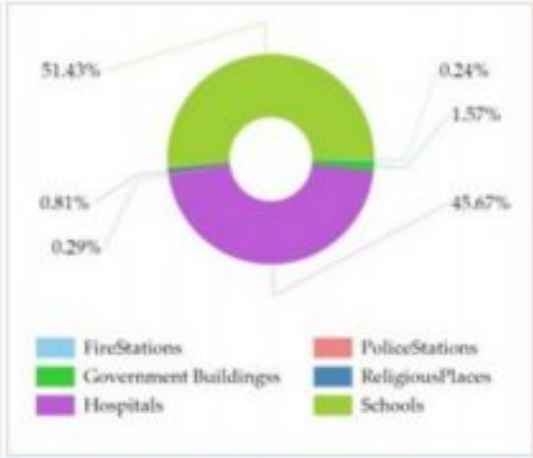
District Level Asset Valuation

Distribution of Essential Facilities Leh:



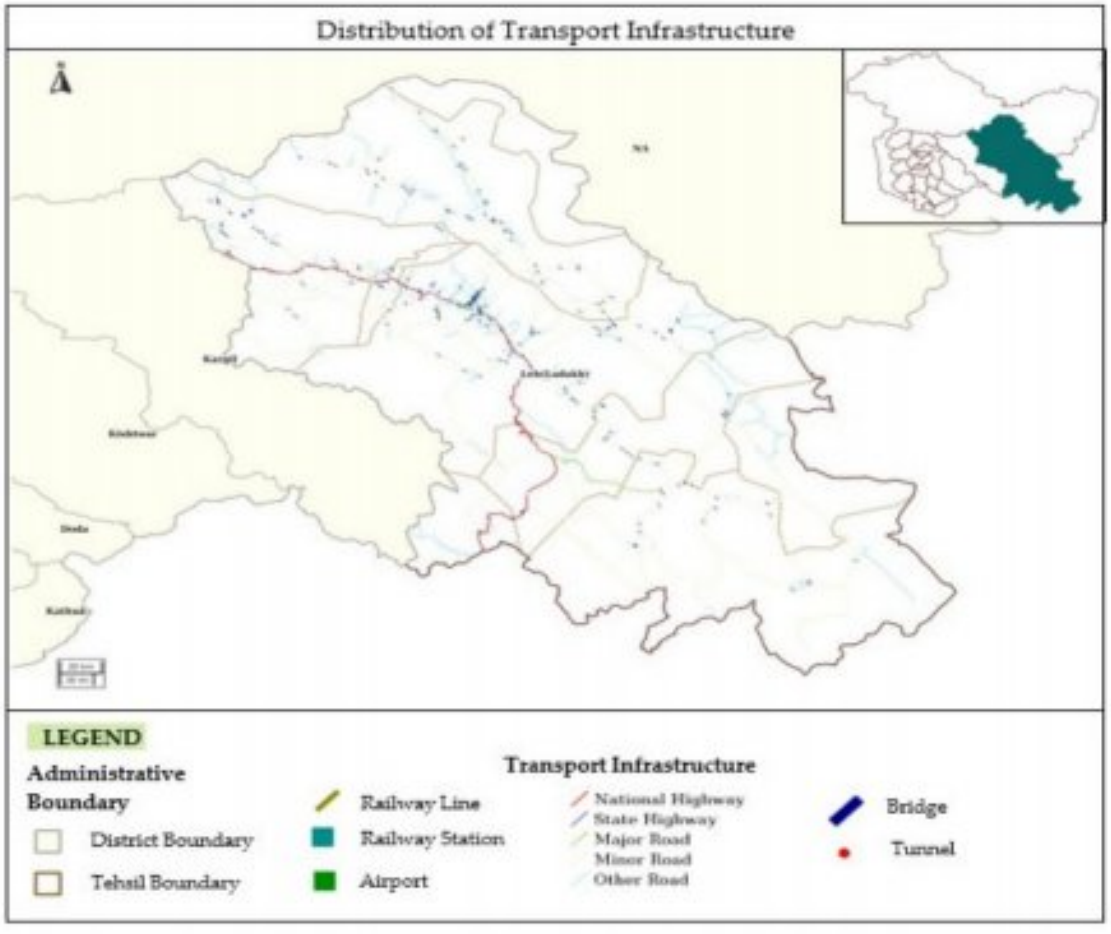
District and Tehsil Level Valuation of Essential Facilities:



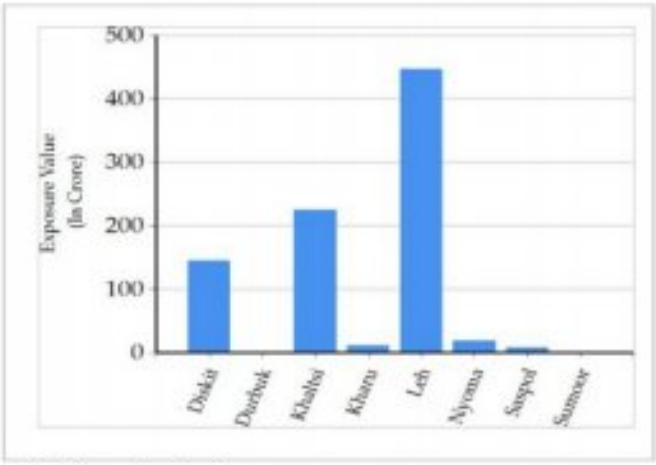


Tehsil level valuation of essential facilities *District level essential facilities valuation*

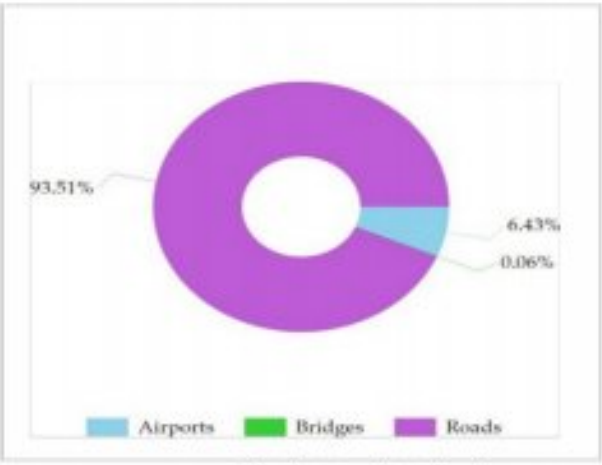
Distribution of Transport Infrastructure:



District and Tehsil Level Valuation of Infrastructure:

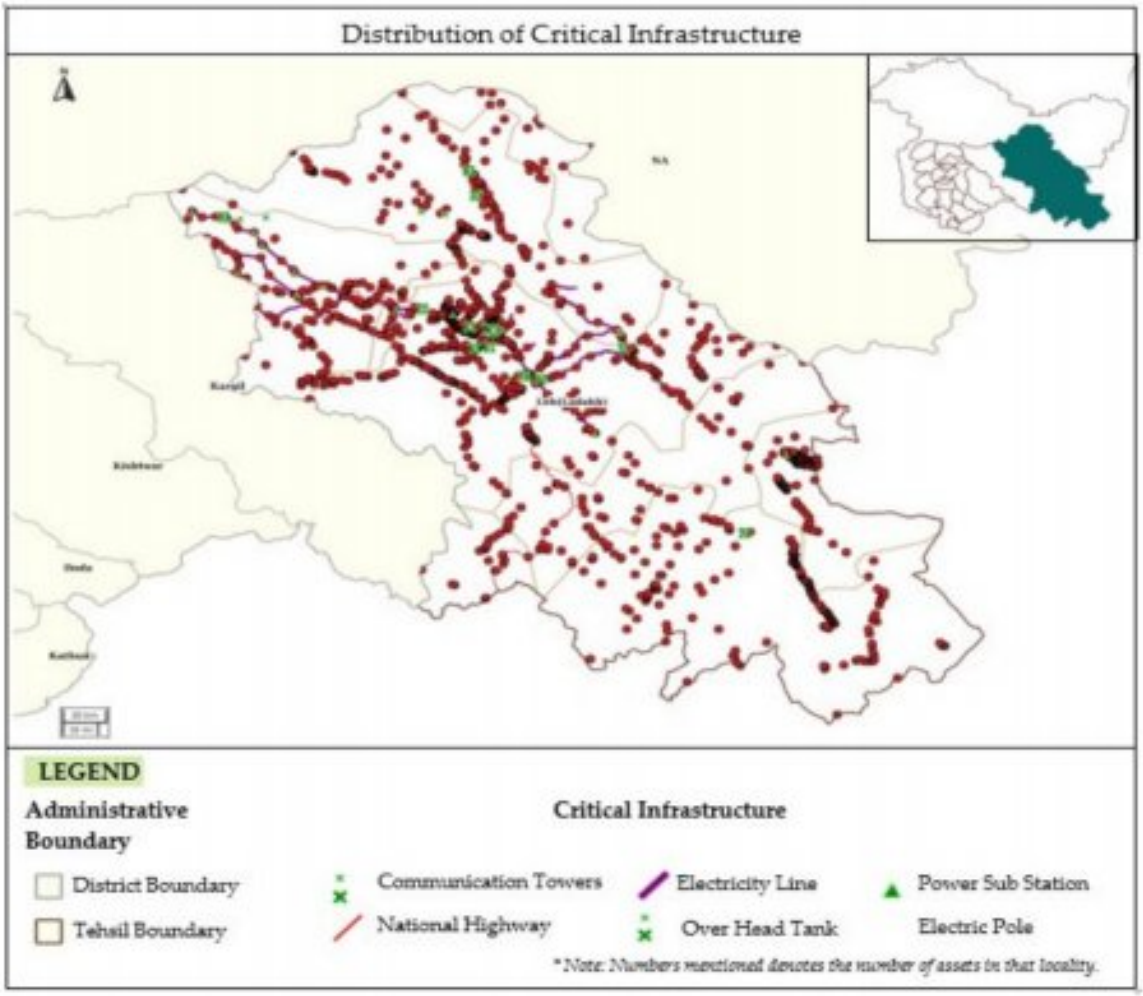


Tehsil level valuation

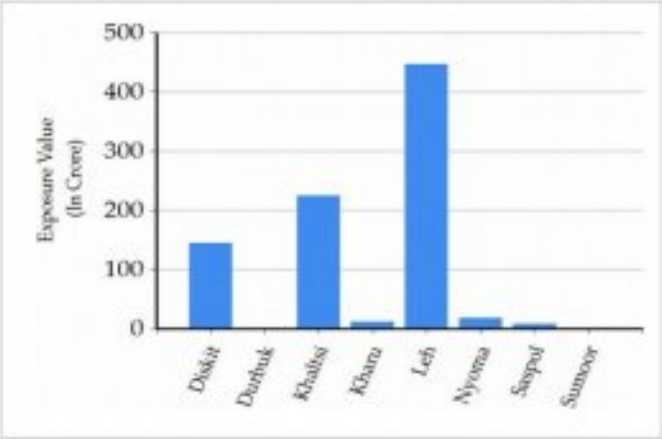


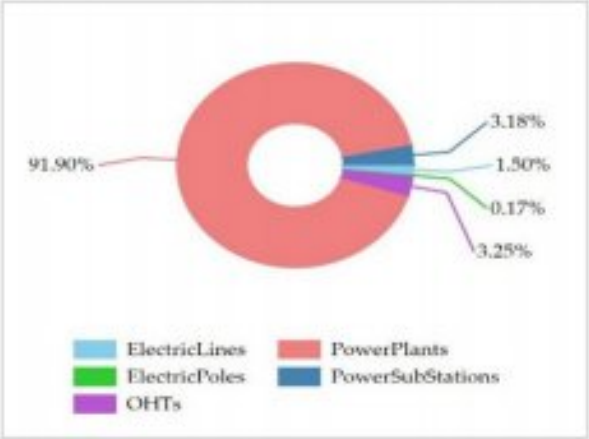
District Level Valuation

Distribution of Critical Infrastructure:



District and Tehsil Level Valuation of Critical Infrastructure:





Tehsil level valuation of critical infrastructure

District level valuation of critical infrastructure

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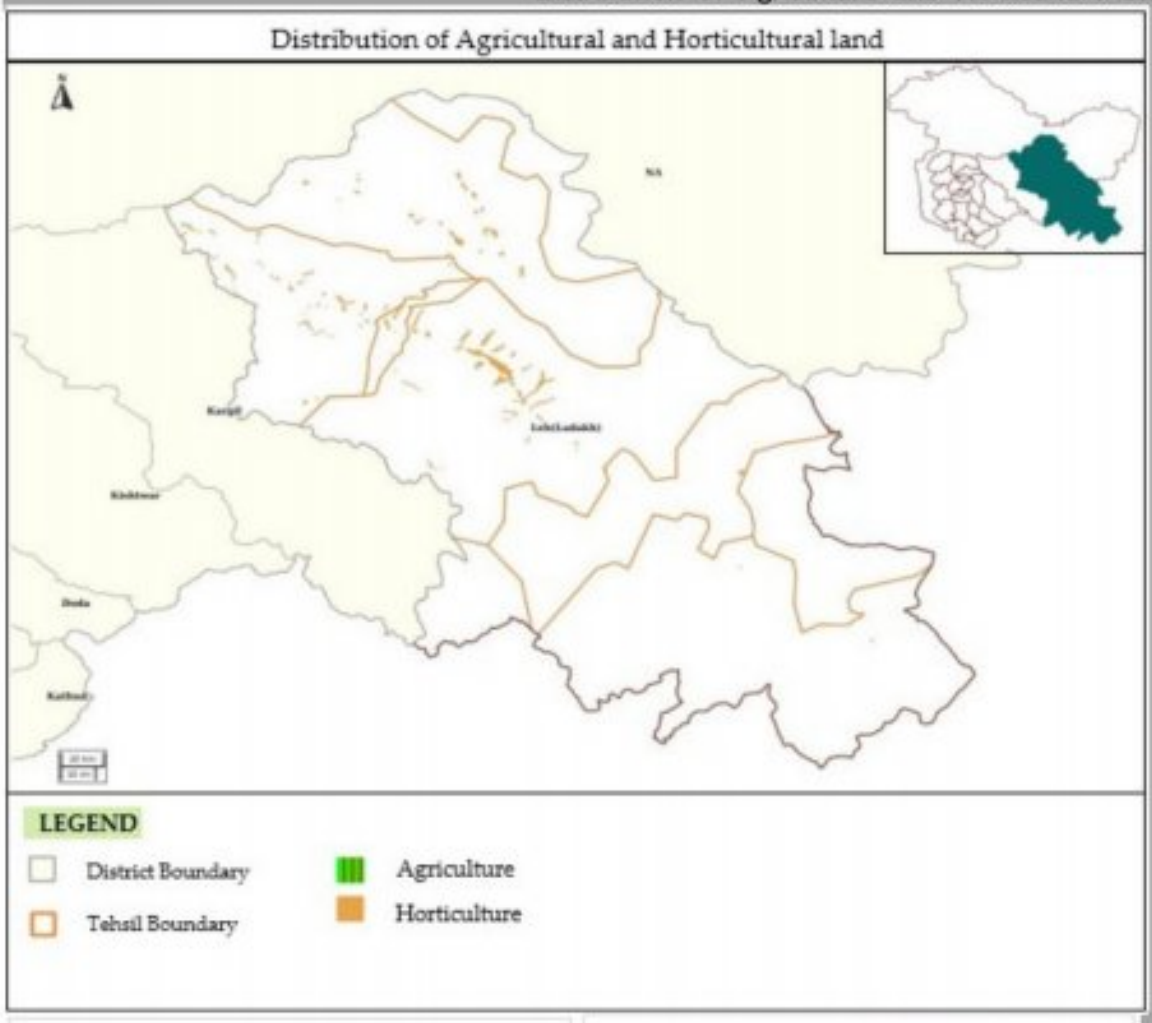
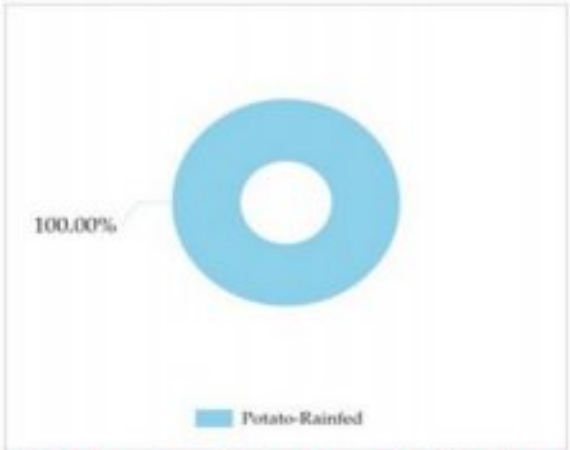
Distribution of Agriculture and Horticulture Land:

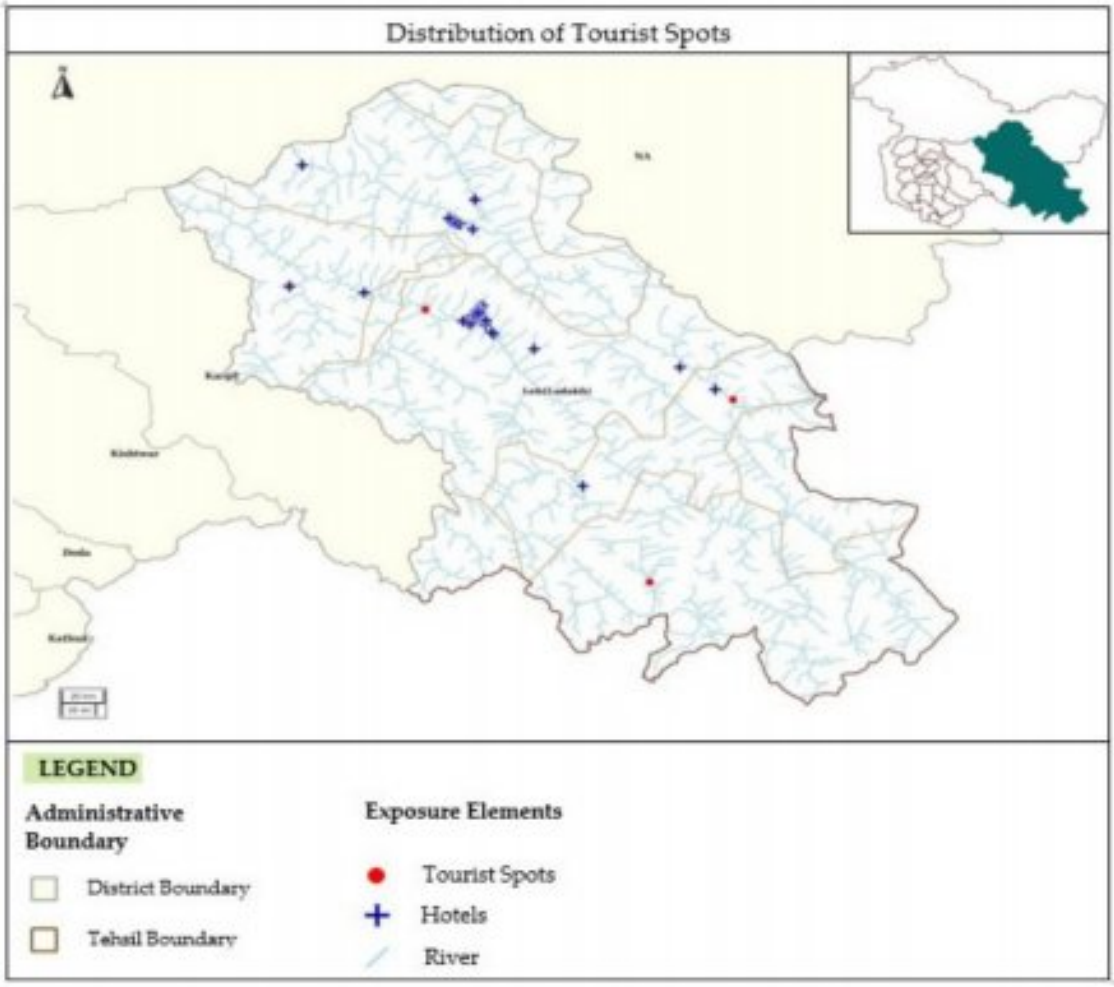




District level agricultural crop distribution valuation

District level horticulture crop distribution valuation

Distribution of Tourist Spots:



Tehsil Level Built up Exposure Count

Tehsil Level Built up Exposure Count			
Tehsil Name	Residential Buildings	Commercial Buildings	Industrial Buildings
Leh	31,593	3,546	5
Nyoma	1,649	21	-
Khaltsi	7,164	461	28
Saspol	1,072	32	57
Kharu	701	21	-
Sumoor	145	-	-
Diskit	7,569	601	-
Durbuk	35	-	-

Tehsil Level Built up Asset Valuation (INR crore)

Tehsil Level Built-up Asset Valuation (INR Crore)			
Tehsil Name	Residential Buildings	Commercial Buildings	Industrial Buildings
Leh	13,798.25	4,174.52	2.38
Khaltsi	2,103.51	284.58	35.81
Saspol	349.04	30.29	208.52
Nyoma	622.51	14.20	-
Kharu	365.73	6.92	-
Diskit	2,193.87	427.93	-
Sumoor	45.84	-	-
Durbuk	28.47	-	-

Tehsil Level Critical Facilities Exposure Count

Leh
1
3
197
29
9
8
Nyoma
-
-
30
1
-
-
Khaltsi
-

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3
147
29
-
3
Saspol
-
-
10
-
-
-
Kharu
-
-
14
3
-
-
Sumoor
-
-
-
-
-
-
Diskit
-
-
100
21
-
-
Durbuk
-
-
1
-
-
-

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Tehsil Level Critical Facilities Asset Valuation (INR crore)

Leh
2.06
1.03
233.58
190.83
13.40
5.67
Khaltsi
-
1.43
97.44
124.76
-
1.26

Nyoma
-
-
14.90
3.82
-
-

Kharu
-

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-
6.53
5.19
-
-

Diskit
-
-
78.98
66.34
-
-

Saspol
-
-
7.82
-
-
-

Durbuk
-
-
1.05
-
-
-

Sumoor
-
-
-
-
-
-

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Tehsil Level Transportation Exposure Count

Tehsil Level Transportation Exposure (Count / Length(in Km))						
Tehsil Name	Roads	Bridges	Railway Stations	Railway Lines	Airports	Tunnels
Leh	1,872.90	3.08	-	-	43	-
Nyoma	1,002.42	0.83	-	-	-	-
Khaltsi	808.33	1.26	-	-	-	-
Saspol	145.09	0.25	-	-	-	-
Kharu	597.59	0.45	-	-	-	-
Sumoor	50.29	0.13	-	-	-	-
Diskit	1,092.40	2.39	-	-	-	-
Durbuk	208.16	-	-	-	-	-

Tehsil Level Transportation Asset Valuation (INR crore)

Tehsil Level Transportation Asset Valuation (INR Crore)						
Tehsil Name	Roads	Bridges	Railway Stations	Railway Lines	Airports	Tunnels
Leh	3,277.44	2.31	-	-	446.54	-
Nyoma	1,610.33	0.63	-	-	-	-
Khaltsi	1,596.64	0.94	-	-	-	-
Saspol	302.69	0.19	-	-	-	-
Kharu	1,403.07	0.34	-	-	-	-
Sumoor	57.84	0.10	-	-	-	-
Diskit	1,256.27	1.79	-	-	-	-
Durbuk	239.39	-	-	-	-	-

Tehsil Level Critical Infrastructure Exposure Count

Tehsil Level Critical Infrastructure Exposure (Count / Length(in Km))					
Tehsil Name	Over Head	Electric Lines	Power Sub Stations	Communication Towers	Electric Poles

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	Tanks				
Leh	37	434.21	9	-	1,475
Khaltsi	4	225.17	8	-	215
Saspol	-	33.49	1	-	52
Diskit	10	82.50	-	-	239
Nyoma	2	0.00	-	-	240
Kharu	-	0.00	-	-	87
Sumoor	-	0.00	-	-	16
Durbuk	-	0.00	1	-	346

Tehsil Level Critical Infrastructure Asset Valuation (INR crore)

Tehsil Level Critical Infrastructure Asset Valuation (INR Crore)					
Tehsil Name	Over Head Tanks	Electric Lines	Power Sub Stations	Communication Towers	Electric Poles
Leh	35.15	13.03	23.60	-	1.48
Khaltsi	3.80	6.76	21.19	-	0.22
Saspol	-	1.00	2.07	-	0.05
Durbuk	-	0.00	2.41	-	0.35
Diskit	9.50	2.48	-	-	0.24
Nyoma	1.90	0.00	-	-	0.24
Kharu	-	0.00	-	-	0.09
Sumoor	-	0.00	-	-	0.02

Addressing The Vulnerabilities:

To address these vulnerabilities, disaster preparedness and risk reduction measures are essential. This includes improving infrastructure resilience, early warning systems, and community preparedness. Additionally, efforts to address climate change and its impacts on the region, such as glacier retreat and changing precipitation patterns, are crucial for reducing long-term disaster risks in Leh district. Collaboration between local authorities, the central government, and international organizations is essential in building resilience and ensuring the safety of the population in Leh district.

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CHAPTER 3 PREVENTION & MITIGATION MEASURES

Introduction: Prevention and mitigation are critical components of disaster management aimed at reducing the impact of disasters on communities and minimizing the loss of life and property. These two phases focus on proactive measures to avoid or lessen the impact of disasters before they occur. Here's an overview of prevention and mitigation in disaster management:

1. Prevention:

Prevention measures aim to eliminate or reduce the risk of disasters and their associated hazards. Key elements of prevention include:

- **Land Use Planning:** Zoning regulations and land use planning can restrict or prohibit construction in high-risk areas, such as floodplains, earthquake-prone zones, or coastal areas vulnerable to tsunamis.
- **Building Codes and Standards:** Enforcing and updating building codes and construction standards ensure that structures are designed to withstand the forces of nature, such as earthquakes, hurricanes, or high winds.
- **Early Warning Systems:** Developing and implementing early warning systems, including meteorological, seismic, and hydrological monitoring, can provide timely alerts to communities, allowing them to take preventive actions.
- **Vegetation Management:** Clearing vegetation and creating firebreaks can help prevent the spread of wildfires.
- **Flood Control Infrastructure:** Building dams, levees, and flood channels can mitigate the impact of flooding in flood-prone areas.
- **Education and Awareness:** Raising public awareness about disaster risks, preparedness, and safety measures can empower communities to take preventive actions.
- **Hazard Reduction Measures:** Implementing measures like controlled burns to reduce fuel loads in fire-prone areas or reinforcing riverbanks to prevent erosion can reduce disaster risks.

2. Mitigation:

Mitigation focuses on reducing the impact of disasters and increasing the resilience of communities and infrastructure. Mitigation measures include:

- **Hazard Mapping and Risk Assessment:** Identifying and mapping hazards and vulnerabilities helps communities understand their specific risks and develop appropriate mitigation strategies.

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- **Building Retrofitting:** Strengthening existing structures to withstand earthquakes, hurricanes, or other natural hazards can reduce the risk of damage.
- **Elevating Structures:** Raising buildings above flood levels can protect them from flood damage.
- **Natural Resource Management:** Implementing sustainable land and water management practices can reduce the impact of disasters such as landslides and flooding.
- **Community-Based Disaster Risk Reduction (CBDRR):** Engaging communities in identifying and addressing their own vulnerabilities and risks empowers them to take proactive measures.
- **Insurance and Risk Transfer:** Encouraging individuals and businesses to purchase insurance and engage in risk transfer mechanisms can reduce the financial impact of disasters.
- **Infrastructure Resilience:** Designing critical infrastructure, such as power plants, hospitals, and transportation systems, to withstand disasters ensures their continued operation during and after an event.
- **Disaster-Resilient Agriculture:** Promoting agricultural practices that reduce vulnerability to climate-related disasters, such as drought-resistant crops or soil conservation techniques.

Strategy: The strategy envisages the development and implementation of a policy framework on disaster risk reduction from a holistic perspective, which emphasizes on prevention, mitigation and preparedness in pre-disaster phase. This requires the (i) establishment of the mitigation fund for the UT of Ladakh; (ii) raising awareness for disaster risk reduction at all levels and (iii) improving preparedness amongst all stakeholders using optimized and accessible Information and Communication Technology Systems. To achieve the same, there needs to be appropriate legislative and regulatory instruments that would support and strengthen the enforcement mechanisms at different levels of the State government. At the local and regional levels, there needs to be relevant capacity building for vulnerability and risk assessment and in investigating the nature and extent of damage in post disaster situations. The strategy will also be to promote the use of disaster resistant construction techniques. The government of UT of Ladakh will ensure that a culture of safe building codes and practices are followed across all sectors and will be enforced by law. By promoting and encouraging scientific research on risks and disasters, database on disasters and vulnerability, and a sound understanding on their impacts and preventive measures to be taken will be developed for the state/UT.

The various measures that need to be planned and implemented in the UT of Ladakh are given below:

- Policy framework on disaster management reflecting the holistic approach involving prevention, mitigation and preparedness in pre-disaster phase.

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• To identify, delineate and assess the existing and potential risks and to work towards reducing potential causalities and damage from disasters.

• To substantially increase public awareness of disaster risk to ensure safer environment for communities to live and work.

• To reduce the risks of loss of life, damage to infrastructure, economic costs, and destruction that result from disasters.

• Creation of State/UT mitigation fund.

• Creation of awareness for disaster risk reduction at all level.

• Creating awareness for improving preparedness amongst the communities, using media and school education.

• Appropriate amendments in the legislative and regulatory instruments along with strengthening of the enforcement mechanisms at different levels.

• Capacity building at local and regional levels for undertaking rapid-assessment surveys and investigations of the nature and extent of damage in post disaster situations.

• Conducting micro-zonation surveys.

• To ensure use of disaster resilient construction techniques.

• The use of disaster resilient codes and guidelines to promote disaster resilient construction techniques in all sectors of the society by law and through incentives and disincentives.

• To incorporate the study of disaster engineering subjects in architecture and engineering curricula.

• To create a research-oriented database on disasters and its impacts.

• To promote and encourage Research & Development activities in disaster preparation and mitigation.

Guiding Principles and Framework for Mitigation:

This plan recommends certain guiding principles that would facilitate effective mitigation in tune with an ecosystem-based approach to disaster risk reduction. Some of the guiding principles that would facilitate effective mitigation are given in Table below:

S.no	Guiding Principles
1.	Ensuring commitment from all stakeholders.
2.	Build knowledge and awareness.
3.	Identify and cooperate with relevant stakeholders.
4.	Explore and prioritize potential hazard impacts.

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5.	Explore wide spectrum of mitigation and adaptation processes.
6.	Prioritize mitigation options.
7.	Modify existing policies, structures and processes.
8.	Monitor and evaluate systematically.

For efficient disaster mitigation, the pre-disaster management phase needs to be utilized for planning and implementing preventive measures on the one hand and working on preparedness activities on the other.

Prevention Measures:

As a definition prevention is an action taken to avoid an incident or stopping an incident from occurring. It basically includes deterrence operations and surveillance. Whereas, Mitigation refers to measures that prevent an emergency, reduce the chance of an emergency happening or reduce the damaging effects of unavoidable emergencies. Moreover, Disaster Mitigation contributes to lasting improvement in safety and is essential to integrate disaster management in mainstream planning.

The prevention and mitigation strategies need to be both structural and non-structural strategies. While the former generally indicates investment made on physical constructions or other development works (such as engineering measures and construction of hazard resistant / protective structures), the latter refers to soft measures such as awareness creation and education, policies strengthening techno legal systems and practices, training, capacity development etc.

Mainstreaming in Development Plans and Programs:

The DM Act 2005 mandated DDMA to "lay down guidelines to be followed by the departments of the Government of the State for the purposes of integration of measures for prevention of disasters and mitigation in their development plans and projects and provide necessary technical assistance therefore" and to "review the development plans of the different departments of the State and to ensure that prevention and mitigation measures are integrated therein". Under Section 38 (2) (e) of the Act;

- the State Government is to ensure that the integration of measures for prevention of disaster or mitigation have been incorporated by the departments of the Government of the State/UT in their development plans and projects.

- the State/UT Government is further to ensure integration of measures to reduce or mitigate the vulnerability of different parts of the State to different disasters in the state development plan.

- Each district should prepare a District Disaster Management Plan (DDMP) and should incorporate measures suggesting as to how mitigation shall be integrated into development plans and projects.

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- the DDMPs shall prescribe "the manner in which the mitigation measures shall be integrated with the development plans and projects".

- the DDMPs of departments at State and District level shall also have provisions for prevention of disaster and mitigation of its effects or both in the development plans and programmes as provided for in the State Disaster Management Plan and as is assigned to the department or agency concerned.

Mainstreaming disaster management into the development planning process essentially means looking critically at each activity that is being planned not only from the perspective of reducing the disaster vulnerability of that activity, but also from the perspective of minimizing that activity's potential contribution to the hazard. Every development plan in the state would require incorporating elements of impact assessment, risk reduction and adoption of 'do no harm' approach. The measures such as urban planning and zoning, up gradation of building codes their enforcement, adoption of disaster resilient housing designs and flood proofing, response preparedness planning, insurance, establishment of early warning systems, generating community awareness, creating technical competence and promoting research among engineers, architects, health experts, etc., will be taken on priority.

General Mitigation Strategies:

The strategy envisages the development and implementation of a policy framework on disaster risk reduction from a holistic perspective, which emphasizes prevention, mitigation and preparedness in the pre-disaster phase. This requires the;

(i) Establishment of the mitigation fund at State/UT level.
(ii) Raising awareness for disaster risk reduction at all levels and
(iii) Improving preparedness amongst all stakeholders using optimized and accessible Information and Communication Technology Systems.

To achieve the same, there needs to be appropriate legislative and regulatory instruments that would support and strengthen the enforcement mechanisms at different levels of the government. At the local and regional levels, there needs to be relevant capacity building for vulnerability and risk assessment and in investigating the nature and extent of damage in post disaster situations. The strategy will also be to promote the use of disaster resistant construction techniques. The government will ensure that a culture of safe building codes and practices are followed across all sectors and will be enforced by law. By promoting and encouraging scientific research on risks and disasters, databases on disasters and vulnerability, and a sound understanding on their impacts and preventive measures to be taken will be developed for the district.

Prevention and Mitigation Measures:

The prevention and mitigation strategies need to be both structural and non-structural strategies. While the former generally indicates investment made on physical constructions or other development works (such as engineering measures and construction of hazard resistant /

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protective structures), the latter refer to soft measures such as awareness creation and education, policies strengthening techno-legal systems and practices, training, capacity development etc.

Structural Mitigation Strategies:

The general plan outline for any kind of structural mitigation for the UT of Ladakh is given below.

Land Use Planning:

- Land use planning should take to account the hazard risk and vulnerability context of the state.
- Ensure that development schemes of the State are undertaken in view of hazard, risk, vulnerability and micro-zonation.
- Provide sufficient evacuation and transportation space in roads and streets that are highly risk prone to hazards (includes widening of existing roads and building of new evacuation routes).
- Preparation of risk vulnerability maps; and notification of risk prone areas by microzonation.

Infrastructures for Disaster Management:

- Establishing / construction of EOC (Emergency Operations Centre) and Emergency Response Centres (ERC) at state and district level.
- Operationalizing EOC at all levels.
- Construction and strengthening of disaster management cells not only at the district levels, but also at local jurisdictions of governance in tune with the ecological and social vulnerability of the populations at risk.
- Construction/strengthening of disaster shelters, disaster management stores and essential life-line infrastructures that is accessible by diverse vulnerable groups.

Adaptation of New/Appropriate Technology:

- Application of Science and Technology based innovations in improvising infrastructures such as dams and reservoirs, building designs, construction etc.
- Identifying appropriate vernacular architecture and related technology that strengthens the resilience of structures.

Non-structural Mitigation Strategies:

Non-structural mitigation measure ranges from planning, logistics, techno legal regime, capacity building, and community-based disaster mitigation to ecosystem conservation and management. Activities carried out under each task should be executed by responsible line departments. Accordingly, activities of planning involves strict regulation of land use; regular monitoring of life line structures; ensuring multi hazard preparedness, response and mitigation

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plan at all levels and strategies for implementation; evolving or strengthening administrative capabilities to plan and implement post disaster management; introducing necessary amendments in various laws concerned with planning and developments of cities and towns by Development Authority, Revenue department, PWD (R&B) and the civil society. The general plan outline for any kind of non-structural mitigation for the UT of Ladakh is given below.

Mainstreaming Disaster Management in Development Programmes:

- Incorporate DRR concept into developmental schemes
- Ensure that each development programme / scheme in the UT should be sanctioned / undertaken only if it meets the requirement of disaster risk reduction.

Techno-legal Regime:

- Restructuring of zoning regulations.
- Strict regulation of land use.
- Regular monitoring of life line structures.
- Introduce necessary amendments in various laws concerned with planning and developments of cities and towns in the state.
- Enforcement and Strict adherence to building codes and rules in design and implementation.
- Review and revision of building laws taking into account the objectives of disaster resilience.
- Review and revision of Town planning acts and rules/Master Plans taking into account the objectives of disaster resilience.
- Continuous monitoring and prevention of unplanned, ad-hoc development of buildings and other infrastructure.
- Ensure that expert comments are taken / made on permitting the construction of new buildings.

Planning:

- Develop vulnerability atlas map
- Prepare multi hazard preparedness and mitigation plan at all levels.
- Prepare Departmental Contingency plans for managing emergency situations.
- Ensure that each department should nominate a nodal officer for point of contact.
- Develop strategies for implementation of risk mitigation.

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- Prepare generic categorization of disaster response for multiple hazards (articulation of Quick Response Team, Quick Assessment Teams).
- Prepare hazard wise departmental action plan and SOPs.
- Update the plan as per the requirement.
- Monitor similar activities at district and Tehsil level.

Capacity Building:

- Capacity building through Simulation and Mock Drills needs to be carried out both horizontally (across line departments) and vertically (at all levels)
- Develop a cadre of specialized task force in disaster mitigation.
- Strengthen the skills and knowledge of task forces involved in the mitigation of disasters.
- Conduct workshops/training for sensitization of the stakeholders.
- Carry out specific research for instance EIA and SIA
- Regular updation and documentation of disaster data base.
- Launch awareness campaigns regarding safety measures against potential hazards.
- Develop multi- hazard IEC material for Publication and Distribution.
- Organize exhibitions for public awareness through local institutions.
- Promote communication activities such as awareness, emergency contact numbers, do's and don'ts through posters, volunteers training, and village task force.
- Formulate literature of do's and don'ts for building in local/ vernacular languages.
- Conduct regular drills at all institutions at state, district, village and Tehsil levels.
- Networking to share knowledge and best practices on effective approach.
- Encourage disaster insurance for crop, building, and health.
- Include disaster related topics in schools and colleges curriculum.
- Strengthening of co-ordination between stakeholders at all level.
- Encouraging Co-ordination and Information sharing between stakeholders - Knowledge based management and sharing the existing information / data amongst relevant

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stakeholders. Encourage Academic Collaboration with other Universities offering Disaster Management specialization for exchanging and enhancing knowledge and Information.

- Training medical and non- medical staffs for handling Mass Casualty and providing basic First Aid.
- Ensure that each village has 100 trained individuals in basic first aid for emergency Response.
- Ensure that each district has at least 2 divers to deal with drowning related incidents. Similar expertise to deal with specific hazards needs to be identified and capacity. building for the same needs to be ensured.

Safety Audit:

- Ensure that all departments undertake safety audits in their prescribed domains.
- Ensure fire audit of both government and private hospitals and other life line. infrastructures, including the proposed EOCs.
- Ensure that BIS seismic codes are incorporated in the construction of new buildings.
- Carrying out structural safety audit of all critical life line structures at regular intervals.
- Proper maintenance of existing helipads for emergency purposes.
- Proper maintenance of Roads infrastructure including bridges and alternate routes to deal with emergencies.

Hazard Wise Mitigation Measures:

The hazard wise mitigation measures are as follows:

Geological Hazards:

Earthquake:

1. The following principles could guide effective earthquake risk mitigation strategies for policy makers and practitioners in the State. As a commitment towards a safer UT of Ladakh, each stakeholder involved in disaster risk reduction need to ensure that earthquake resistant designs are incorporated in the construction of any new structures.

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2. Administrative authorities need to facilitate and promote the selective strengthening and seismic retrofitting of existing lifeline structures on a priority basis.

3. The compliance regime needs to be enhanced and improved through appropriate regulation, enforcement and monitoring mechanisms.

4. There needs to be consistent, innovative and improvised efforts to raise the awareness and alertness of all stakeholders towards earthquake risk mitigation.

5. Well-crafted and planned capacity development interventions for effective earthquake mitigation need to be introduced at all layers of governance.

6. Institutions, infrastructures and resources for emergency response in earthquake prone areas need to be strengthened.

Structural Mitigation Strategies for Earthquake:

Land Use Planning:

- Delineation of fault zones.
- Slope stability.
- Undertake microzonation consultancy on a priority basis.
- Provide good quality seismic microzonation maps to all stakeholders.
- Develop and provide regularly updated vulnerability and risk assessment map.

Enhancing Structural Capacities:

- Retrofitting and earthquake proofing of all life line structures.
- Monitoring of seismic activity.
- Retrofitting of existing weak buildings in the seismic zone.
- Construction and operationalization of District Hazard Safety Cell.
- Construction of earthquake resistant model houses, tested through simulated environments.
- Equip buildings with basic first aid facilities.
- Develop earthquake resistant design features for the construction of public utility / residential structures.
- Establish seismological network and round the clock monitoring.

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Adaptation of New / Appropriate Technology:

• Establish Ham-radio sets in remote settlements.

• Automated seismic emergency annunciation / shutdown system.

Non-Structural Mitigation Strategies for Earthquake:

Techno-legal Regimes:

• Review and implementation of building codes/land use code. Revision of codes, if necessary. Incorporating the BIS seismic codes for construction.

• Constitution of Hazard Safety Cells (HSC). The function of Hazard Safety Cells towards Earthquake Risk Mitigation include (i) Establishing proper mechanisms for implementation of all the building codes in all future constructions; (ii) To ensure the safety of buildings and structures from various hazards; and (iii) To carry out appropriate design review of all government buildings to be constructed in the state.

• Amendments to the Town and Country Planning Act, Land use zoning Regulation, Development Control Regulations & building by- laws to bring in earthquake risk mitigation as a key strategy.

• Developing a „model building by-law" that is unique to the UT of Ladakh.

• Enactment and enforcement of laws regulating developmental activities /human activities in earthquake prone area.

• Strict enforcement of building by law residential structure.

Planning:

• Prepare catalogues, epicenter and geological maps towards earthquake risk mitigation.

• Department wise earthquake contingency plans to be developed.

• Department wise action plan and SOPs need to be developed and regularly updated.

Capacity Building:

• Capacity building of engineers & architects in earthquake risk mitigation (to design

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seismically safe buildings and related techno-legal requirements).

- Enhance capacities of state engineering colleges and architecture colleges to provide advisory services to the government (as State Resource Institutions).
- Provide training of for multi-hazard resistant construction.
- Conduct seismological research.
- Organize awareness camps at all levels of governance.
- Train all stakeholders in providing and understanding warning.
- Educate public in basic response measures.
- Dissemination of upgraded seismic resistant measures.
- Upgrading educational curriculum in architecture and engineering institutes.
- Include disaster related topic in technical trainings in polytechnics.
- Provision of loans by banks for retrofitting buildings and structures on easy terms.
- Strengthening urban earthquake vulnerability reduction programmes.
- Campaign for earthquake safety tips.

Safety Audit:

- Establish a committee for safety audit and suggest seismic retrofitting of buildings.

Integrating DRR in Development Planning:

- Integrating earthquake mitigation in rural Development Schemes such as Indira Awas Yojana (IAY) and Sampoorn Grameen Rojgar Yojana (SGRY).
- Modify construction guidelines under these schemes so that the houses/schools or community buildings constructed are earthquake resistant.
- To promote seismically safe construction at villages/block level.

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Landslides:

The landslide mitigation strategy envisioned below not only aims at converging the different line departments, but also in bringing together relevant scientific, engineering, construction, planning and policy making actors of the UT. As a prior requisite, hazard identification is a cornerstone of landslide hazard mitigation. Nevertheless, as part of the mitigation strategy, we need to gather a comprehensive understanding of landslide processes and mechanisms to predict the behavior of differing types of landslides affecting the region.

Structural Mitigation Measures:

Enhancing Structural Capacities:

- Construction of deep drains, cut-off walls.
- Setting up of indigenous, alternative and innovative contour bunds and similar structures for diverse terrains.
- Construction of check dams, gully plugs, vegetative barriers, etc.
- Carryout drainage correction.

Land Use Planning:

- Develop landslide inventory and landslide susceptibility maps.
- Developing an inventory of the existing built environment in areas around existing landslides and in high hazard zones as per the LHZ maps and along strategic roads
- Assessing the status of risk and vulnerability of the existing built environment
- Identify safe zones.
- Evaluate engineering and construction approaches to mitigate landslide hazards
- Wide dissemination of model land use practices in hilly areas
- Complete control of deforestation.
- Promoting afforestation of large-scale plantation / afforestation of indigenous trees in the land slide prone areas.
- Creating vegetative barriers.
- Preparing an inventory of existing landslides, active or inactive, in the State.
- Develop and implement a plan for mapping and assessing landsides.

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Non-Structural Mitigation Measures:

Techno-legal Regimes:

- Strict implementation of land use measures.
- Revision of town planning bylaws and adoption of model land use bylaws in the State.
- Restrict construction of structures at high contours (sloppy high-level grounds).
- Restrict construction of residential building in landslide prone areas.
- Develop and encourage the use of standards and guidelines for landslide hazard maps and assessments.
- Establish and implement a state-level strategy for compilation, maintenance and evaluation of data on the socio-economic and environmental impacts of landslides.
- Establishing appropriate mechanisms for compliance review of all land use bye-laws.
- Total ban on grazing, cutting of trees in affected areas.
- Promotion of ecosystem-based land used practices.
- Develop improved, realistic scientific models of ground deformation and slope failure processes and implement their use in predicting landslide hazards.

Capacity Building:

- Develop and implement a state-level landslide hazard monitoring and prediction capability.
- Develop real-time monitoring and prediction capabilities on both site specific and regional scales.
- Apply remote-sensing technologies such as Synthetic Aperture radar and laser altimetry and wireless sensor techniques (WINSOC) for monitoring landslide movement.
- Training of professionals like engineers and geologists for landslide mapping, investigation techniques, analysis, and observational practices.
- Develop and implement guidelines and training for scientists and geotechnical engineers in the use of landslide hazard and other technical information for mapping and assessing

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landslide hazards.

• Training of trainers in professional and technical institutions.

• Preparation of DM plans by educational and health institutes/organizations, government offices, etc., and carrying out mock drills for enhancing preparedness in vulnerable areas. (General not landslide specific)

• Strengthening the EOC and communication network. (General not landslide specific)

• Develop and implement guidelines and training for scientists and geotechnical engineers to respond to landslide hazards.

• Streamlining the mobilization of communities, government agencies, the corporate sector, and other stakeholders.

• Preparing community and village level DM plans, with specific reference to the management of landslides

• Generate public awareness regarding landslide at various levels through training and education programmes, design, landslide hazard curriculums, safety programmes and community risk reduction.

• Evolve early warning system for landslide.

• 24x7 operational control room for effective response (ERCs) (General not landslide specific).

Integrating DRR in Development Planning:

• Engage MGNREGA and PMRDF work towards reducing landslide risks and enhancing the capacities of vulnerable population.

Avalanches:

Structural Mitigation Measures:

Enhancing Structural Capacities:

• Modification of path of avalanche

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o Construction of snow avalanche control structures such as: Prevention Structures, Stepped Terraces, Avalanche Control Piles, Snow Cornice Control Structures, Retaining Walls, deflecting structures such as deflection berms and avalanche track mounds.

o Carry out drainage correction

o Construction of breaker

o Construction of snow sheds and tunnels in avalanche prone travel routes

- Exploration of wind sails as a mitigation strategy.
- Exploring alternative road management options.
- Re-routing roads in avalanche prone areas.
- Large scale plantation of indigenous varieties in risk prone the areas
- Disposing the avalanche potential snow packs by artificial triggering.

Land Use Planning:

- Documenting avalanche incidents and developing avalanche hazard maps.
- Maintain and update the Map of snow avalanche prone areas
- Developing designs and plans for evacuations and closure of traffic routes.
- Issuing land use regulations and guidelines taking into account of avalanche risk.

Non-structural Mitigation Measures:

Techno-legal Regime:

- Micro-hazard zonation
- Strict implementation of avalanche control measures.

Capacity Building:

- Ensure snow avalanche forecasting and warning; not only testing snow stability with explosives.
- Use infrasonic sensors to monitor avalanche activities.
- Generate public awareness regarding snow avalanche at various levels through media,

campaign, development and distribution of leaflet posters, meetings, workshop on priority basis.

- Avalanche awareness should also deal with safe-travel techniques.

Hydro-meteorological Hazards:

Windstorm:

Windstorms accompanied with Dust can create significant structural damages to land and property in the Union Territory Ladakh. Structures need to be thus designed and built to withstand the projected wind speeds. Wind-resistant construction techniques include proper anchoring of walls to foundations, use of straps and clips to hold the roof of a structure to its walls. Other techniques include lateral roofing and wall bracing. Structural retrofitting of existing structures such as the anchoring of roof, windows and doors need to be given high priority. Windstorm shelters need to be constructed with hardened safe roofs. Retrofitting and anchoring of loose objects, water heaters, removing trees from immediate vicinity of buildings could be other mitigation strategies. Nevertheless, enhancing natural vegetation and setting up windbreaks across the wind paths could reduce the impacts as well.

Structural Mitigation Measures:

Enhancing Structural Capacities:

- Construction of shelters in windstorm prone areas.
- Construction/strengthening and repair of roads and bridges in windstorm prone areas.
- Enhancing natural vegetation and setting up windbreaks across the wind paths.
- Develop terrain specific warning dissemination systems.

Non-Structural Mitigation Measures:

Capacity Building:

- Strengthening and up-gradation of existing windstorm forecasting system at the state and district level.
- Preparation of contingency plans at district, Tehsil and community level.
- Preparation of specific disaster related departmental action plan and SOPs.
- Imparting training to the stakeholders involved in disaster mitigation and management.
- Awareness creation and campaign for wind mitigation.
- Procure sufficient food grains in the areas likely to be affected.

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- Mobilization of resources such as vehicles for evacuation.
- Setting up mobile health units in the vulnerable pockets.

Floods:

Flood hazard mitigation:

The Flood Probability Reduction Measures (FPRM) should aim at restoring the retention potential of the natural hydrological systems in the different regions of the state and at the same time enhance the detention of rain water through small retention basins distributed in minor catchments. Some of the FPRM measures that could be strengthened in the state are given below:

FPRM	Type of Measure	Illustration
Sustainable Drainage Systems	Source Control	Green roofs, rainwater re-use, permeable pavements.
	Infiltration Techniques	Filter trenches, filter drains, filter strips, soak-ways.
	Detention Structures	Swales, bio-retention area, detention basin, ponds and wetlands
Controlled Surface Conveyance	Detention Structures	Diversion structures, multi-functional space, conveyance structures.
Fluvial Flood Detention Measures	Give Rivers more Space	Day-lighting of watercourses, flood plain restoration,
	Holding Back Water	Flood polders, small detention reservoirs.

As mentioned above, the strategies, both structural and non-structural, required for flood mitigation consists of techno legal regime, capacity building, safety audit, planning, adaptation to new technology, and others. Structural measures are in the nature of physical measures and help in dealing with the physical event of the floods and altering its nature. These are measures, which are taken to protect people and property, which counteracts the flood event in order to reduce the hazard or to influence the course or probability of occurrence of the event. These measures can be aimed at (i) reducing discharge (reservoir, diversion, watershed management), (ii) reducing stage (channel improvement), (iii) reducing existing damage susceptibility (levee or floodwall, flood proofing, relocation, flood warning and preparedness planning) and (iv) in reducing future damage susceptibility (land-use and construction regulation, acquisition). These are explained as below.

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Structural Mitigation Measures:

Enhancing Structural Capacities:

- Ensure fortification of weak embankments and vulnerable points in canals / rivers during free flood monsoon.
- Ensure emergency flood ways and river diversions.
- Improvement of design for irrigation and flood protective structures.
- Construction of dams, flood protection wall, flood diverting channels etc.
- Construction of barrages on the banks of rivers.
- Construction of rising and/or construction of community cum shelter buildings above HFL.
- Construction of rain gauge at Tehsil headquarters.
- Ensure Channel improvement.
- Ensure flood proofing.
- Take up holistic watershed management.
- Regular clearance of drains from slit and weeds.
- Strengthening/ repair of existing roads and bridges and other critical infrastructure in flood plains.
- Restore natural drainage blocked by roads and canals.
- Development of catchment area of the flood plain (i) Forestation, (ii) Land sloping and (iii) Small reservoirs/Check dams/ponds etc.
- Repair / restore vulnerable points on roads and bridges before onset of monsoon.

Alert Mechanisms / Early Warning:

- Establish infrastructure for flood warning and dissemination.
- Strengthening and Upgradation of existing flood forecasting system.

Non-Structural Mitigation Measures:

The non-structural mitigation measures include (i) preparation and dissemination of information,

education and communication tools (flood maps, public presentations, collaborative platforms etc.); (ii) spatial planning (flood risk adapted land use); building regulation and improvement of building flood resistance (wet-proofing and dry-proofing); flood action plans at a local scale (infrastructure maintenance); financial preparedness (insurance of residual risk and reserve funds). Flood plain zoning is an important non-structural flood mitigation strategy. It places restrictions on the use of land on flood plains and can reduce the cost of flood damage. PRIs may

prevent uncontrolled building or development on flood plains to limit flood risks and to protect nearby property.

Techno-legal Regimes:

- Enactment and enforcement of laws regulating developmental activities in flood plain
- Restriction of construction near / along water way.
- Ensure Flood plain zoning.
- Ensure emergency flood ways and river diversions.
- Enforce building by laws for flood plains.
- Adopt appropriate measures to assess damage/loss.
- Regulate development and redevelopment policies in flood prone areas.

Planning:

- Prepare contingency plan for any eventuality.
- Ensure that safe citing in flood prone areas is being done.
- Update resource inventory.
- Prepare maps or alternate routes, resources available.
- Prepare flood management plan at all levels of governance.
- Procure ration in advance at various micro-zones in sufficient quantity before the onset of

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monsoon.

Cloudburst:

Structural Mitigation Strategies:

- Construction/ Maintenance of check dams and barrages.
- Promote large scale plantation in barren lands.

Non-structural Mitigation Strategies:

- Ensure forecasting and early warning systems for predicting cloudburst.
- Enactment and enforcement of land use code.
- Organize nallah training.
- Evacuate people residing in low lying area.

Snowfall:

Structural Mitigation Strategies:

- Construction of snow gauges at necessary points
- Provide snow cutters at risk prone areas.

Non-structural Mitigation Strategies:

- Strict Implementation of existing Snow clearance plan in the newly emerging tourist and other villages
- Procure ration in advance at various micro-zones in sufficient quantity before winter.
- Store relief material at Tehsil headquarters.
- Strengthen co-ordination between diverse stakeholders such as Roads & Building, Municipal Corporation, Public Works Department, Border Road Organization and National Highway Authority of India for snow clearance.

Drought:

Drought mitigation measures are aimed at reducing the incidence or minimize impacts of drought. These measures not only help in drought proofing, but also in ecological restoration and social development. Drought mitigation measures are not stand-alone strategies but integrate well within the domain of soil conservation, watershed development, climate change

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mitigation and forestry. For the same reason, these strategies are inevitable part of the Central and State sponsored development programmes.

Structural Mitigation Strategies:

Enhancing Structural Capacities:

- Strengthen water conservation techniques.
- Strengthen and stabilize irrigation system.
- Construct/ Repair dams, reservoirs, lift irrigation, tube wells, tanks, farm ponds and canals for surface irrigation.
- Construct warehouse and cold storages for preservation /storage of food grains.
- Strengthen and upgrade existing drought forecasting system.
- Establish infrastructure for drought warning and dissemination.

Adaptation of New / Innovative Technology:

- Application of advanced agro-Science technology and agro-engineering inputs to improve agriculture production.

Non-structural Mitigation Strategies:

Techno-legal Regimes:

- Enforcement of soil/ forest conservation measures and afforestation.
- Enactment and enforcement of laws regulating ground water level and exploitation of natural resources.
- Develop mechanisms for water audits.

Capacity Building:

- Develop drought related departmental action plan and SOP.
- Impart training to the stakeholders involved in drought mitigation and management.
- Encourage people to use advance technology of drip and sprinkler irrigation.
- Encourage indigenous rain water harvesting and conservation.
- Encourage farmers to understand crop pattern to be adopted in their area.

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- Encourage the adaptation of technique for preservation of green fodder.
- Implementation of nutrition programme for the vulnerable groups.
- Promote self-schemes for employment generations.
- Ensure drought forecasting and early warning.
- Introduce and implement crop and seed insurance.
- Introduce dry land farming/ drought resistant crops.
- Conduct regular surveillance of public health measures.
- Disseminate drought risk to general public residing in drought prone zones.
- Campaign for drought tips for agriculture, general public and industries.

Integrating DRR in Development Planning:

- Integrating drought proofing with governmental programmes such as MGNREGS, Integrated Watershed Management Programme (IWMP), National Rural Drinking Water Programme (NRDWP), Swarna Jayanti Grameen Swarozgar Yojana (SGSY), Rastriya Krishi Vikas Yojana (RKVY), Fodder and Feed Development Schemes and Rural Infrastructure Development Fund.

Biological Hazards:

Pest and Disease:

Structural Mitigation Strategies:

- Encourage crop rotation.
- Plantation of trap crops.
- Destruction of crop refuse or insect infested plant.
- Promote use of resistant varieties of domestic plants.
- Ensure pest forecasting.

Non-structural Mitigation Strategies:

- Ensure integrated pest management
- Generate programmes for eradication and suppression of pests
- Ensure effective monitoring and surveillance of post-harvest damage in crops

Epidemics:

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There are some basic principles which will help in structuring the plan for prevention of biological disasters and epidemics. As these events cannot be predicted and very much heterogeneous in nature and finer details will have to be planed after the emergence of the problem but there can be some basic components of preparations which can be improvised and it will reflect in lesser morbidity and mortality.

Structural Mitigation Strategies:

- Provision of functional isolation wards in all tertiary hospitals.
- Provision of labs which could diagnose all the rare pathogens and their characteristics including bio-terrorism agents.
- Improvement of drinking water supply system and sanitation structures.
- Strengthening the public health institutes, surveillance system and epidemiology department.
- Making provision of quarantine facilities; border and airport safety protocols for pandemics or transportation of Bio-terrorism agent.
- Establishing biological vector control system through environmental engineering.
- Provision of store house for essential drugs with inventory management.

Non-Structural Mitigation Measures:

- Prepare district wise risk-profile of epidemic prone diseases.
- Map the areas with emergence of multi-drug resistant bacteria.
- Capacity building through training of all government health staff to deal with epidemic situations and heavy patient load.
- Specific programs of community health education for epidemics or other biological disasters.
- All tertiary level hospitals should have plan/protocols for epidemics and heavy patient surge.

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• Legislative framework for involvement of privet health-care sector and pharma sector in crisis situation.

• Improvising CHCs for responding to epidemics and uncommon infectious diseases.

• Creation of communication linkages and protocols with state, national and international expert bodies in biological disasters.

• Identify the bio-hazard places and create biosafety and biosecurity measures to reduce the risk of spread of the disease.

• Establishment of procurement plans for essential drugs, vaccine and other medical supplies in disaster situations at district as well as state levels.

Human Induced Disasters:

Building Fire:

Structural and Non-structural Mitigation Strategies:

• Strict implementation of work regulations.

• Strict adherence to fire safety standards in all buildings.

• Equipping Block, sub-Tehsil and Municipal Corporation Head Quarter with fire hydrant.

• Install firefighting equipment and fire alarms in all the public building and government offices.

• Install smoke detectors in each floor of the building.

• Organize awareness campaign regarding safety measures for incidents.

• Conduct regular drills.

• Enhance firefighting capabilities.

• Store cylinders of flammable gases in well-ventilated places.

• Release firefighting resources to rural areas outside local municipal limits.

Dam Safety:

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Structural Mitigation Strategies:

- Enforcement of land use code around the dam area.
- Maintenance of flow level.
- Regular check on the water quality.
- Installation of appropriate facilities for portable water supply.
- Promote anti-erosive plantation along reservoir slopes.
- Ensure proper reservoir and catchment protection.
- Delineate the shallow areas around the dam and keep as protected areas.

Non-structural Mitigation Strategies:

- Establish a dam safety committee.
- Prepare dam safety emergency plan.
- Position sign boards and hoardings on the track/in town.
- Maintain a flood forecasting and warning system.
- Monitoring environmental impacts as mentioned in Environment Impact Mitigation Management Plans.

Crowd Management:

Structural and Non-structural Mitigation Strategies:

- Develop a crowd management plan that takes into account all aspects such as the venue, movement patterns identify possible problem areas, and describe how the plan will accommodate normal and emergency crowd movement.
- Setting up of a centralized crowd management and communications centre to provide real time information. The ideal centre should provide a maximum view of the venue, supplemented by video camera access to blind spaces, pressure points and major movement pathways.
- Developing an Incident Response System for mitigating any eventualities.
- Issues updated, and clear guidelines to specific authorities for crowd management.

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• Training for crowd management personnel on the basics of normal and emergency crowd movement and assembly, initial handling of accident victims, communications procedures and use of communications equipment, avoidance of actions that would incite or trigger dangerous crowd behaviors, and conduct and demeanor during an emergency should be provided.

• Full communications coordination should be established between all venue staff, local police, fire and emergency medical services and any on-site radio or television media.

• Crowd participants need to be legally warned of crowding hazards and be instructed in aid procedures.

• Prior distribution of all radio frequencies, telephone numbers and relevant information and related procedures in printed form to all staff.

• Building codes should be correlated with the movement capabilities of all corridors, stairs, ramps, bridges, escalators etc.

• Establish traffic capacities of corridors, stairs, passenger conveyors and walking spaces.

• Pressure points or locations where a change in pathway processing capacity, normal directions of movement, or a confluence of traffic streams results in conflicts or accident exposures need to be identified and mapped.

• Alternative power sources (back-up standby power) for lighting and communications need to be designed and operationalized. • Emergency room space and equipment sufficient to handle larger crowd accidents needs to designed built and operationalized.

• Training of crowd management staff is vital. Responsibility should not be vested to volunteers/casual labourers alone.

• Organize public meetings and local speaker announcement.

• Distribute reading materials to the general public.

Responsibilities of Stakeholders:

District Administration:

The responsibilities of the district administration towards disaster mitigation are given below.

- Regular collection of situations reports of the risk and vulnerable areas from the officers assigned for the purpose.
- Setting up of the District Disaster Management Cell, which will be headed by the Deputy Commissioner.
- Introduce protective steps that could be taken to minimize the impact of disasters.
- Make arrangements for emergency response.

The responsibilities of other stakeholders and the line departments are given in below Table:

Authority	Roles and Responsibilities
Agriculture, Horticulture Department	• Review and update precautionary measures and procedures. • Strengthen and upgrade existing drought forecasting system. • Establish infrastructure for drought warning and dissemination of the same. • Encourage people to use advance technology of drip and sprinkler irrigation. • Encourage the adaptation of technique for preservation of green fodder. • Introduce and implement crop and seed insurance. • Introduce dry land farming/ drought resistant crops. • Encourage crop rotation. • Destruction of crop refuse or insect infested plant. • Ensure pest forecasting. • Ensure integrated pest management. • Generate eradication and suppression progression of pests. • Ensure effective monitoring and surveillance of post-harvest damage in crops. • Ascertain that adequate stock of seeds and other agro inputs are available in areas prone to natural hazards. • Awareness generation regarding various plant diseases, alternate cropping practices in hazard-prone areas. • Designing and strengthening the provisions of crop insurance. • Hazard area mapping (identification of areas endemic to pest infections, drought, flood, and other hazards). • Develop database village-wise, crop wise, irrigation source wise, insurance details, credit facilities, etc. • Promotion of alternative crop species and cropping patterns

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	keeping in mind the vulnerability of areas to specific hazards. • Training in alternative cropping techniques, mixed cropping and other agricultural practices which will minimize crop losses during future hazards. • Promote organic farming through awareness with a target of 100 % organic UT. • Undertake soil testing for developing resilient agricultural systems in the UT
Banks / Insurer	• Provide loans for retrofitting buildings and structures on easy terms. • Provide agricultural and seed loans.
Civil Defence (UTDRF)	• Organize training programmes on first-aid, search, rescue and evacuation. • Conduct regular drills and exercises for diverse stakeholders on a continuous basis. • Prepare a generic task force in disaster mitigation. • Prepare generic categorization of disaster response for multiple hazards (articulation of Quick Response Team, Quick Assessment Team).
Civil Society (NGOs and CBOs)	• Organize exhibitions for public awareness through local institutions. • Strengthen community-based disaster risk reduction processes. • Promotion of Local culture, integrating the art with the theme of disaster risk reduction.
Consumer Affairs & Public Distribution	• Identification of location (low impacted) for warehouse at all levels: State, District, Block and village. • Construction and maintenance of storage go-downs at strategic (identified) locations. • Procurement of Resources / Equipment / Essential Commodities in warehouse in advance at various micro-zones in sufficient quantity. • Prepare a list of private vendors as they can come handy in case of emergency. • Mapping / Prepare a list of all existing stores. • Strengthening Public Distribution System and ensuring that the poorest of the poor households across all vulnerable groups are included. • Strengthening the empirical provisions of the National Food Security Act, 2013 specific to the needs of the state.
Development	• Ensure strict regulation of Land use.

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Authority	• Notify risk prone areas by micro-zonation. • Stoppage of unplanned and ad-hoc development activities in the UT. • Review and amend planning and development laws as and when required. • Regulate development and redevelopment policies in flood prone areas.
District Administration	• Assessing the status of risk and vulnerability of the existing built environment. • Timely collection of situation report of the risk and vulnerable areas from the officers assigned for the purpose. • Establish committee for safety audit and suggest seismic retrofitting of buildings. • Develop an inventory of the existing built environment in areas around existing landslides and in high hazard zones as per the LHZ maps. • Identify safe zones. • Evacuate people living in low lying areas. • Ensure that EIA and SIA are carried out for any development projects in the district. • Maintain NGO resource inventory and identify their expertise
Economic and Statistics	• Reconstruction of past disaster related statistics for the different districts of the state. • Develop / Prepare formats for generating disaster related statistics / data or developing appropriate MIS. • Proper data maintenance on disaster related statistics.
Fire and Emergency Services	• Encourage and ensure that smoke detector, fire alarms and fire fighting equipment are installed in all public buildings and government offices. • Strict adherence to fire safety standards in all buildings. • Carry out Safety (Fire) audit in every hospital and government buildings • Equip block, sub-Tehsil and MC HQ with fire hydrant. • Enhance firefighting capacity by conducting regular mock drills. • Identification of pockets, industry etc. which are highly susceptible to fire accidents or areas/events which might lead to fires, building collapse etc. • Organize awareness campaign on fire related safety measures. • Educating population in risk prone areas to adopt safety measures. • Conduct training and drills periodically to ensure higher level of

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	prevention and preparedness. • Training the communities to handle fire emergencies more effectively. • Train and equip the firefighting team.
Forest Department	• Routine assessment of forest fire risk. • Promote large scale plantation / afforestation (of indigenous tree) in barren lands and areas prone to landslide, soil erosion. • Review and update the existing regulatory codes and standards for wild life, land and fire protection. • Enforcement of soil/forest conservation measures. • Promoting nurseries for providing seedlings in case of destruction of trees during natural disasters. • Maintain forest fire lines. • Limiting forest access to authorize officials or permitted local people during forest fire prone season. • Promotion of shelter belt plantation. • Involve the community in developing fire detection and prevention management plan. • Seek funding to remove the dead and dying trees from the forest and ensure its replenishment.
Geological survey of India	• Develop a strategy for compilation, maintenance and evaluation of data on the socio-economic and environmental impacts of landslides. • Establish and implement a state level strategy for landslide hazard monitoring and prediction. • Develop landslide inventory and landslide susceptibility maps.
Geology and Mining Department.	• Enforcement of existing Central Act on Mining: Mines and Minerals Concession Rules 1960 & Mines and Minerals Regulation Development 1957. • Strict implementation of existing Mining plans in all the 72 mines in the State regarding safety and accordingly reissuing licenses. • Identify location / land zoning of all the mining lease areas of the UT. • Develop a plan for mapping and assessing landslide and regular updation. • Establish seismological network with stakeholders. • Apply Remote Sensing technologies for monitoring landslide movements. • Evolve early warning system for landslide. • Document avalanche incidents. • Delineation of earthquake and landslide zones.

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	• Ensure slope stability.
Department of Health	• Identify specific risk factors for epidemic prone diseases in the population. • Awareness generation about epidemic prone infections and their prevention. • Training of field personnel, traditional birth attendants, ASHA workers, PRI members, community leaders, volunteers, NGOs and CBOs in first aid. • Measures to be taken to control outbreak of epidemics during and after a hazard. • Promoting and strengthening Primary Health Centers with network of para-professionals to improve the capacity of surveillance and control of epidemics. • Identification of labs on bio-safety levels and improving them capacity. Establishment of one BSL-3 in the state. • Provision of specific essential drugs storage inventory for disasters and MoU with drug production units (govt/ pvt) for urgent supplies in case of humanitarian crises.
Indian Meteorology Department (IMD)	• Hazard forecasting, warning and monitoring. • Communicate early warning to stakeholders.
Industry and Commerce Department	• Planning permission of any factory/industry should consider the Industry and Commerce land use planning in view of hazard, risk and vulnerability of the UT. • Prepare list of factories which have a potential hazard. • Spread awareness about the factory hazards to the community.
Information and Public Relations.	• Launch awareness campaign regarding safety measures against potential hazards using media, campaigns, development and distribution of leaflet, posters, meetings, workshop on priority basis. • Develop multi-hazard IEC material for publications and distributions. • Formulate literature of do's and don'ts for building in local / vernacular languages. • Dissemination of upgraded seismic resistant. • Educate public in basic response measures.
Irrigation and Flood Control Department	• Prepare flood management plan at all levels of governance. • Delineation of flood prone areas. • Ensure that safe citing in flood prone area is being done. • Improvement of design for irrigation and flood protective structures. • Ensure fortification of weak embankments. • Construction of check dams, flood protective walls, flood diverting channels.

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	• Provide water level gauge at critical points along the rivers, dams and tanks. • Construction of rain gauge at Tehsil level. • Install flood gauge at the head works of canal/river. • Periodic assessment of danger levels and wide publicity of those levels. • Prepare maps or alternate routes. • Identify and maintain of materials/tool kits required for emergency response. • Create public awareness regarding various types of primary and secondary hazards through media campaigns. • Strengthening and upgradation of existing flood forecasting system. • Establish infrastructure for flood warning and dissemination. • Strengthen and stabilize traditional irrigation systems. • Encourage local community participation in designing and constructing relevant structures.
IT Department	• Public awareness programme through street plays, seminars, by publishing DRR messages and clippings in news channels and other media. • Exploring new media to create a culture of resilience. • Exploring options of community radios
Media	• Educate the masses against potential hazards and its preventive measures through awareness generation. • Networking with community and the concerned authority to share knowledge and best practices on effective approach. • Sharing information on the anticipation hazard with accuracy.
Municipal Corporation.	• Strict regulation of building bye-laws. • Enforcement of Existing Building By-Laws. • Separate funds to be allocated for building audits. • Ecosystem and environment clearance needs to be incorporated for permit of building construction. • Soil testing should be done for clearance of building construction (both private and government). • Structural engineering and safety audit procedures needs to be in place. • Ensuring the continuous availability of Rapid Visual Screening experts. • Prepare a set of Guidelines / Norms / Checklist to declare a building unsafe for habitation. Regular Monitoring and Auditing of life line infrastructures: Schools, Hospitals, Government Offices, Anganwadi Centers, Shelters, Bridges, Post offices, and Roads.

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	• Government buildings should be screened under BOCA guidelines. • Ensure that all government buildings, hospitals have ramps. • Prepare list of building codes violators and take stringent actions against them on a periodic basis. • Retrofitting of old and weak buildings. • Review and Regular Updation of Building byelaws as and when required. • Establish committee for safety audit and safest seismic retrofitting of buildings. • Equip department with the necessary resources for snow clearance.
National Highways Authority	• Construction of snow avalanche control structures such as: prevention structures, stepped terraces, avalanche control piles, snow cornice control structures, retaining walls, deflecting berms and avalanche track mounds.
Panchayati Raj Institutions	• Promote seismically safe construction at village/block level. • Prepare community and village level disaster management plans.
Public Health Engineering Department	• Develop checklist and contingency plans to deal with secondary hazards. • Detection of leakage of drinking water in the pipeline should be done on a regular basis using digital detectors. • Periodic upgradation of equipments. • Regular monitoring and Disinfections of water bodies /catchment area through prior awareness activities and supply of inputs. • Strengthening the sanitation structure and water distribution system in coordination with central water board.
Public Works Department (R&B)	• Develop building by-laws in account of potential hazards (flood, earthquake, windstorm, landslide, fire). • Strict adherence to building codes / by laws. • Regular monitoring of life line structures. • Carry out safety audit of all critical life line infrastructures. • Ensure that the retrofitted infrastructures are earthquake/flood proof. • Repair roads and bridges in anticipation of hazard. • Construction of snow gauge at necessary points. • Equip department with the necessary resources for snow clearance and allocate sufficient funds for the same. • Retrofitting of weak and aged infrastructures.
Red Cross	• Strengthening capacity of the community by generating awareness on do's and don'ts of potential hazards. • Train community and volunteers in the field of medical first aid.
Revenue Department	• Co-ordinate in Issuing land use regulations and guidelines taking

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	into account the potential hazard. • Assist the concern authority in enforcement and enactment of land use practices. • Ensure that department wise contingency plans are developed at all levels. • Review, update and amend the plan as per the requirement. • Ensure that DRR component is mainstreamed in the state/UT development schemes and projects. • Setting up of EOC/ERC and equipping it with the essential life line infrastructure and communication network. • Initiate in developing terrain specific warning dissemination system. • Ensure that the control room is 24x7 operational. • Construction of disaster shelter, disaster management stores which should be accessible by diverse vulnerable groups. • Facilitate training of professionals like engineers, geologists, scientists in the field of disaster management. • Identify specific authorities for crowd management and help formulate guidelines for the same.
Rural Development	• Integrate DRR in rural development scheme like IAY, SGRY, MNREGA, IWMP, NRDWP, SAGSY, RKVY, Fodder and Food development scheme, Rural infrastructure development fund and enhance the capacities of vulnerable population. • Revise construction guidelines under Rural Development schemes. • Encourage water harvesting and conservation. • Provide self-employment schemes for employment generation. • Popularize indigenous rain water harvesting techniques.
SASE	• Encourage water harvesting and Conservation. • Provide self-employment schemes for employment generation. • Popularize indigenous rain water harvesting techniques. • Ensure snow avalanche forecasting and warning. • Use infrasonic sensors to monitor snow avalanche activities. • Technological Innovation in dealing with snowfall and avalanche
Science and Technology Department	• Identify indigenous/local practices that strengthen the resilience of structures and adapting it with the new technology for its sustainability. • Installation of advanced technology-based innovations in life line infrastructures. • Develop improved, realistic scientific models of ground deformation and slope failure processes and implement their use in predicting landslide hazards. • Design and operationalize alternate power sources (back-up standby power) for lighting and communications.

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	• Design earthquake resistant model houses, tested through simulated environments.
State Industrial Development Corporation (SIDCO), Small scale Industrial Development Corporation Limited (SICOP)	• Strict implementation of Factory Act. • Planning permission of any factory/industry should consider the land use planning in view of hazard, risk and vulnerability of the UT. • Install eco-friendly technology in industrial areas. • Ensure that all essential installations meet the carrying capacity and capable of withstanding working conditions. • Application of Science and technology and engineering inputs to improve industrial infrastructures. • Establish infrastructure for onsite and offsite warning dissemination.
Pollution Control Board	• Strict implementation of guidelines issued by Central Pollution Control Board.
Development Corporation (SPDC)	• Installation of appropriate facilities for portable water supply.
Telecommunication Department	• Prepare contingency plan for emergency situations. • Make arrangement for emergency communication in case the normal network fails. • Develop alternate means of communication which are culturally and socially accepted.
Traffic Department	• Prepare traffic management plan. • Develop appropriate mitigation plans to deal with road accidents. • Exploring alternative road management options. • Re-routing roads in avalanche prone areas.
Transport Department	• Enforcement of Motor Vehicle Act. • Regulation of quality of vehicle. • Regulation of speed governance to mitigate road accidents. • Identify black spots (accident prone areas) in the UT at present and taking necessary steps for their immediate addressal.
Urban and Housing Development Authority	• Incorporate BIS seismic codes for construction. • Strict implementation of land use measures. • Review and revise building codes integrating disaster resilience.

Psychosocial Support and Mental Health Services: Mitigation Plan

Disaster Psychosocial Support and Mental Health (PSSMH) that has gained prominence in the past two and half decades have opened up new spaces and opportunities to the exploration of psychosocial dimensions in relation to wellbeing. The conceptualization of mental health and approaches to target the same has seen a sea change since these two and half decades. It has moved from a bio medical understanding to a more comprehensive bio-

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psycho social approach which has been much more comprehensive than that of the conventional sector of mental health interventions. The traumatic nature of disasters, the attention that it draws on psychological suffering and the non-suitability of conventional ways of addressing distress among a large population has made the shift true to its nature, beyond just the use of terminologies and jargons. More over since disasters warrant a whole range of basic support services such as safety, protection, relief, housing, livelihood etc., it becomes practically possible to comprehensively address all dimensions of wellbeing and thus evolve, research and document comprehensive Psychosocial support and care interventions. A balanced approach that bridges the gap between mental health and Psychosocial interventions as proposed by WHO, NDMA and IASC is used as a frame work to evolve the disaster PSSMH mitigation and preparedness plans for the UT of Ladakh.

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Chapter 4:

Mainstreaming DRR Concerns into Developmental Plans/ Projects

Disasters are determined by a combination of factors. This includes types of hazards that affect people and the different levels of vulnerability among different groups of people. People's vulnerability is determined by social systems and power, not by natural forces alone. It is overwhelmingly acknowledged that women, persons with disabilities and socially excluded groups (low castes and minorities) are at higher risk with regards to natural hazards. Disaster risk reduction (DRR) programmes of the UT of Ladakh need to respond to these needs and built on capacities of such vulnerable groups. This plan proposes to formulate an inclusive DRR framework, which through enhanced partnerships and cross-fertilization, increases the coping capacities of the most vulnerable population in the state to face and manage adverse conditions, emergencies or disasters. A significant step to develop and implement an inclusive DRR framework is to mainstream disaster management concerns into developmental plans and projects. The proposed plan conceptualizes mainstreaming as a process by which DRR components are defined and operationalized in all sectoral plans. All sectoral ministries, line departments and related governmental agencies have active DRR units. This implies that a separate ministry or department for DRR is not a solution and that a series of discrete DRR programs that are divorced from normal, well-funded development will never be effective. Thus, the budget allocation for DRR has to be integrated within the larger/specific development plans.

Key Assumptions and Conceptual Framework

Certain assumptions underlie the processes of mainstreaming DRR in development planning. They are given below, which needs to be imbibed in the planning processes of each sector and line department in the UT of Ladakh.

- Flawed development processes interact with population vulnerability leading to disaster risk. Inappropriate land use, environmental degradation, unplanned urbanization, exposure of population and assets in hazardous locations, economic inequalities, weak social organization, deficient infrastructure and weak governance systems are all symptoms of flawed development process. Corrective development planning that ensures development does not generate risk.

- Disaster reduction, adaptation and sustainable development need to be promoted as mutually supportive goals.

- Risk reduction needs to be considered as an essential investment in sustainable development and not as an additional work.

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• Mainstreaming DRR requires assessing the implications of disasters and climate change on any planned development action across all thematic practice areas and sectors and at all levels of planning and governance.

• DRR mainstreaming for building resilience requires sustained engagement fostering in more appropriate and long-term funding mechanisms and promote integrated solutions by working across discipline to address complex issues of risk, especially DRR and adaptation.

Steps in integrating DRR in Development Planning:

Table below details the steps in integrating DRR in Development Planning.

Steps	Illustration
1. Current Situation of Analysis & Challenges	All planners/line departments develop short notes of analysis on the socio-economic situation of the district and what possibilities exist in securing the needs of the citizens. The state and sector plans need to be made in the contexts of Agriculture, Industry, Commerce, Infrastructures, Energy, Transportation, Hydraulics and Irrigation, Human Resources through Education and Eco-tourism. Planners should also analyze about the barriers and challenges to the region/UT/State/district's development activities caused by chronic natural hazards/disasters.
a) Economic Situation Analysis	Trained planners should analyze the main and sub- economic activities and factors that have been assumed as the potential issues of the district/state or each sector for supporting daily livelihoods of population such as agriculture, infrastructure, industry, commerce, livelihoods and tourism. Planners should also analyse the barrier and challenges to the region/state/districts main and sub-economic activities and its figures caused by natural hazards/disasters.
b) Social Situation Analysis	Trained planners analyse situations of Education, Health, Poverty of citizens and possibility of emergency relief and response to victims of disaster.
c) Natural Resources & Environmental Analysis.	The analysis of potential natural resources, level of resource utilizations done, with respect to local people's access to lands, forests, wild animals, fisheries, lakes, rivers etc. is carried out.
d) Climate Change Analysis	The analysis of potential impact to environment, social life & economy due to climate change, with emphasis on the best

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	possible ways/measures for adaptation is carried out.
2. Vision Development	Line departments along with trained planners will develop the vision relating to the improvement of socio - economic situations and good governance in the state based on the State Development Plan & Sectoral Plans. Nevertheless, this reference should be based on their respective ministries" strategy. The vision should also incorporate components of DRR in terms of challenges/measures/capacities to cope with disaster.
a) Development Goal & Objectives	Mainstreaming of DRR in Development Planning could take use from the efforts to localize the plans and provide right direction in terms of how to adapt policies to different places and how to develop synergies among different sectoral interventions.
3. Development Strategy	
a) Economic Development	Planners and the line departments should develop plans focused on what are the core programmes or priority sectors of the state/district for each sector such as agriculture, tourism, commerce, industry, taxations, irrigation system, transportations, livelihoods, infrastructure, water supply, electricity etc. Focus should be on how the plan can contribute to the state/district/sectors/line departments in social and economic progress and at the same time in DRR. The linkage between economic development and DRR needs to be well worked out in these plans.
b) Social Development	Planners and line departments should develop plan components focused on what kind of social development measures (structural & non- structural) are effective in the present and for the future. These could be with respect to education, capacity building, health services, response and relief etc.
c) Land use Planning Strategy and Natural Resource Management	The plan strategy should focus on how potential natural resources such as land, other natural resources, environment and human capacities are the most concerned for sustainable development activities in the state/district/sectors. The analysis could also describe situations of land use management, specific roles/responsibilities of relevant committees and challenges to the conservation of resources.
d) Climate Change and DRR Strategy	The planners/ line department should evolve strategies based on analysis of natural hazards and extreme disasters, duration, intensity, frequently affected areas, number of victims and affected

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	people, agricultural productivity, infrastructure etc. in relation to climate. change and adaptation as a DRR component. The roles and responsibilities of the relevant committees for disaster management at all level and resources for DRR preparedness plan to cope with hazards and climate change adaptation needs to be specifically outlined.

Strategies for Integrating DRR in Development Planning:

This plan proposes the following strategies to integrate DRR in Development Planning.

1. DRR should be an integral component in each governmental development project.

2. Feasibility studies of infrastructure projects assessing impact of potential natural hazards needs to be carried out.

3. Instead of seeing DRR as a different sector/responsibility, any development plan/project should take into consideration mitigation infrastructure, site development improvements and drainage, move to scale through investments in finance, training and capacity building as core components of the plan.

4. Policies and guidelines for cooperation, co-ordination and action in finding realistic solutions and enabling well-coordinated action need to be framed.

5. Focus should be towards improving livelihoods and quality of life that are in tune with environmental conservation and judicious natural resource management, which can contribute to economic development that is sustainable in nature.

6. Promote innovative local action that is respectful of global implications as well.

7. Bridging the knowledge gap and promoting awareness of the practical and operational aspects of climate variability and change science, and DRR.

8. Institutions need to become adaptive and able to respond to new information about emerging risk covering both future hazards and socio – economic vulnerabilities.

9. Mainstreaming DRR and climate change adaptation in development planning includes

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resilience building measures such as rainwater harvesting, aquifer recharges, changes in types of crops/plantation season, better planning of construction and water management, safe dwellings and sustainable livelihood resources.

10. Incorporate DRR in existing national and state development strategies and policies such as MGNREGA, NRLM, NRHM, IAY, SGSY, RGSY etc.

11. Develop systems for mandatory hazard and risk assessment for major infrastructure development projects. Develop system and mechanisms to include Disaster Impact Assessment along with EIA in all major projects.

12. Establish focal points in each ministry with designated roles and responsibilities for planning and implementing DRR.

13. Integrate DRR for better response in the development plans, programmes and regular activities of local development institutions. District Administration, Municipalities and PRIs to incorporate DRR and preparedness into their development plans, programs and regular activities.

14. Develop and implement systems to ensure that all new hospitals and schools are built with a level of safety.

15. Mainstreaming DRR in development planning also implies that vulnerable groups need to be given special attention. For instance, integrating schemes under the Special Component Plan (SCP) with DRR is emerging as an important innovation stream in the financing of disaster risk reduction. The UT government is already Shall excel in the process of spending SCP money for inclusive development. Strengthening location and community specific plan through the SCP will be an important strategy to mainstream DRR in development programmes. In a similar way, the mainstreaming processes could address the needs of the disabled population in tune with the guidelines of the Person with Disability Act, 1998. The Act makes many provisions mandatory. For example, the Act

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provides enough scope to use human, financial and infrastructural resources to design a special livelihood plan for the disabled. Nevertheless, the larger plan development process should then involve the Chief Commissioner for Persons with Disabilities (CCPD) and the National Handicapped Development Financial Corporation in ensuring that the concerns of the disabled are well met.

Priority Implementation Projects:

The plan proposes the following Priority Implementation Projects that would facilitate faster and effective mainstreaming of DRR in development planning:

Thematic wise Priority Implementation Projects:

Thematic Area Priority Implementation Projects	Thematic Area Priority Implementation Projects
Education	• Introduce DRM modules into the school curriculum. • Promoting hazard resilient construction of new schools; • Introducing features into schools for their use as emergency shelters.
Health	• Vulnerability assessment of hospitals in hazard-prone areas. • Promoting hazard resilient construction of new hospitals. • Implementing of disaster preparedness plans for hospitals.
Infrastructure	• Introducing Disaster Risk Impact Assessments into the construction of new roads and bridges. • Promoting the use of hazard risk information in land use planning.
Agriculture	• Promoting programs of contingency crop planning. • Crop diversification. • Supplementary income generation from off-farm and non-farm activities. • Effective insurance and credit schemes to compensate for crop damage and loss to livelihoods.
Housing	• Promoting the increased use of hazard-resilient designs in rural housing in hazard prone areas. • Utilization of national building codes; and the compliance and enforcement of local building laws in urban hazard prone areas.
Natural Resources Management	• Optimizing natural resources through better management of natural resources, cost effective

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	energy provision, intensive and innovative agricultural and animal husbandry practices, communication connectivity, livelihood opportunities within the villages and a commitment to social development.
Skill Building	• In a disaster recovery context, maximum resources go towards shelter and physical infrastructure reconstruction. Skill building should thus be a strategy to develop a cadre of local masons, materials and building technology and construction related services. • Promoting skills and knowledge in modifying locally available building technologies to enhance their safety features. • Train local people in these slightly modified technologies.
Livelihoods	• Livelihoods are the greatest priority for vulnerable populations at risk. Livelihood and especially that is linked to natural resources and local capacities and opportunities hold the key to long term and sustainable recovery. • MGNREGS has tremendous potential in dealing with alternative livelihood for the poor if Disaster Risk Reduction (DRR) is mainstreamed with it. MGNREGS aims to provide an assured job involving unskilled manual work for minimum hundred days per year. MGNREGS supports individual asset-building and also contributes to reduction of physical vulnerabilities through structural measures. It represents an important social safety net. It provides employment when households find it difficult to restore their productive assets, entailing irreversible damages to their livelihoods. • Livelihood alleviation in the framework of sustainable development is possible if the entire social development programmes meant for asset-building of the poor are integrated with disaster resilient components at planning stage. Access to resources and asset-building are critical to coping, resilience and recovery. It is therefore necessary to develop instruments and implement programs through which the people can get better access to resources for building and owning assets. It is not just the level of assets, but also the mix of assets that influences the capacity to manage risks.

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CHAPTER-5 Preparedness Measures:

Preparedness involves activities undertaken in advance of an emergency to develop and enhances operational capacity to respond and recover from an emergency. As part of a comprehensive preparedness program, there should be established - plans and procedures, prevention programs, resource management system, MoU / agreements with service providers (PPP), training awareness programs etc.

Preparedness Planning:

Planning is the one of the key elements in the Preparedness cycle. Preparedness cycle illustrates the way the plans are continuously evaluated and improved through a cycle of planning, organizing, training, equipping, exercising, evaluating and taking corrective action.

The Government Departments/ agencies assigned emergency responsibilities in this plan will prepare appropriate supporting plans and related standard operating procedures that describes how emergency operations will be carried out during emergencies.

- **District Disaster Management Plan**: It shall be the responsibility of DDMAs to prepare the DDMP of their respective district. UTDMA/LDMA shall extend help in preparation of the DDMPs

- **Hazard specific planning:** UTDMA/LDMA through the line Departments concerned shall prepare Hazard specific plans in consonance with the guidelines given in Chapter 3 of this Plan.

- **PPP MoU etc.:** UTDMA/LDMA through the concerned line Departments shall augment the availability of resources by mobilizing resources, enlisting volunteers, contracting or outsourcing of essential services during normal times. MOUs and contracts / Agreements with Private operators, firms shall be executed to ensure availability adequate resources during disaster.

- **Recovery Plan:** District authority and other agencies are encouraged to develop recovery plans prior to the occurrence of a disaster. Such a plan should establish mechanisms for recovery decision making and identify key participants in the recovery organization, including non-governmental and private sector entities. The plan shall also identify processes and procedures for requesting state/UT and central recovery assistance and ensuring that recovery activities are carried out in accordance with the requirements of these programs.

In case of Critical Infrastructure and Key Resources (CIKR) and the places of congregation, the Department / Trust /agency responsible would prepare on-site and off-site plan in consonance with the available guidelines in consultation with UTDMA/LDMA.

Resource Availability:

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There was a felt need of having a comprehensive database on availability of equipment and resources that can be mobilized in case of an emergency. The resources available within the department or with the UT/State may not be sufficient to saving lives, and when some specialist equipment is required, there is a lack of knowledge as to the whereabouts of the equipment. Also, some of the specialized equipment which otherwise is not of regular use for government departments is not worth to maintain and kept idle. Availability of a comprehensive data at various levels (district, state and national) will help disaster managers to pull required resources and equipment from various source including private parties, neighboring districts/state.

The India Disaster Resource Network (IDRN – www.idrn.gov.in) is a nation-wide electronic inventory of essential and specialist resources for disaster response, covering specialist equipment, specialist manpower resources and critical supplies. Ladakh UT also has developed its database by using IDRN portal. Additionally, the UT while preparing the village level database shall document local resources in each village in hard copies owing to the access/communication breakdown in case any eventuality.

Action points: Periodic updating of database is essential so that the data stored will be relevant and of use during emergency. IDRN prescribe quarterly updating of the database. Ladakh UT is updating the data timely. The responsibility of data updating can be vested with the Deputy Commissioners/EOC concerned and all the line departments and organizations should provide the data on quarterly basis to the EOC. The resources of EOC during non-emergency time can be used for data updating. This will also help EOC to own the database who play key role in early warning and response phases. The disaster managers of the UT need awareness of the IDRN resources and training for extracting data from the portal.

Preparedness Training& Capacity Building:

Training, tests and exercises are essential to ensure Government officials, emergency response personnel and the public are operationally ready. As part of the emergency management training Curriculum, it shall be ensured that personnel with emergency responsibilities complete emergency management courses as prescribed from time-to-time by the National / State /UT Authority.

Training program should include all stakeholders including – community, home guard, NSS, NCC, NYK, Aapda Mitra Volunteers, Schools and colleges, Civil society, CBOs, corporate entities, UTDRF (to be constituted), Fire Service, Media, Police etc.

Task	Activity		Responsibility
Training	1.	Training to home Guard/CD/UTDRF/police/Aapda Mitra volunteers' personnel in various aspect of disaster management including search and rescue.	Police Dept. UTDMA/LDMA Fire & Emergency Services UTDRF/NDRF NDMA/NIDM Education Department. District Administration. Information department. NGOs/CBOs/NCC/NYKs.
	2.	2. Training to NCC and NSS personnel in various aspect of disaster management.	

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	3.	3. Training to educational and training institutions personal in various aspect of disaster management.	
	4.	Training to civil society, CBOs and corporate entities in various aspect of disaster management.	
	5.	Training to fire and emergency service personnel in various aspect of disaster management.	
	6.	Training to police and traffic personnel in various aspect of disaster management.	
	7.	Training to UT Disaster Response Force (UTD RF) Teams in various aspect of disaster management.	
	8.	Training to media personnel in various aspect of disaster management.	
	9.	Training to govt. officials in various aspect of disaster management.	
	10.	Training to engineers, architects, structural engineers, builders and masons in various aspect of disaster management.	

Preparedness Exercise:

Exercises provide personnel with an opportunity to become thoroughly familiar with the procedures, facilities and systems, which will actually be used during emergencies. State agencies and its departments should plan for and/or participate in an all-hazards exercise program that involves emergency management/response personnel from multiple disciplines and/or multiple jurisdictions. Exercises should

- Stress the application of standardized emergency management.
- Be based on risk assessments (credible threats, vulnerabilities and consequences).
- Include non-governmental organizations and the private sector, when appropriate.

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- Incorporate the concepts and principles of IRS as envisaged in the Crisis Management Framework formulated by the Government of Puducherry.
- Demonstrate continuity of operations issues.
- Incorporate issues related to special needs populations.

Exercises range from seminars/workshops to full scale demonstrations.

- **Seminars/Workshops** are low-stress, informal discussions in a group setting with little or no simulation. It is used to provide information and introduce people to policies, plans and procedures.
- **Drills/Tests** are conducted on a regular basis to maintain the readiness of operational procedures, personnel and equipment. Examples include tests of outdoor warning systems and the Emergency Alert System.
- **Tabletop Exercises** provide a convenient and low-cost method designed to evaluate policy, plans and procedures and resolve coordination and responsibilities. Such exercises are a good way to check existence of policies and procedures to handle certain issues.
- **Functional Exercises** are designed to test and evaluate the capability of an individual function such as communications, public evacuation, or medical.
- **Full-Scale Exercises** simulate an actual emergency. They typically involve complete emergency management staff and are designed to evaluate the operational capability of the emergency management system.

Awareness:

Awareness generation and sensitizing the communities and other stakeholders towards preparedness can help save lives and assets in the case of a disaster. The awareness of the community is basically educating on dos and don'ts in case of any disaster and awareness should be tailored group specific and hazard specific. It is important to sensitize line departments as well regarding their roles and responsibilities during emergency situations. Various IEC methodologies can be used for imparting awareness generation and sensitization. Following awareness generating activities can be imparted at department and community level for preparedness and mitigation activities.

At department level:

- Conduct mock drills involving line departments and communities
- Mainstreaming DM in development activities

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• Use of field staff of various line department for imparting community awareness and sanitation hygiene activities

• The Stakeholders should constantly interact with DMC and DMT so that they are active in the locality

• Using of audio-visual mobile units of various departments like - health department and electricity department for awareness development

• Conduct street plays through NGOs and CBOs

• Coordinate with academic organizations for knowledge development and sharing

• Documentation of success and failure stories specific to awareness use these learning for the learning future awareness activities

At community level:

• Awareness should be a continuous process and should be intensified based on the disaster calendar of district/state/UT.

• Posters on dos and don'ts should be displayed in public places.

• Awareness and incorporating DM in school curriculum.

• Training of masons in hazard resistance building

• Use of audio visuals.

• Broad casting awareness messages in FM radios TV and local cable network and sending bulk SMS to cell phones.

• Use VKCs/disaster related documentaries as hubs for knowledge dissemination and awareness.

Information education and communication:

Task	Activity	Responsibility
Information education and communication	Advertisement, hording, booklets, leaflets, banners, shake-table, demonstration, folk dancing and music, jokes, street play, exhibition, TV Spot, radio spot, audio-visual and documentary, school campaign, - Planning and Design - Execution and Dissemination.	Deputy commissioners/DDMA Line departments. UTDMA/LDMA Education department. Information department. Local Disaster Management committees. NGOs/CBOs

Geo-spatial DSS:

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GIS has the capability to capture, store, manipulate, analyse, manage and present all kind of data related to space in a systematic manner. GIS can be used as a crucial tool in all the phases of emergency management – preparedness, response and reconstruction. Emergency management begins with identifying hazard locations and vulnerable groups and GIS can play a crucial role in mapping hazards and vulnerability groups and deriving relationship with hazard intensity and vulnerability. This will help in prioritizing preparedness and mitigation activities. When hazard maps are viewed with other map data (streets, pipelines, buildings, residential areas, power lines, storage facilities, etc.), disaster/emergency management officials can design mitigation, preparedness, response, and possible recovery plans for various scenarios. GIS can also help simulate scenarios for varying intensities of hazards and help official to visualize situation and plan for response operations. For instance, high resolution Digital Elevation model (DEM)is essential to model sea water and flood inundation.

Emergency situation demands quick decision that too in a situation where there is disruption in lifeline and communication system. The situation also warns a quick solution like finding an alternate options as the existing facilities are damaged/destroyed. An organized data in GIS has the capability of providing plan for response and relief operations in a quick turnaround time.

GIS for emergency management essentially should comprise of baseline data (on biophysical, socio economic and historical hazards), GIS application, hardware system, and trained human resources. The data collection and organization in GIS is the most tedious job and ideally various department deals with specific aspects need to develop and maintain this. An alternative is to outsource data development activities to specialized individual or group and subsequently arrange appropriate updating mechanism for the same. For data update also same model of using internal resource or outsourcing method can be used. The quality of data is very crucial for generating quality outputs. GIS application can be off-the shelf products or can be custom made, based on requirement. Both has advantages and disadvantages, however, for DM and emergency response, custom application will have better edge to off-the-shelf products and can be availed on a cheaper price. GIS is an evolving technology and skill imparting to technical person should be considers as a continuous process.

The UT has GIS based DSS Integrated with UT-EOC Decision Support System (PDSS), which has GIS data of Ladakh. The GIS database of DSS has all the essential layers required for any emergency operations. However, it required periodic updating and incorporation of baseline data of both Leh and Kargil districts. The ownership of the data layers should be entrusted to the respective department with DRDM as the custodian. All department users should be exposed the refresher training on the use of DSS. Similar to mock drill exercise department users should conduct simulation model development and design action plans for response activities.

In future, UT should initiate the process of developing the Spatial Data Infrastructure (SDI) for UT. Many of the states and UTs in the country have already initiated the development of SDI complying national standards. This will help in easy data sharing and usage of data of neighbouring States/UTs and help in designing emergency plans for hazards that are trans-boundary in nature.

Geo-Spatial DSS

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Task	Activity	Responsibility
DSS Ladakh Decision Support System Ladakh	Updation and maintenance of DSS including collection of data, map generation Extension of DSS to all the regions of UT, Sharing of DSS with line departments and using it as a tool in planning and development.	UTDMA/LDMA, DRDM, Dept. of Information Technology, NIC, ISRO All Line Departments.

Techno-Legal Regime:

Enforcing techno-legal regime is another key step for any Disaster Management activity in a UT. For Ladakh the major steps that needs to be undertaken on a priority basis is the following.

Task	Activity	Responsibility
Institutional Arrangement	1. Operationalization of UT Level Disaster Management Authority 2. Formation of DM policy and guidelines 3. Emergency Medical Service • Creation of an Emergency Medical Services Authority (EMSA) • Establish paramedic cadre through training programmes and accredit / license them • Impart training to manpower for emergency services • Recognize and accredit trauma centers • Standardize and license ambulance Services • Establish state/UT wide medical emergency access number, Creation of City / District EMS councils • Creation of guidelines for Emergency Care of special section of people like children, elders, BPL beneficiaries, citizens of remote and disaster-prone areas 4. Preparation and distribution of commentaries and handbooks 5. Development of relief norms	DDMA, UTDMA/LDMA HEALTH DEPARTMENT EOC/DEOC

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	and packages 6. Development and promotion of incentives, insurance, disaster bonds, tax rebate, etc. against the disaster 7. Development of disaster management Plans • Hazard-wise State/UT Disaster Management Plans • State/UT Action Plans • Department DM Plans • District, Taluk, City and Village DM Plans. • UT Contingency Plans 8. Regular rehearsal, review and updation of plans 9. Publication & dissemination of plans 10. Strengthening of early warning system • Conduct study • Analyse • Implement 11. Arrangement with service provider companies for multiple warning messages for different natural and man-made disasters prone to state/UT 12. Hazard Risk & Vulnerability Assessment for different natural and man-made disasters prone to state/UT. • Conduct study • Analyse • Mapping • Micro zonation 13. Safety Measures: • Identification of places • Alarm system • Personnel protective equipments • Promotion of life saving methods and techniques 14. Strengthening of relief distribution and accounting system at state and district level.	

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	15. Identification of centralized system for receipt, storage and distribution of relief, rate contract procurement and stockpile of relief material. 16. Strengthening of EOC at state level and district level: • Retrofitting of existing buildings • Strengthening of resources • Task forces • Equipments • SOP's • Financial arrangement for EOC's • Arrangement for optional EOC • Arrangement for mock drills • Arrangement of logistics • Strengthening communication means	

Information Management:

Preparedness strategies include plans and procedures for utilizing communications and information management systems. Each agency should incorporate the following principles into their communications and information management systems:

• **Common Terminology**: Apply common and consistent terminology

• Protocols: Develop procedures and protocols for communications (to include voice, data, access to geospatial information, ICAO Phonetic alphabet pronunciations, Internet/Web use and data encryption), wherever applicable, to utilize or share information during an incident/planned event. UT Ladakh has CAP in place to disseminate prior and timely information regarding any impending events/disasters.

• **Data Collection**: Institute multidisciplinary and/or multijurisdictional procedures and protocols for standardization of data collection and analysis to utilize or share information during an incident/planned event.

• **Common Operating Picture**: Utilize systems, tools and processes to present consistent and accurate information (e.g., common operating picture) during an incident/planned event.

Preparing Resources:

It is the policy of the state that resource maintenance and mobilization is done at the lowest level of government under the established policy. When local resources are exhausted and additional resources are required, resource requests will follow an established process for ordering, tracking, mobilizing and

demobilizing. Depending on the scale of the emergency, limited resources may need to be rationed or controlled.

State/UT Disaster Resource Network:

The State Disaster Resource Network (SDRN/UTDRN) to be established will be the nucleus for emergency resource management system. The design of SDRN/UTDRN will be based on following considerations:

- **Interoperability**: Ensure that equipment, communications and data systems acquired through State/Territorial and local acquisition programs are interoperable.

- **Standardized database**: Ensure standard database schemes, query management system for optimal operational efficiency and interchangeable.

- **Standard Inventory numbering**: A key part to a successful SDRN implementation is coming up with a consistent unique part-numbering scheme that everyone adheres to and is easy to use. A faulty inventory item numbering scheme will result in data entry errors, mistakes, inventory and other costly processes.

- **Interagency Assistance**: Utilize response asset inventory for intrastate and interstate assistance requests during training, exercises and incidents/ planned events. This includes integration of resources from private section (PPP).

- **Deployment Policies**: Institute policies, plans, procedures and protocols to prevent spontaneous deployment of resources/personnel and/or responding to a request that bypasses official resource coordination processes (i.e., resources requested through improper channels).

- SDRN/UTDRN should be updated and managed under strict surveillance of state authority and Stakeholders should be regularly trained to operate State Disaster Resource Network through drills and exercises.

On-Line Application:

On-line application should be developed for resource Management with capabilities of mapping crucial real time information reflecting exactly what is happening, what is most needed, and precisely where during severe incidents. SDRN/UTDRN should be seamlessly integrated with National Disaster Resource network (IDRN) or any other such resource repository created by national Government.

Resource Ordering: All resource requests, at each level, must include the following:

- Clearly describe the current situation.

- Describe the requested resources.

- Specify the type or nature of the service the resource(s) will provide.

- Provide delivery location with a common map reference.
- Provide local contact at delivery location with primary and secondary means of contact.
- Provide the name of the requesting agency and/or Coordinator contact person.
- Indicate time frame needed and an estimate of duration.
- Resource requests involving personnel and/or equipment with operators will need to indicate, if logistical support is required, (i.e., food, shelter, fuel and reasonable maintenance).

Resource Directories:

Each Department/ agency and local government entity should identify sources for materials and supplies internally and externally. The SEOC/UT-EOC and DEOC maintain a list of state Department / agencies, their roles and responsibilities as outlined in this plan and the common resources available from each.

Daily Updates:

The requesting agencies are responsible to report to SEOC/UT-EOC the Number and status of resources deployed on a mission on a daily basis.

Central Assistance:

When resources are not available within the state or through existing Partners, the UT may request assistance from the central government. Requests for central assistance during an emergency will be coordinated through the State/UT Emergency Operations Centre (SEOC/UTEOC) under established procedure.

Preparing Community:

Any disaster revolves around the coping capacity of the community and hence community should be closely associated with prevention, mitigation, preparedness, training, capacity building, response, relief, recovery i.e., short term and long term, rehabilitation and reconstruction.

Community preparedness

Task	Activity	Responsibility
Community preparedness	1. Selecting vulnerable community and most vulnerable groups at risk (Keep gender in mind) 2. Disseminate information about vulnerability and risk	DDMA, UTDMA/LDMA, IMD Finance department., District Collectors All Taluk Tahsildars, Municipalities, Commune/Village panchayats.

	to the community 3. Promote local level disaster risk management planning through participatory approach 4. Advice and issue direction wherever necessary for community disaster prevention, mitigation and preparedness through local resources and participatory approach 5. Provide necessary resources and support for disaster risk reduction at community level. 6. Promote community managed implementations 7. Review the preparedness at community level 8. Take appropriate actions to enhance community preparedness 9. Promote community education awareness and training 10. Ensure fail safe mechanism for timely dissemination of forecasting and warning of impending disaster to the community 11. Disseminate information to community to deal	

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	with any disaster situation.	

Medical Preparedness:

Task	Activity	Responsibility
Medical preparedness	Preparation of authentic medical database for public and private facilities available in the state/UT. Collection of data Mapping and gap analysis Strengthening Resource management Manpower Logistics Medical equipments Medicines Antidotes Personnel protective equipments Disinfectants Vaccines Identification of medical incident command Identification of each section head at each level Identification of key members of different task force	

Knowledge Management:

Task	Activity	Responsibility
Knowledge Management	Documentation of disasters and to make it available in easily accessible format Undertake research studies and application of outcomes in disaster management practices Documenting field data, experience and indigenous technological knowledge from local community Development of plan by using available resources like SDRN, IDRN, etc.	DDMA, UTDMA/LDMA, Information and Education Departments.

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	Sharing of data/information/ reports/ proceedings through consultation meeting/ seminars etc. Use of Information and communication technology at disaster management centers, state/UT, district, taluk, Village etc.,	

Communication:

Task	Activity	Responsibility
Fail safe communication and last mile connectivity	- Undertake study to establish fail-safe two-way communication – information System from state level to disaster site connecting state, district, taluka and city level. - Undertake study to establish alert/siren with multilingual recorded massages in coastal areas - To procure the system and run a pilot project - Establishment of multiple/alternative system - Training/IEC campaign for general public of the vulnerable areas. - Plan for re-establishment of disrupted system	DDMA, UTDMA Science & Technology Dept. Information Dept. District and Local authorities

Plan Testing:

Mock drill and rehearsals play key role in preparedness both for department to test their infrastructure and coordination as well as sensitizing the community. The yearly schedule for the conduct of mock exercises for different disasters in different parts of the UT at specified locations need to be charted out ahead during the start of the year. Some exercises should be undertaken at department level without prior intimation to assessment of the level of preparedness of various departments.

The UT conducted a mock drill for Earthquake on July-August 2023 as part of the national initiative organized by NDMA in collaboration with UTDMA/LDMA, DDMAs of both Leh/Kargil Districts in which all line departments and stakeholders of DM took active part with a specified role. It is essential that DDMA/LDMA should document the success and failure of the mock drill to discuss further to improve the efficiency of coordination among department in enhance the sensitization activities among the

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community. The process documentation will also facilitate to analyse the gaps in the response planning and the command system and also assess how proactive are the communities. It is therefore important that the documentation process is guided by an analytical outlook to improve contents of the response plan rather than to applaud the activity by itself.

Task	Activity	Responsibility
Plan testing	Provide copy of the plan to each stakeholder Organize mock drills and rehearsal for plan testing Lessons learnt through mock drill; identification of gaps through feedbacks and modification of plan - Organize annual mock drill and updation of plan	UTDMA/LDMA, science & Technology Dept. Information Dept. District and Local authorities NIC

Lessons learnt—to be incorporated at the time of updating of plan

UTDMP/LDMP needs to be updated on a timely basis through learnings – success and failure experience in planning and response activities in the past. All response and relief activities, mock drill exercises need to be documented and analyzed at inter-department senior level to assess the effectiveness and coverage. While documenting, emphasis on coordination, its effectiveness, addressing the needy like women, people with special needs, infants, etc., response time, impact of awareness, improvement from the past, need to be addressed. Ideally the UT should create a monitoring and evaluation template and different department should assess this separately and later sit together to share their experience and finalize the template. Success stories of similar regions also can be referred and considered for updation, if suitable for UT conditions.

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CHAPTER-6 DISASTER RESPONSE

Response Strategy:

During the Response Phase, emergency managers set goals, prioritize actions and outline operational strategies. This plan provides a broad overview of those goals, priorities and strategies and describes what should be done by whom under whose direction.

Operational Goals:

During the response phase, the agencies that are charged with responsibilities in this plan should focus on the following goals:

a) Hazard Mitigation.

b) Meet Basic Human Needs.

c) Address needs of people with disabilities / senior citizens / expecting mothers and children (vulnerable group).

d) Quick restoration of Essential Services. e) Support Community for faster economic recovery.

Operational Priorities:

Operational priorities govern resource allocation and the response strategies for the union territory of Puducherry during an emergency. Below are the operational priorities addressed in this plan.

a) Save Lives – The preservation of human life will have the top most priority of emergency managers and first responders and will override priority of all other considerations.

b) Protect Health and Safety – Measures to mitigate the emergency's impact on public health and safety on survivors.

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c) Protect Property – All feasible efforts shall be made to protect public and private property and resources, including critical infrastructure, from damage during and after an emergency.

d) Preserve the Environment – All possible efforts must be made to preserve environment and protect it from damage during an emergency.

Operational Strategies:

To meet the operational goals, emergency responders should consider the following strategies:

- **Mitigate Hazards** – As far as practical, suppress, reduce or eliminate hazards and/or risks to persons and property during the disaster response. Lessen the actual or potential effects or consequences of future emergencies.

- **Meet Basic Human Needs** – All possible efforts shall be made to supply resources to meet basic human needs, including food, water, shelter, medical treatment and security during the emergency. Afterwards provisions shall be made for temporary housing, arrangements for special ration of food items and support for economical restoration.

- **Address Needs of People with Disabilities and Older Adults** –People with disabilities, senior citizens, expecting mothers and children are more vulnerable/ susceptible to more harm during and after an emergency. The needs of these group must be considered and addressed.

- **Restore Essential Services** – Power, water, sanitation, transportation, communication and other essential services must be restored as quick as possible to assist communities in resuming normal daily activities.

- **Support Community and Economic Recovery** – All members of the community must collaborate to ensure that recovery operations are conducted efficiently, effectively and equitably, promoting expeditious recovery of the affected areas.

Direction Control and Coordination (Response Structure):

Incident Response System (IRS): formulated by National Disaster Management Authority is a system of Management by Objectives through IAP (Incident Action Plan). It takes care of any expanding incident through an organizational structure of Command Staff, Sections, Branches, Divisions, Groups, Units, resources and span of control. Through Unified Command (UC) it allows all agencies having jurisdictional or functional responsibilities to jointly develop incident objectives and strategies. IRS requires that every emergency response involving multiple area or multiple agencies include the four functions.

Command/Management: Command is responsible for the directing, ordering, and/or controlling of resources at the field response level. Management is responsible for overall emergency policy and coordination at the IRS EOC levels.

- **Command:** A key concept in all emergency planning is to establish command and tactical control at the lowest level that can perform that role effectively in the organization.

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- **Management:** The EOC serves as a central location from which multiple agencies or organizations coordinate information collection and evaluation, priority setting and resource management.

Operations:

Responsible for coordinating and supporting operations in support of the response to the emergency through implementation of the organizational level's Action Plans (AP). At the Field Level, the Operations Section is responsible for the coordinated tactical response directly applicable to, or in support of the objectives in accordance with the Incident Action Plan (IAP). In the EOC, the Operations Section Coordinator manages functional coordinators who share information and decisions about discipline-specific operations.

Planning: Responsible for the collection, evaluation and dissemination of operational information related to the incident for the preparation and documentation of the IAP at the Field Level or the AP at an EOC. Planning/Intelligence also maintains information on the current and forecasted situation and on the status of resources assigned to the emergency or the EOC. As needed, Unit Coordinators are appointed to collect and analyse data, prepare situation reports, develop action plans, set IRS & DSS priorities, compile and maintain documentation, conduct advance planning, manage technical specialists and coordinate demobilization.

Logistics: Respective ESF team leaders are responsible for providing facilities, services, personnel, identifying the sources of equipment and materials in support of the emergency to address the needs for communications, food, medical, supplies, facilities and ground support.

Incident Response System (IRS)

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. The IRS envisages and lays down various tasks that need to be performed by the existing administrative machinery at various levels.

The IRS for UT Ladakh Stands Notified vide **Order No.311-LA(GAD)** of 2023, **Dated: 22.09.2023.** The IRS system Constituted follows the guidelines issued by National Disaster Management Authority on the Incident Response System (IRS) under section 6 of Disaster Management Act 2005. The structure of IRS is given below in the flow chart.

Similarly, the IRS stands notified for both Leh/Kargil to further enhance the response coping capacity in case of any eventuality.

The IRS organization functions through Incident Response Teams (IRTs) in the field which are pre-designated at all levels; State, District, Sub-Division and Taluk. On receipt of Early Warning, the Response Officer (RO) will activate them. In case, a disaster occurs without any warning, the District IRT will

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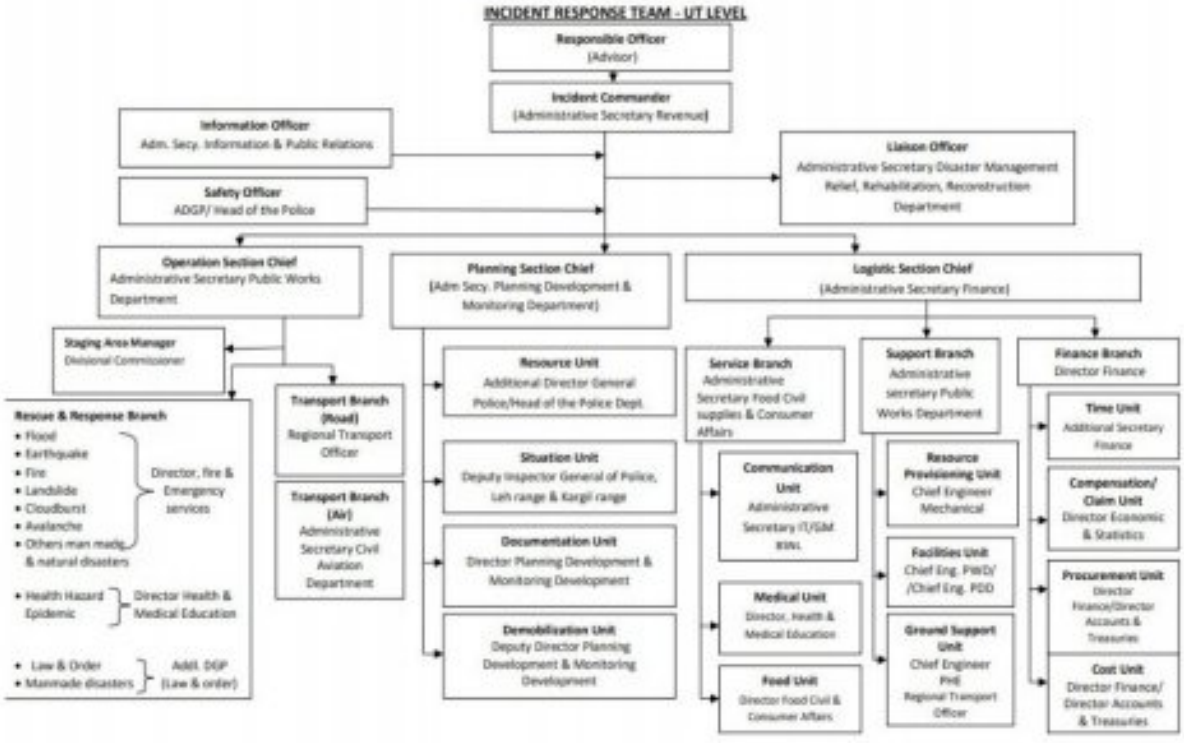
respond and contact Responsible Officer for further support, if required. Accountability of personnel and resources are ensured through procedures and use of various forms prescribed.

State/UT Level IRT:

The UT level of IRT prioritizes tasks and coordinates the resources in response to the requests from the various levels and coordinates mutual aid among the mutual aid regions and between the Regional Level and State Level. The UT level also serves as the coordination and communication link between the state and the National emergency response system. The state level operates out of the State Emergency Operations Centre (SEOC). The IRT is a team comprising of all positions of IRS organization headed by IC. The Operation Section (OS) helps to prepare different tactical operations as required. The Planning Section (PS) helps in obtaining different information's and preparing plans as required.

The UT's Incident Command System is headed by the Advisor to Lieutenant Governor and Incident Commander at the UT is the Administrative Secretary Revenue. The Incident Commander is assisted by Information and Media Officer (Adm.Secretary, Information & Public Relations), Safety Officer (ADGP) and Liaison Officer (Adm.Secretary DMRRR), Ladakh. Three different sections i.e., Operation Section, Planning Section and Logistics Section function under the direct control of the Incident Commander.



(IRS Flow chart/Structure UT Level)

Role and Responsibilities of Officers/Officials in the IRS structure at Level.

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The Union Territory of Ladakh is pleased to constitute the UT Incident Respond System (IRS) to make response to any disaster swift, efficient and effective as indicated below:

COMMAND STAFF			
S.NO	**Incident Response System Position**	**Designation of Officers**	**Roles/Responsibilities**
1.	**Responsible Officer** **Overall, in-charge in the management of emergency response respective administrative levels.**	**Advisor**	• Overall, in charge. • Issue a Standing Order in advance to different departments and agencies for mobilization of resources in times of emergency. • Activate Incident Response Team (IRT) at Union Territory Headquarter when the need arises. • Coordinate with the central Government for mobilization of Armed forces, Air support etc. as and when required.
2.	**Incident Commander** **Individual responsible for the management of all operations at the incident site.**	**Administrative Secretary Revenue.**	• The Incident Commander's responsibility is the overall management of the incident. • On most incidents a single Incident Commander carries out the command activity. The Incident Commander is selected by qualifications and experience. • Establish immediate priorities, including search & rescue and relief distribution strategies. • Brief higher authorities about the situation as per incident briefing form – 001 and request for additional resources, if required, • Establish appropriate Incident Response System (IRS) organization with sections, branches, Divisions and / or Units based on the span of control and scale of the incident; • Establish incident command post (ICP) at a suitable place. • Ensure that the Incident Action Plan is prepared; • Approve and authorize the implementation of Incident Action Plan.

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			• Ensure that planning meetings with section head are held at regular intervals. • Authorize release of information to the media, • Recommend demobilization of the Incident Response Team (IRT), when appropriate;
3.	**Information & Media Officer (IMO)** • **Interaction with the media.** • **Maintain records of meetings.** • **Organize Incident Action Plan meetings.** • **Disseminate meteorological information.**	**Administrative Secretary Information and Public Relations.**	• Prepare and release information about the incident to the media agencies and others with the approval of Incident Commander; • Jot down decisions taken and directions issued in case of sudden disasters when the Incident Response Team has not been fully activated and hand it over to the Planning Section on its activation for incorporation in the Incident Action Plan. • Monitor and review various media reports regarding the incident that may be useful for incident planning; • Disseminate weather information to all concerned;
4.	**Liaison Officer** **Focal point of contact for all Line Departments, incoming Responders, NGOs, PRIs etc.**	**Administrative Secretary Disaster Management, Relief, Rehabilitation and Reconstruction Department**	• Maintain a list of concerned line departments, agencies (CBOs, NGOs, etc.) and their representatives at various locations; • Carry out liaison with all concerned agencies including National Disaster Response Force and Armed Forces and line departments of Government • Keep the Incident Commander informed about arrivals of all the Government and Non-Government agencies and their resources; • Help in organizing briefing sessions of all Governmental and Non-Governmental agencies with the Incident Commander; • Maintain record of various

			activities performed as per IRS Form-004 by each section.
5.	Safety Officer (SO)	Additional Director General of Police/ Head of Police Department	• The Safety Officer's function on the Command Staff is to develop and recommend measures for assuring personnel safety, and to assess and/or anticipate hazardous and unsafe situations. • Recommend measures for assuring safety of responders and hazardous unsafe situations and review it regularly; • Review the Incident Action Plan for safety implications; • Review and approve the Site Safety Plan, as and when required;
	GENERAL STAFF		
S.no	Incident Response System Position	Designation of Officers	Roles/Responsibilities
6.	Operation Section Chief - (OSC). Situation Unit Incharge, Finalization of SOP for search & rescue, medical assistance & Casualties Management and evacuation. Conducting, directing and supervising all tactical actions in the field. ✓ Search & Rescue ✓ Fire Fighting ✓ Evacuation ✓ Law & Order	Administrative Secretary Public Works Department.	• Manage all field operations for the accomplishment of the incident objectives; • Deploy, activate, expand and supervise organizational elements (Branch, Division, Group, etc.,) in his Section. • Maintain on Duty Officers list (Incident Response System form – 007) for the day as enclosed. • Brief the personnel in Operation Section at the beginning of each operational period; • Prepare Section Operational Plan in accordance with the Incident Action Plan; if required; • Consult the Incident Commander from time-to-time and keep him fully briefed; • Determine the need for additional resources and place demands accordingly with planning section and ensure their arrival; • Ensure record of various activities

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			performed IRS Form-004 by members of Branches, Divisions, Units/Groups are collected and maintained in the Unit Log (IRS Form-003)
a)	**Staging Area Manager**	**Administrative Secretary PWD (R & B) and Mechanical Department**	• An Incident Response System Staging Area is a temporary location for placing resources available for incident assignments. All resources within the Staging Area belong to the Incident. • Staging areas should, if possible, be located such that the resources can be at the scene of their assignment within three to five minutes. • Resources assigned to a Staging Area should be available on a three-minute basis to take on active assignment. • Establish the Staging Area with proper layout, • Organize storage and dispatch of resources received and mobilize them as per Incident Action Plan. • Report all receipts and dispatches to Operational Section Chief (OSC) and maintain their records; • Establish check-in function as appropriate; • Ensure that communications are established with the incident command post (ICP) and other required locations e.g. Different Staging Areas (SAs), Incident Command post, Relief camp etc.; • Maintain and provide resource status to Planning Section and Logistic Section; • Demobilize Staging Area in accordance with the Demobilization Plan IRS Form-010 • Maintain record of various activities performed as per IRS Form-004
b)	**Transportation Branch**	**Regional Transport**	• This supports the response efforts

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	(Road)	Officer	by arranging different modes of transportation for resources, persons and relief material. • It is headed by a Transportation Branch Head and Group-in-charges for Road, Rail, Water and Air operations.
	Transportation Branch (Air)	Administrative Secretary Civil Aviation Department	• Coordinate with the Logistic Section (LS) for required resources, and activate Groups of his Branch; • On placement of resources/ requisition. Coordinate with railways, road transport, waterways and airport authorities for support as required; • Ensure that Organizational Assignment List (Divisional / Group) IRS Form-005 is circulated among the Group-in-charge(s) and other responders of his Branch; • Provide ground support to the air operations and ensure appropriate security arrangements; • Report to the Operation Section chief and Incident Commander about progress of the Transportation Branch; • Prepare Transportation plan as per the Incident Action Plan, if required • Ensure the maintenance of the status of hired resources, their full utilization and timely release; • Ensure that the record of various activities performed (IRS Form-004) by different operational groups (Road, Rail, Water and Air) are collected and sent to the Section concerned.
7.	Planning Section Chief (PSC) Situation assessment, Analysis & Planning,	Administrative Secretary Planning Development and Monitoring Department	• In Incident Response System, the Planning Section is responsible for managing all information relevant to an incident. • When activated, the Planning

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	Resources and Requirement, Documentation, MIS Demobilization. Collection & analysis of incident Information. Maintaining record of and tracking Resources. Prepare Incident Action Plan. Prepare Demobilization plan. Maintain Situation Board. ✓ **Damage Assessment** ✓ **Plan Response** ✓ **Maintain Help Line** ✓ **Forecast Future Operations**		Section Chief who is a member of the General Staff manages the Section. • The Planning Section collects, evaluates, processes, and disseminates information for use at the incident. Dissemination can be in the form of the Incident Action Plan, formal briefings, or through map and status board displays. • Coordinate with the activated Section Chiefs for planning and preparation of Incident Action Plan in consultation with Incident Commander; • Ensure that decisions taken and directions issued in case of sudden disasters when the Planning Section had not been activated are obtained from the Information and media Officer (Command Staff) and incorporated in the Incident Action Plan. • Ensure collection, evaluation, and dissemination of information about the incidents including weather, environment toxicity, availability of resources etc. from concerned departments and others sources. The Administrative Secretary must have a databank of available resources with their locations from where it can be mobilized; • Ensure that Incident Status Summary (IRS Form= 00 2) is filled and incorporated in the Incident Action Plan; • Ensure that Organizational Assignment List (Divisional/group) IRS Form -005 is circulated among the Unit leaders and other responders of his Section; • Plan to activate and deactivate Incident Response System

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			organizational positions as appropriate, in consultation with the Incident commander and Operation Section chief. • Determine the need for any specialized resources for the incident management; • Provide period projections on incident potential; • Report to the Incident commander of any significant changes that take place in the incident Command post. • Oversee preparation and implementation of Incident demobilization plans (IRS form-010) • Maintain On Duty Officers List (IRS From- 007) for the day • Ensure that record of various activities performed IRS Form-004 by members of Units are collected and maintained in the Unit Log (IRS Form -003).
(i)	**Resource Unit Leader (RUL)**	**Inspector General of Police**	• This unit is responsible for maintaining the status of all assigned resources (primary and Secondary) at an incident. • Ensure the establish Check-in function at various incident locations; • Update the Planning Section Chief (PSC) and Incident Commander about the status of resources received and dispatched from time to time. • Coordinate with the various activated Branches, Divisions and Groups of Operation Section for checking status and utilization of allotted resources; • Maintain record of various activities performed as per IRS Form-004 and send to Section concerned;
(ii)	**Situation Unit Leader**	**Deputy Inspector**	• Collect, process and organize all

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		General of Police Leh range & Kargil range.	incident information. • Prepare periodic future projections of the development of the incident (along with maps if required) and keep the Planning section chief (PSC) and Incident Commander informed; • Prepare situation and resource status reports and disseminate as required • Provide authorized maps, photographic services to responders, if required; • Attend Incident Action Plan Meeting with required information, data, documents and Survey of India maps etc; • Maintain record of various activities performed as per IRS Form-004 and send to Section concerned; and
(iii)	**Documentation Unit Leader (DUL)**	**Director Planning Development and Monitoring Department**	• The Documentation Unit is responsible for the maintenance of accurate, up-to-date incident files. • Ensure that all the required forms and stationery are procured and issued to all the activated Sections, Branches, Divisions, Groups and Units; • Compile all information and reports related to the incident; • Review and scrutinize the records and various IRS forms for accuracy and completeness; • Inform appropriate Units of errors or omissions in their documentation, if any, and ensure that errors and omissions are rectified; • Store files properly for post-incident analysis; Maintain record of various activities performed as per IRS Form- 004 and send to Sections concerned.

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(iv)	**Demobilization Unit Leader (DEMOB)**	**Deputy Director Planning Development & Monitoring Development**	• Prepare Incident Demobilization Plan (IDP) as per IRS Form-010; • Identify surplus resources and prepare a tentative Incident Demobilization Plan in consultation with the Planning Section Chief and give priority to demobilization of surplus resources; • Develop incident check-out functions for Sections, Branches, Divisions and units in consultation with all Sections and send to the Planning Section; • Plan for logistics and transportation support for Incident Demobilization in consultation with Logistic Section; • Disseminate Incident Demobilization Plan at an appropriate time to various stakeholders involved; • Brief the Planning Section Chief on the progress of Demonization ; • Maintain record of various activities performed as per IRS Form- 004 and send to Sections concerned;
8.	**Logistics Section Chief (LSC)** **Demand, Supply & Storage of relief markets in sectors. Providing Services, material, equipment, resources. Procurement and financial accounting. Medical Response & Trauma Counseling** ✓ **Food & Shelter** ✓ **Debris and Road Clearance &** ✓ **Sanitation & Water supply** ✓ **Services:**	**Administrative Secretary Finance**	• Provide logistic support to all incident response effort including the establishment of Staging Area, Incident Command Post, Relief Camp, Helipad etc.; • Participate in the development and implementation of the Incident Action Plan; • Keep Responsible Officer and Incident Commander informed on related financial issues; • Ensure that Organizational Assignment List (Divisional / Group) IRS Form-005 is circulated among the Branch Directors and other responders of his Section; • Request for sanction of Imprest Fund, if required; • Brief Branch Directors and Unit

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	Electricity & Communication		Leaders; • Constantly review the Communication Plan, Medical Plan and Traffic Plan to meet the changing requirements of the situation; • Ensure that record of various activities performed IRS form -004 by members of Branches and Units are collected and maintained in the Unit Log IRS Form 003
(a)	**Service Branch Director (SBD)**	**Administrative Secretary Food Civil Supplies & Consumer Affairs**	• Work under the supervision of Logistic Section Chief (LSC), and manage all required service support for the incident management; • Manage and supervise various Units of the Branch like Communication Unit, Medical Unit, Food Unit and any other activated Unit • Discuss with activated Unit leaders for the materials and resources required and procure the same through Logistic Section • Ensure proper dispatch of personnel, teams, resources etc. as per the Incident Action Plan Keep the Logistic Section Chief informed about the progress of Service Branch, from time-to-time; • Maintain record of various activities performed as per IRS Form-004 and send to sections concerned
(i)	**Communication unit Leader (CUL)**	**Administrative Secretary IT/ General Manager BSNL**	• The Communications Unit headed by Communication Unit Leader is responsible for developing plans for the use of incident communications equipment and facilities; installing and testing of communications equipment; • Supervision of the Incident Communications Center; and the

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			distribution and maintenance of communications equipment. • Provide communications facility as and when required; • Ensure that all communications equipment available are in working condition and that the network is functional; • Supervise Communication Unit activities • Maintain the records of all communications equipment deployed in the field • Ensure setting up of a message centre to receive and transmit radio, telephone and other messages from various activated Sections, Branches, Units and higher authorities and maintain their records; • Prepare an alternative communication plan for execution in case of possible failure of the normal communications network. • Prepare a plan for integration of the communications set up of the central teams. Maintain record of various activities performed as per IRS Form- 004 and send to Service Branch Director (Service Branch Director).
(ii)	**Medical Unit**	**Director Health & Medical Education**	• Work under the direction of the Service Branch Director (SBD); • Prepare the Medical Plan and procurement of required resources as per Incident Action Plan, • Respond to requests of the Operation Section for medical aid, transportation and medical supplies etc. under intimation to the Service Branch Director (SBD) and Logistic Section Chief (LSC); • Maintain the list of medical personnel who could be mobilized in times of need;

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			• Prepare and circulate list of referral service centers to all the medical team leaders; • Maintain record of various activities performed as per IRS Form-004 and send to Service Branch Director (SBD);
(iii)	**Food Unit Leader (FUL)**	**Director Food Civil Supplies & Consumer Affairs**	• Work under the direction of the Service Branch Director (SBD); • supply resources to various activated Sections, Branches, Units and Groups of Incident Response Team (IRT) as per direction of the Service Branch Director (SBD); • supply food to: a) Personnel of Incident Response Team (IRT's) at Incident command Post (ICP), Relief Camps, Staging Area, etc., and b) Victims at the temporary shelters, relief camps etc.; • Determine food and drinking water requirements and their transportation, and brief the Service Branch Director (SBD) and Logistic Section Chief (LSC) • Maintain inventory of receipt and dispatch of resources; • Maintain record of various activities performed as per IRS Form – 004 and send to Service Branch Director.
(b)	**Support Branch Director (SBD)**	**Administrative Secretary Public Works Department**	• Work under the supervision of Logistic Section Chief (LSC), and supervise the function of Resource Provisioning Unit, Facility Unit and Ground Support Unit. • Procure and dispatch required tactical materials and resources for Operations with the concurrence of the Section Chief; • Participate in the planning meeting of the Logistic Section. • Ensure that organization assignment list concerning the

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			Branch is circulated to all Units under him; • keep the Logistic Section Chief informed about the progress of work; • Maintain record of various activities performed as per IRS Form-004 and send to Section concerned;
(i)	**Resource Provisioning Unit Leader (RPUL)**	**Chief Engineer Mechanical**	• The Resource Provisioning Unit is responsible for ordering, receiving, processing and storing all incident-related resources. • the resource provisioning Unit will manage tool operations, including the storage, disbursement, and service of all tools and portable non-expendable equipment. • Work under the supervision of Support Branch Director; • Organize movement of personnel, equipment and supplies, • Receive and store safely all supplies required for the incident response, • Maintain the inventory of supplies and equipment; • Maintain the records of receipt and dispatch of supplies including equipment and personnel; • Organize repair and servicing of non-expendable supplies and equipment; • Participate in the planning meeting of Logistic Section; • Monitor the 'Kind', 'Type' and quantity of supplies available and dispatched • Requisition of additional human resource assistance, if needed.
(ii)	**Facilities Unit Leader (FUL)**	**Chief Engineer, Public Works Department/Chief Engineer Power Development**	• This unit is responsible for set-up, maintenance, and demobilization of all Incident support facilities except Staging Areas. • Prepare the layout and activation

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		Department	of incident facilities, e.g., Relief Camp(s), Incident Command Post, etc., and provide basic amenities to the responders; • Report to the Support Branch Director; • Locate the different facilities as per the Incident Action Plan. • Participate in the planning meeting of the Section, prepare list for each facility and its requirements in coordination with the Logistic Section Chief; • Maintain record of various activities performed as per IRS Form-004 and send to Support Branch Director.
(iii)	**Ground Support Leader (GSUL)**	**Chief Engineer Public Health Engineering & Regional Transport Officer**	• The Ground Support Unit is primarily responsible for the maintenance, service, and fueling of all mobile equipment and vehicles, with the exception of aviation resources. The Unit also has responsibility for the ground transportation of personnel, supplies, and equipment, and the development of the Incident Traffic Plan. • Work under the supervision of the Support Branch Director. • Provide transportation services for field operations to Transport Branch Director; • In case Air Operations are activated, organize and provide required ground support through Transport Branch Director; • Provide maintenance and repair services for all the vehicles and related equipment used for incident management as per proper procedures and keep the concerned line departments informed through the Support Branch Director and Logistic Section Chief;

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			• Inform Resource Unit about the availability and serviceability of all vehicles and equipment • Arrange for and activate fueling requirements for all transport including Aircrafts in consultation with the Support Branch Director; • Maintain inventory of assigned, available and off road or out of service resources; • Ensure safety measures within his jurisdiction;
c)	**Finance Branch Director (FBD)**	**Director Finance**	• Work under the Logistic Section Chief. • Attend planning meetings; • Prepare a list of resources to be mobilized, procured or hired in accordance with the Incident Action Plan. Obtain orders of the competent authority as per financial rules and take steps for their procurement without delay; • Ensure that time records of hired equipment, personnel and their services are accurately maintained as per Government norms for payment; • Examine and scrutinize cost involved in the entire response activity including the demobilization, analysis the cost effectiveness and keep the Logistic Section Chief (LSC) informed; • Ensure that all obligation documents initiated at the incident are properly prepared, completed, verified and signed by the appropriate Section Chief and BD; • Brief the Logistic Section Chief or Incident Commander on all incident related financial issues needing attention or follow-up;
(i)	**Time Unit Leader (TUL)**	**Additional Secretary Finance.**	• Maintain time recording of hired equipment and personnel and ensure that it is maintained on a

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			daily basis and according to government norms; • Examine logs of all hired equipment and personnel with regard to their optimal utilization; • Maintain record of the activities performed as per IRS Form – 004 and send to Finance Director.
(ii)	**Compensation Claim Unit Leader (CUL)**	**Director Economics & Statistics**	• Collect all cost data and provide cost estimates; • Prepare and maintain a list of requisitioned premises, services, resources and vehicles, etc. with correct date and time of such requisition; • Follow appropriate procedures for preparation of claims and compensation; • Maintain record of various activities performed as per IRS Form – 004 and send to Finance Director.
(iii)	**Cost Unit Leader (CUL)**	**Director Finance /Director Accounts & Treasuries**	• The Cost Unit headed by Cost Unit Leader (CUL) provides all incident cost analysis. It ensures the proper identification of all equipment and personnel requiring payment; records all cost data; analysis and prepares estimates of incident costs; and maintains accurate records of incident costs. • Develop incident cost summaries in consultation with the Finance Branch Director on the basis of Cost Analysis Report; • Make cost-saving recommendations to the Finance Branch Director; • Complete all records relating to financial matters prior to demobilization; • Maintain record of various activities performed as per IRS Form-004
(iv)	**Procurement Unit Leader**	**Director Finance**	• Attend to all financial matters pertaining to vendors and

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			contracts; • Review procurement needs in consultation with the Finance Director; • Prepare a list of vendors from whom procurement can be done and follow proper procedures; • Complete final processing of all bills arising out of the response management and send documents for payment management with the approval of the Finance Director, Logistic Section Chief and Incident Commander; • Brief Finance Director on current problems with recommendations on outstanding issues and follow-up requirements; • Maintain record of activities performed as per IRS Form -004 and send to Finance Director.

District Level IRT:

The district level includes cities, Taluks / Blocks. District governments manage and coordinate the overall emergency response and recovery activities within their jurisdiction. District Governments are required to use IRT when their Emergency Operations Centre (EOC) is activated or a District emergency is declared. The District Magistrate / Responsible Officer will issue a Standing Order for formation of IRT at District headquarters / Sub-Division and Taluk / Block levels. He will ensure that appropriate and experienced officers are selected for IRTs. IRS at District level stands notified for both Leh and Kargil Districts.

Field Level IRT: The Field Level is where emergency response personnel and resources, under the command of responsible officials, carry out tactical decisions and activities in direct response to an incident or threat.

Coordinating Structure: Coordinating structures aid preparedness and response at all levels of government and within the private sector, communities, and nongovernmental entities. The structures help organize and measure the whole community's capabilities in order to address the requirements of the Response mission area, facilitate problem solving, improve access to response resources, and foster coordination prior to and following an incident.

Scalable, flexible, and adaptable coordinating structures are vital in assigning and aligning the key roles and responsibilities to deliver the response mission area's core capabilities. The flexibility of

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such structures helps ensure that communities across the country can organize response efforts to address a variety of risks based on their unique needs, capabilities, demographics, governing structures, and non-traditional partners.

UT/state Coordinating Structures: Union territory of Ladakh also leverage the capabilities and resources of line departments and other stakeholders across the UT when identifying needs and building capabilities. The coordinating structures at the UT level also vary depending on factors such as geography, population, industry, and the capabilities of the districts and local agencies within the UT. These structures are also designed to leverage appropriate representatives from across the whole community—some of whom may also participate in local or regional coordinating structures.

Line Departments / Emergency Support Function (ESFs) Agencies:

State/UT governments organize their response resources and capabilities through line departments / emergency support agencies. Specific agencies / line departments have proven to be an effective way to bundle and manage resources to deliver core capabilities. The State/UT emergency support agencies are the primary coordinating structures for building, sustaining, and delivering the response core capabilities. Most UT agencies support a number of the response core capabilities. In addition, there are responsibilities and actions associated with line departments / agencies that extend beyond the core capabilities and support other response activities, as well as department and agency responsibilities.

The UT Disaster Management Plan (UTDMP) brings together the capabilities of line departments/ agencies and other UT level assets. line departments / agencies are grouped to work together to deliver core capabilities and support an effective response. Departments and agencies identified for emergency support function may be selectively activated by UTEOC/ UTDMA or as directed by the SEC to support response activities in the UT or elsewhere.

Local Coordinating Structures: Local bodies / agencies may employ a variety of coordinating structures to help identify vulnerabilities/risks/hazards, establish relationships, organize, and build capabilities. Due to the unique partnerships, geographic conditions, threats, and established capabilities each jurisdiction faces, the coordinating structures at these levels vary. These structures organize and integrate their capabilities and resources with neighbouring area, the UT, the private sector, and NGOs.

Private Sector Coordinating Structures: Business EoC or mutual aid centres, industry trade groups, and private sector information shall serve as coordinating structures for the private sector. These organizations, composed of multiple businesses and entities brought together by shared geography or common function (e.g., banking, supply chain management, transportation, venue management), support the collaboration, communication, and sharing of information within the private sector. Such organizations can coordinate with and support NGOs, and in many cases, they serve as a conduit to local and state government coordinating structures.

State/UT Wide Network of EOC: EOC is an offsite facility which will be functioning from the UT / District headquarters and which is actually an augmented control room having communication facilities and space to accommodate the various ESFs. During severe incident - an EOC is also established and

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activated to support field operations and resource coordination. Field Incident Commanders (IC) and EOCs will establish communications with the district / UT EOCs.

Basic functions of an EOC includes, but not limited to:

- Receive, monitor, and assess disaster information.
- Keep track of available resources.
- Monitor, assess, and track response units and resource requests.
- Manage resource deployment for optimal usage.
- Make policy decisions and proclaim local emergencies as needed.
- Provide direction and management for EOC operations through Standard Operations Procedures (SOP), set priorities and establish strategies.
- Coordinate operations of all responding units, including law enforcement, fire, medical, logistics etc. • Augment comprehensive emergency communication from EOC to any field operation when needed or appropriate.
- Maintain EOC security and access control.
- Provide recovery assistance in response to the situations and available resources
- Keep senior, subordinate and tenant officials informed.
- Keep local jurisdictions (Village/town/City, district and State) informed.
- Operate a message centre to log and post all key disaster information.
- Develop and disseminate public information warnings and instructions.
- Provide information to the news media.
- Manage donation / aids.

EOC Activation Criteria:

Emergency Operations Centres (EOCs) should be activated in accordance to the standardized Emergency Management procedure and protocols established as ESF in the Crisis Management Frame work formulated as per Notified IRS structure of UT Ladakh. Some of the Natural Hazards have a well-established early warning system. On receipt of information regarding the impending disaster, the EOC will inform the Officer concerned, who in turn will activate the required ESF (UTEOC) and mobilize resources. The scale of their deployment will depend on the magnitude of the impending threat/incident.

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At times, the information about an incident may be received only on its occurrence without any warning. In such cases the local IRT (District, Sub-Division, Taluk / commune/Block) as the case may be, will respond and inform the higher authority and if required seek reinforcement and guidance. The measures decided to be taken for response will be noted by the Command Staff and later handed over to Planning Section. It will thus form the initial Incident Action Plan.

Based on the HPC report – levels of emergency (L1, L2, and L3) and activation guidelines are as given below:

Level 1 EOC Activation: Level 1 is a minimum activation. This level may be used for situations which initially only require a few people, e.g., a short-term earthquake prediction at condition one or two level; alerts of storms, tsunamis; or monitoring of a low risk planned event. At a minimum, Level zero staffing consists of the EOC Head / Director, Section Coordinators and a situation assessment activity in the Planning Section may be included in this level. Other members of the organization could also be part of this level of activation e.g., the Communications Unit, from the Logistics Section, or an Information Officer.

Level 2 EOC Activation: Level Two activation is normally achieved as an increase from Level One or a decrease from Level Three. This activation level is used for emergencies or planned events that would require more than a minimum staff but would not call for a full activation of all organization elements, or less than full staffing. One person may fulfil more than one IRS function. The EOC Head / Director, in conjunction with the General Staff, will determine the required level of continued activation under Level Two, and demobilize functions or add additional staff to functions as necessary based upon event considerations. Representatives to the EOC from other agencies or area may be required under Level Two to support functional area activations.

Level 3 EOC Activation: Level Three activation involves a complete and full activation with all organizational elements at full staffing. Level Three would normally be the initial activation during any major emergency.

Alert and Warning: Each district within the UT is responsible for preparing for a disaster including establishing methods for alerting and warning the public, mobilizing resources and initiating protective actions. At UT level, SEOC/UTEOC will have a UT alert and Warning centre (UTAWC), which is staffed 24 hours a day, 365 days a year to serve as the official state level point of contact for emergency notifications. From this centre, Warning Centre personnel maintain contact with district warning points, UT agencies, central agencies and the National EOC.

Notifications Received by the UT Alert & Warning Centre: District / authority/ EOC notify the UTAWC of emergencies in accordance with existing procedures and protocols, or when state assistance is requested or anticipated. In some specific natural disasters – the notification is received from the designated national agencies as listed below.

Disaster	Agency
Earthquake	NSC/ National center for seismology

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Flood	IMD/CWC/I & FC Department
Drought	Ministry of Agriculture/Department
Severe weather	IMD
Epidemics	Ministry / Department of Health & Family Welfare
Fire	Fire & Emergency Services / State/UT/ District/ Local agencies
Hazardous Material	Police / Fire/UT Administration
Nuclear Power Plant Notification	MHA / NDMA/ UTDMA

Communications, Alert and Warning System: The UTEOC/UTAWC is responsible for informing, communicating, alerting and notifying state / district officials and the central Government of natural or human caused emergencies. To meet this responsibility, the UTEOC should be equipped with a number of telephone, data and radio systems, managed siren system, satellite communication, mass messaging and automated Notification System. Most of these systems are required to be used on a day-to-day basis; others are to be made available for use in an emergency, as conditions require.

Alerting and warning State / District/ Local agencies: Multiple communication channels will be used to maintain 100% up time communication facility with local, state and communications centres and to ensure the UT can quickly respond to any developing emergencies. The UTEOC provides local and state agencies with a broad range of information, including, but not limited to:

- Local emergencies.
- Emergencies induced from neighbouring states/countries
- Earthquakes.
- Floods.
- Dam failures / burst.
- Major fires.
- Hazardous material spills during transit.
- Radiological and nuclear incidents.
- Radioactive fallout wind data.
- Energy emergencies.
- Foreign animal disease / epidemics.
- Weather watches and warnings.
- Severe weather emergencies.

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• Search and rescue incidents.

Notification of Emergency Personnel: The UTEOC shall identify and maintain a list of agencies/service provider and personnel that are critical during emergency operations. The UTEOC will utilize cell phone, telephone, email, smart phones and Automatic Notification System to notify State personnel of an emergency and help guide response teams across the state.

Public Information: Public information consists of the processes, procedures and systems to communicate timely and accurate information by accessible means and in accessible formats on the incident's cause, size and current situation to the public, responders and additional stakeholders (both directly and indirectly affected).

Public information must be coordinated and integrated as part of the emergency management System across the State/ central agencies and organizations, and with the private sector and NGOs. Public information includes processes, procedures and organizational structures required to gather, verify, coordinate and disseminate information.

During an emergency, the district authorities disseminate information about the emergency to keep the public informed about what has happened, the actions of emergency response agencies and to summarize the expected outcomes of the emergency actions and also the preventive measure to check rumors.

State/UT authority will coordinate the state's emergency public information efforts and provides support to other state agencies to ensure that the state government issues a timely, clear, concise, consistent message.

Media Centres: UT authority may establish a Media Centre that serves as a central location for media briefings, conferences and information distribution.

Inquiry / Call Centres: UT authority may activate an inquiry centre to centralize information sharing between the public, the media and government. Inquiry centres should be directly linked to media centres. Inquiry / call Canters will include:

• Establishment of Public Information Hotlines.

• Monitoring of radio and television stations and informing the IMO (Information and media officer) Coordination Team of inaccuracies.

• Sharing of information about the emergency or the government's response.

Sequence of Events during Disaster:

Two sequences of events are typically associated with disasters: One involves the response and the other involves local / district or State emergency declaration. The response sequence generally describes the emergency response activities to save lives, protect property and preserve the environment. This sequence describes deployment of response teams, activation of emergency

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management organizations and coordination among the various levels of government. The emergency proclamation sequence outlines the steps to gain expanded emergency authorities needed to mitigate the problem. It also summarizes the steps for requesting UT and National disaster assistance.

Before Impact:

Routine Monitoring for Alerts and Warnings: Emergency officials constantly monitor events and the environment to identify specific threats that may affect their jurisdiction and increase awareness level of emergency personnel and the community when a threat is approaching or imminent.

Increased Readiness: Sufficient warning provides the opportunity for response agencies to increase readiness, which are actions designed to increase an agency's ability to effectively respond once the emergency occurs. This includes, but is not limited to:

- Briefing government officials.
- Reviewing plans and procedures.
- Continuously monitoring the impending threat.
- Preparing and disseminating information to the community.
- Updating resource lists.
- Testing systems such as warning and communications systems.
- Precautionary activation Emergency Operations Centres

Pre-Impact: When a disaster is foreseen as highly likely, actions are taken to save lives, protect property and protect environment. During this phase, warning systems are activated, evacuation begins and resources are mobilized.

The IRS organization functions through Incident Response Teams (IRTs) in the field which are pre-designated at all levels; UT, District, Taluk and Commune panchayat. On receipt of Early Warning, the Responsible Officer (RO) will activate them. Accountability of personnel and resources are ensured through procedures and use of various forms prescribed.

Immediately after Impact: IRTs at various levels are activated by Responsible Officer based on the situation. The state level IRT prioritizes tasks and coordinates UT's resources in response to the requests from the regional level and coordinates mutual aid among the mutual aid regions and between the Regional Level and UT Level. The UT level also serves as the coordination and communication link between the UT and the National emergency response system.

During this phase, emphasis is placed on control of the situation, saving lives and minimizing the effects of the disaster.

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Alert and Notification: Response agencies are alerted about an incident by the public through emergency communication at State/UT EOC and other established methods. First responders are then notified of the incident. Upon an alert, response agencies notify response personnel.

Resource Mobilization: Response agencies activate personnel and mobilize to support the incident response. As the event escalates and expands, additional resources are activated and mobilized to support the response. Activation and mobilization continue for the duration of the emergency as additional resources are needed to support the response. This includes resources from within the affected area, or, when resources are exhausted, from unaffected neighbouring area / districts / States.

Incident Response: Immediate response is accomplished within the affected area by local area and segments of the private sector. First responders arrive at the incident and function within their established field level plans and procedures. The responding agencies will manage all incidents in accordance with IRS organizational structures, doctrine and procedures.

Establishing Incident Command: Incident Command is established to direct, order, or control resources by virtue of some explicit legal, agency or delegated authority. Initial actions are coordinated through the on-scene Incident Commander (IC). The Incident Commander develops an initial Incident Action Plan (IAP), which sets priorities for the incidents, assigns resources and includes a common communications plan. If multiple area or agencies are involved, the first responders will establish a Unified Incident Command Post (ICP) to facilitate multijurisdictional and multiagency policy decisions. The Incident Commander may implement an Area Command to oversee multiple incidents that are handled by separate IRS organizations or to oversee the management of a very large or evolving incident that has multiple incident management teams engaged.

Activation of the Multiagency Coordination or Unified Command (UC): Responding agencies will coordinate and support emergency management and incident response objectives through the development and use of integrated Multiagency Coordination Systems. UC is a framework headed by the LG / CM and assisted by the CS/Advisor that allows all agencies with jurisdictional responsibilities for an incident, either geographical or functional, to participate in the management of the incident.

Local EOC Activation: Local areas/Districts activates their local EOC based on the magnitude or need for more coordinated management of the emergency. When activated, Local EOCs help form a common operating picture of the incident by collecting, analyzing and disseminating emergency information. The local EOC can also improve the effectiveness of the response by reducing the amount of external coordination of resources by the Incident Commander by providing a single point of contact to support multiagency coordination. When activated the local EOC notifies the Operational Area (OA) lead that the local EOC has been activated.

Communications between Field and the EOC: When a jurisdiction EOC is activated, communications and coordination are established between the IC and the DEOC / SEOC/UTEOC.

Operational Area (OA) EOC Activation: If one or more Local EOCs are activated, or if the event requires resources outside the affected jurisdiction, the OA EOC gets activated. The OA EOC also activated, if a

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Local Emergency is proclaimed by the UT Government. The OA EOC then coordinates resource requests from the affected jurisdiction to an unaffected jurisdiction, or if resources are not available within the Operational Area, forwards the resource request to the SEOC/UTEOC.

Union Territory Level Field Teams: The UT may deploy Field On-Site Observation Teams to provide situation reports on the disaster in coordination with the responsible Unified Command.

State/UT Level Emergency Operations Centre (SLEOC) Activation:

The SEOC/UTEOC is activated when in order to:

- Continuously monitor the situation and provide situation reports to brief state officials as appropriate.
- Continuously monitor the impending threat.
- Prepare and disseminate the information.
- Process resource requests between the affected regions, unaffected regions and state agency Department Operation Centres.
- Process requests for central assistance and coordinate with central CMG.
- Provide Decision support backup to DEOC and field EOC / IC.

After Impact is over:

As the initial and sustained operational priorities are met, emergency management officials shall consider the recovery phase needs. Short-term recovery activities include returning vital life support systems to minimum operating standards. Long-term activity is designed to return to normal activities. Recovery planning shall also include reviews of ways to avert or mitigate future emergencies. During the recovery phase, damage is assessed, local assistance centers and disaster recovery centers are opened and hazard mitigation surveys are performed.

Demobilization: As resources are no longer needed to support the response, or the response activities cease, resources are demobilized. Demobilization includes provisions to address and validate the safe return of resources to their original location and include processes for resource tracking and ensuring applicable reimbursement. Where applicable, the demobilization should include compliance with mutual aid and assistance provisions.

Funds generation: UTDMA/LDMA shall coordinate with the Department of Planning and Research and the Finance Department for release of funds depending on the actual requirement.

Finalizing relief pay-outs and packages: SEC (State Executive Committee) is responsible for finalization of relief packages as per existing SDRF guidelines based on inputs/proposals received from DDMAs. The SEC shall than submit the relief package to UTDMA for approval and dissemination to the public.

Post-relief assessment: This shall be done by the UTDMA in coordination with the line Departments concerned whose sectors have been damaged.

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CHAPTER-7 HAZARD SPECIFIC RESPONSE/ACTION PLAN

A hazard-specific response plan is a type of emergency response plan that focuses on specific types of hazards, such as chemical, biological, radiological, nuclear, or natural disasters. These plans typically contain the critical elements of "all hazard" plans but also include modifications that address hazard-specific features1. For example, an annex for flooding might include pre-identified evacuation routes and specific assignments to departments and agencies for supporting evacuation.

It includes hazard-specific action plans, which are in accordance with relevant hazard-specific guidelines issued by NDMA. These plans aim to better prepare against each of the disasters the country/ state/UT may be prone to. It's important to note that the effectiveness of these plans relies heavily on the commitment of various ministries and departments to realize the goals of the NDMP. They are expected to integrate disaster risk reduction into their developmental programmes and projects for the sustainability of the developmental gains.

Nodal Ministries and State/UT Departments for Specific Hazards:

Hydro-Meteorological Hazards:

DISASTER	Nodal Ministries and Department	Nodal State Department
Flood	MHA / Ministry of Water Resource/ CWC	UTDMA/Irrigation and Flood Control Department
Drought	Department of Agriculture and Cooperation /Ministry of Agriculture	Revenue Department
Snow Avalanche	MHA / Ministry of Defence	Snow Avalanche Study Establishment (SASE), DRDO, UTDMA
Hailstorm	Department of Agriculture and Cooperation/Ministry of Agriculture	Agriculture and Horticulture Department

Geological Hazards:

Disaster	Nodal Ministry/Department	Nodal State Department
Earthquake	MHA / Ministry of Earth Sciences	Revenue Department
Landslide	MHA / Ministry of Mines	Revenue Department
Dam safety	MHA / Ministry of Water Resources	Irrigation and Flood Control Department

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Chemical, Industrial and Nuclear Hazards:

Disaster	Nodal Ministry/Department	Nodal State Department
Chemical and Industrial disasters.	Ministry of Environment and Forests	Department of Home
Nuclear disasters	MHA / Ministry of Atomic Energy	Department of Home

Accidents:

Disaster	Nodal Ministry/Department	Nodal State Department
Forest Fire	Ministry of Environment and Forests	Forest Department
Serial Bomb Blast	MHA	Department of Home
Building fires	Directorate General Civil Defence, MHA	Department of Home
Building Collapse	MHA	Department of Home
Boat capsizing	MHA	Department of Home

Biological Hazards:

Disaster	Nodal Ministry/Department	Nodal State Department
Epidemics	Ministry of Health and Family Welfare	Department of Health and Education
Pest Attack	Department of Agriculture and Cooperation / Agriculture department Ministry of Agriculture	Agriculture department
Cattle Epidemics	Department of Agriculture and Cooperation / Agriculture department Ministry of Agriculture	Revenue Department
Food Poisoning	Ministry of Health and Family Welfare	Department of Health and Education

Hazard-Specific Action Plan:

Earthquake: Earthquake can be categorized into four levels namely L0, L1, L2 and L3. Such categorization is done with the help of firsthand information, earthquake sensors and related disaster communication system.

L0 level disaster:

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- An earthquake with less than 5.0 Richter scale having no impact on human, property and livestock.
- Requires very limited response, if it falls under L0 level.
- The District Disaster Management Cell should maintain a close watch over the state of preparedness.
- Mock drills at various levels have to be undertaken to check the preparedness.
- Efforts at local level should be made to find out damage/loss if any and to take appropriate actions.

L1 level disaster:

- Earthquakes, when the magnitude is greater than 5.0 and less than 6.0 Richter scale.
- Necessary actions are initiated, even without waiting for formal reports and orders.
- District level ERCs are activated and alerts all concerned according to a predetermined procedure.

L2 level disaster:

- Earthquake of magnitude greater than 6.0 and less than 6.7 Richter scale.
- Necessary actions are initiated, even without waiting for formal reports and orders.
- State level EOC and District level ERCs are activated and alerts all concerned according to a predetermined procedure.
- The search and rescue operations would commence immediately.
- The state government initiates impact assessment, relief and recovery measures.

L3 level disaster:

- Earthquakes of magnitude greater than 6.7 Richter scale.
- EOC becomes fully operational.
- Outside assistance (Central Government, its Agencies, NDRF and Armed Forces) is called for.

Roles and Responsibility of State/UT Government with respect to L2 and L3 Earthquakes:

Warning / Information:

- The Chief Commander of Operations activates the EOC.
- Incident of earthquake should be reported to Addl.CEO/Dep. CEO/SDM.
- Addl.CEO/Dep. CEO/SDM/ Team Leader Emergency Coordination & Early warning (ECEW) task force should carryout Rapid assessment on the emergency.

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• Addl.CEO/Dep. CEO/SDM orders CRPF, JKP should support/coordinate with DM task force team.

• ECEW team to alert all other task force teams.

• Search and rescue team equipped with all safety gadgets and accessories.

• District Administration should maintain chain of communication for back up and reinforcement of human and material resources.

• Keep ambulance and first aid task force, para – medics and medical staff on alert.

• Resource evaluation regarding manpower, equipment, transport, hospitals, firefighting units and so on. • Draw hospital contingency plan. Mobile field hospitals and surgical units.

Search and Rescue:

• Allotment of responsibilities of officials and non-officials' agencies. Coordination of relief and rescue organizations. Identification of search and rescue teams. Assistance from Defence services.

• Search and rescue to take on command of operation.

• Stop movement of people-demarking the areas; restrict moment of people surrounding the area.

• Assessment team to look out for trapped humans and animals.

• Assessment teams to look out for damaged and collapsible structure.

• The level of emergency is communicated to the Addl.CEO/Dep. CEO/SDM by the assessment team and emergency is declared respectively.

• Communication is sent to the EOC and the loop is activated.

• Apply first aid to injured and call-in ambulance.

• Put off fire using fire beaters, sand, water buckets etc.

• Note the human resource involved in firefighting.

• Note the tool and equipments used to put off fire.

• Note the area of fire cover.

• Note the area of fire extinguished.

• Note the timings of operation.

• Note the causalities and rescue.

• Enrolment of volunteers trained for basic first aid instructions and relief and rescue operations.

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Impact Assessment:

• The state government with support from the district administration will initiate rapid impact assessment procedures.

• All possible means of carrying out the impact assessment will be activated. If needed aerial surveys will be conducted to determine the scope of the damage, casualties, and the status of key facilities.

• The district administration will gather information regarding the deaths, injuries and damages to the buildings/infrastructures.

• State Government/District Administration will identify areas and assess the requirement of NDRF teams for search and rescue operations.

• Assess the magnitude of problem likely to arise. Carry out studies on possible scenarios of future earthquake to point out gaps in planning and preparedness.

• Assess vulnerability of structures and retrofit and strengthen weak structures.

Emergency Medical Relief:

• The CMO/Department of Health and Family Welfare will dispatch a team of medical specialists to the affected site with medicines etc. and prepare the nearest hospital for receiving the victims.

• Red Cross volunteers and SDRF trained for providing emergency first aid should be deployed.

• The CMO/ Department of Health should devise/operationalize mass casualty management

Identification and Disposal of Dead Bodies:

• The Home Department shall deploy forensic teams and equipment for DNA fingerprinting of victims in mass casualty cases.

• The Home Department shall coordinate with MHA for central assistance as per requirement.

• NDMA Guidelines shall be followed while disposing of unclaimed/unidentified dead bodies.

Setting Up and Managing Relief Camps:

• District administration should set up relief camps or shelter for the people in distress.

• Army assistance should be acknowledged in case the efforts of the civil authorities are considered inadequate.

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• The Consumer Affairs and Public Distribution should organize controlled kitchens to supply food initially at least for 3 days and arrangements of cooked food in the relief camps.

• The Public Health Engineering should ensure that provision of basic amenities like drinking water, sanitation and public health care are provided in relief camps.

• Cattle camps, if necessary, should be established and provision for veterinary care, fodder and cattle feed to the affected animals be made available by Agriculture Department and Animal Husbandry department.

Repair and Reconstruction:

• Department of Telecommunication should ensure that all essential telephones work uninterrupted and necessary arrangements made for timely installation of the telephone at the control rooms and other concerned duty officer's room.

• The PWD should repair and restore damaged public infrastructure (roads, bridges, critical life line structures).

• PHE department should restore water supply to the affected areas and should also ensure water supply through tanker until pipelines are fully restored.

Landslide:

Landslides could result in loss of life, injuries, extensive damage on roads and highways and road blockade. Severe intensity landslide can also create extensive damage to habitation leading to relocation and resettlement of the population, damage to crops and cultivable land. Landslides can also induce severe structural damage to hydroelectric and multi-purpose projects. There are instances where landslides have resulted in the creation of artificial lake followed by flooding upstream and downstream.

Risk Identification and Information Dissemination: Ladakh, a region in the Trans-Himalayan area, is considered to have medium to minimal vulnerability to landslides. This is due to the region's distorted yet steady relief, fewer rainfall regions, and little precipitation. However, a study has shown that earthquake-induced landslide susceptibility mapping of Ladakh has been done based on Newmark's methodology using GIS techniques. It is observed that the lower western region of Ladakh, near India's political border, is demanding a high value of static safety factor (FSc), indicating a risk of landslides caused by earthquakes.

In a single-hazard scenario, landslide susceptibility is highest at 44%, while in a double-hazard scenario involving landslide and snow avalanche, combined susceptibility was found to be 58%. In a triple-hazard scenario involving landslide, snow avalanche, and flash flood, combined susceptibility was around 39% for the region.

• Under the guidance and coordination of GSI, the Technical Committee (National level) will develop a landslide specific early warning framework for landslides.

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• A periodic report will be generated and submitted to the State Government and MHA. Periodical reports on the progress in the implementation of the action plan to be submitted to MHA for discussion and review by the National Core Group for Landslide Mitigation.

• The GSI shall monitor landslides for identified sites.

• The GSI will notify about the impending landslide to all the user agencies and departments of the state and district administration.

• A landslide incidence inventory should be developed and maintained by GSI in consultation with the state governments and other agencies such as BRO, CPWD, Forest Department.

Reporting:

• The PWD (R&B), the Forest Department or the Irrigation Department shall notify the State/District EOC about the occurrence of the landslide.

• While reporting, the preliminary information on location, magnitude, damage caused, etc. needs to be clearly articulated.

• If the magnitude of the landslide is huge, taking advice from the GSI, the State/UT EOC shall notify the NEOC if any assistance of central agencies is required.

Response Planning:

• The District Level EOC will establish contact with both its sub-division control rooms and the State EOC. • The Tehsil level ERC or the District level EOC (whenever Tehsils are not operational due to impact) should establish contact with the site and obtain relevant information.

• Rapid assessment needs to be carried out regarding deaths, injuries, damages to building/infrastructure, environment etc.

• The District Level EOC in consultation with the State EOC should communicate regarding the impact to all designated line departments and authorities for appropriate and timely action.

• Local authorities in coordination with the district administration should mobilize search and rescue teams at the local level.

• The district administration will also undertake a primary assessment of risk prone areas and the corresponding requirement of SDRF/NDRF teams shall be done.

• In case there is a requirement, the District Magistrate should prepare and send an FIR to the State EOC. The FIR should clearly articulate the requirement for external assistance such as the NDRF and other state/central resources.

Emergency Medical Relief:

• The CMO/Department of Health and Family Welfare will dispatch a team of medical specialists to the affected site.

• Adequate stock of medicines, first aid kits, triage supplies and trauma will be sent with the medical specialists to the disaster site.

• A clear-cut response plan detailing the contacts and locations of the nearest hospitals will also be maintained.

• The Department of Health and Family Welfare at the State Level would coordinate with its counterpart at the national level for medical assistance required for the State.

• Red Cross and Civil Defense volunteers trained for providing emergency first aid should be deployed.

Repair and Reconstruction:

• Local governing bodies including Municipal Corporations should make arrangements for clearance of the roads being blocked and removal of debris from the streets and lanes.

• The PWD (R&B) should lay out an emergency plan to repair and restore damaged public infrastructure (roads, bridges, critical life line structures).

• The PHE department should restore water supply to the affected areas. It should also ensure water supply through tanker until pipelines are fully restored.

Cloudburst and Floods:

The Irrigation and Flood Control Department shall have well-laid out operational guidelines to respond to flood situations. During flood seasons (JUNE -AUGUST), the Revenue Patwari (Village Accountant) shall remain available at the risk prone villages to ensure timely contact and evacuation.

• The Executive Engineer Flood Control will issue warnings regarding floods to the army as well as to the members of the flood committee (District Administration/UTDMA/Concerned).

• The Assistant Executive Engineer Flood Control sub-division should be responsible for recording for recording the gauges of the river.

Rescue operations:

• Make necessary arrangements for air dropping of food packets in the marooned villages through helicopters with assistance from Air Force.

• Mobilize enough relief parties to the rescue of the marooned people with the reasonable time limit.

• Establish alternate communication links to have effective communication with marooned areas.

• Non-official and voluntary organizations should enlist relief measures.

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• Availability of Mobilized Rubber Boats at least 15 in each district.

• Fixation of contract for emergency regarding arrangements of labourers and material for immediate flood precautionary measures like JCB and vehicles etc.

Response:

•UTEOC or Police Control Room should be constituted as the headquarter for managing flood.

• Executive Engineer Electrical M & RE should provide Flood Light and will keep arrangements ready for its use as per need.

Emergency Medical Relief:

• The CMO/Department of Health and Family Welfare will dispatch a team of medical specialists to the affected site with medicines etc. and prepare the nearest hospital for receiving the victims.

• The Department of Health and Family Welfare at the State Level would coordinate with its counterpart at the national level for medical assistance required for the State.

• Red Cross volunteers trained for providing emergency first aid should be deployed

Setting up and managing relief camps:

• District Administration should set up relief camps or shelter for the people in distress in case the efforts of the civil authorities are considered inadequate for which Army assistance should be acknowledged.

• CA & PD should organize controlled kitchens to supply foods initially at least for 3 days and arrangements of cooked food in the relief camps.

• PHE should ensure that provision of basic amenities like drinking water, sanitation and public health care are provided in relief camps

• Cattle camps, if necessary, should be established and provision for veterinary care, fodder and cattle feed to the affected animals be made available by Agriculture department and Animal husbandry department.

Repair and Reconstruction:

• Municipal Corporation should make arrangements for clearance of all drains and removal of debris from the streets and lanes.

• Department of Telecommunication should ensure that all essential telephones work uninterrupted and necessary arrangements made for timely installation of the telephone at the designated Flood control Room, UTEOC, Control Room Gauge sites, Duty officer's room.

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• The PWD should repair and restore damaged public infrastructure (roads, bridges, critical life line structures).

• I&FC department should restore water supply to the affected areas and should also ensure water supply through tanker until pipelines are fully restored.

Avalanches:

Avalanche Risk Assessment:

It is required that for slopes with an angle of greater than 25 degrees or if there is consistent snow cover of more than 50cm in depth, there needs to be regular and periodic avalanche risk Assessment. It involves the determination of the characteristics of the terrain in and around a geographic area based on an analysis of topographic variables, the snow climate, the estimated return periods and magnitudes of avalanches, and the type of activity that is to be done in that area.

• SASE, PWD (R&B) and other organization such as Border Roads Organization (BRO), Forest Department will continuously monitor and issue warning related to impending avalanche danger.

• SASE will notify about impending avalanche to the district and state level EOCs.

• There needs to be effective coordination between SASE, IMD and GSI on correlating earthquake occurrence with chances of avalanches (earthquake induced avalanches).

• Any notification of occurrence of the avalanches will include preliminary information on location, magnitude, damage caused, etc.

Incident Commander:

• The Incident Commander is vested with the responsibility for designing the search and/or rescue and/ or recovery that is occurring.

• The role of the Incident Commander is filled by a representative of the police, Ambulance Service, Fire Services, and Traffic. They are responsible for the management of all incident operations at the incident site.

• The requesting agencies with authority to function in role of Incident Commander are ,

• Police force of Jurisdiction

• Ambulance Service

• Civil Defence (SDRF)/UTDRF

• Transport Department (unlikely for avalanche rescue and/or recovery)

• Local Authorities including Fire / Rescue services providers.

Avalanche Safety Officer:

• The Avalanche Safety Officer is a highly skilled and experienced command staff member responsible for assessing and monitoring avalanche hazards.

• The ASO will also coordinate the Active Avalanche Safety program which indicates the required measures for ensuring personnel safety.

• Avalanche Safety Officers frequently coordinate onsite operations as the rescue leader.

• However, this function can be delegated by the Avalanche Safety Officer to the Avalanche Site Safety Officer.

• When possible, the Avalanche Safety Officer operates independently of any other duties.

Avalanche Site Safety Officers:

• An Avalanche Site Safety Officer is located at the site of an avalanche.

• The ASSO is responsible for evaluating the risk of further avalanches, identifying safety hazards or unsafe situations, monitoring on-site rescue operations, conducting field assessments and gathering observations, and for implementing and supervising measures for ensuring personnel safety indicated in the Active Avalanche Safety Program.

Search and Rescue Manager:

• Under the general direction of the Incident Commander, the Search and Rescue Manager will manage the volunteer Search and Rescue response during a Search and Rescue response.

Ground Safety and Rescue Team:

• GSAR Team Members and OAR (Onsite Avalanche Rescue) Team Members should be trained in avalanche risk awareness, specialized search and / or rescue techniques, navigation and survival.

• They should participate as part of multi-disciplinary team operating in Avalanche Risk Zones.

• The OAR Team Leader is responsible for organizing, leading and supervising teams during onsite operations.

• Because of the complexity of Search and Rescue operations and the nature of avalanche, key functions are staffed by a single individual. Functions can be fulfilled by volunteer personnel, agency personnel, industry representatives and contractors.

Common duties of the Safety Officer:

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• Identification of Avalanche Risk Areas.

• Conduct preliminary and/or detailed avalanche risk assessments.

• Asses site specific safety and identify winter related hazards.

• Contribute to the development of the Incident action Plan (IAP).

• Monitor rescuers progress and level of exposure to hazards.

• Change, postpone or terminate rescue or recovery activities that may pose imminent safety or health danger to the rescuers.

• Develop hazard and travel advisories.

• Use authority to take appropriate action to mitigate or eliminate unsafe conditions, operations or hazards.

• Document safe and unsafe acts, corrective actions taken on scene, accidents or injuries, and ways to improve safety on future incidents.

• Investigate accidents that may have occurred within the incident area.

• Coordinate with various teams.

• Maintain an activity log.

Communication:

Onsite Operation:

• Search And Rescue Command Staff are responsible for ensuring adequate communications with field teams. Typically, this is accomplished through VHF radio communications or satellite telephone communication devices. Check in procedures for field teams should include a well-being check every 30 minutes or as directed by the Avalanche Safety Officer.

Emergency Co-ordinator Centre:

• Emergency Control Room (UTEOC) should maintain a 365/24/7 operations centre to support search and rescue activities. Search And Rescue Managers are responsible to communicate with the Emergency Co-ordinator Centre on a frequent basis

o At the start and end of each operational period

o Two-hour updates for rescue activities

o Four-hour updates for search activities. o Whenever the status of the subject(s) of a search changes (located, deceased, etc.)

Setting up and managing relief camps:

• District Administration should set up relief camps or shelter for the people in distress in case the efforts of the civil authorities are considered inadequate for which Army assistance should be acknowledged.

• CA & PD should organize controlled kitchens to supply foods initially at least for 3 days and arrangements of cooked food in the relief camps.

• PHE should ensure that provision of basic amenities like drinking water, sanitation and public health care are provided in relief camps

• Cattle camps, if necessary, should be established and provision for veterinary care, fodder and cattle feed to the affected animals be made available by Agriculture department and Animal husbandry department.

Repair and Reconstruction:

• Municipal Corporation should make arrangements for clearance of all drains and removal of debris from the streets, and lanes.

• Department of Telecommunication should ensure that all essential telephones work uninterrupted and necessary arrangements made for timely installation of the telephone at the control rooms and essential lifeline structures.

• The PWD should repair and restore damaged public (critical lifeline) infrastructures.

• I&FC department should restore water supply to the affected areas and should also ensure water supply through tanker until pipelines are fully restored.

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CHAPTER -8 Partnership with other Stakeholders

Coordination amongst various stakeholders is a crucial determinant of a resilient DRR institutional framework. There are various stakeholders, organizations and authorities that constitute a core network for implementing various disaster management related functions. The UNISDR Hyogo Framework for Action 2005-2015 states that,

"Collaboration and cooperation are crucial to disaster risk reduction: states, regional organizations and institutions, and international organizations all have a role to play. Civil society, including volunteers and community-based organizations, the scientific community, the media, and the private sector, are all vital stakeholders".

Some of the key assumption underlying multi-stakeholder partnerships in DRR are given below.

- Effective disaster risk reduction requires the strengthening of partnerships and cooperation between government, civil society and the private sector.
- Multiple stakeholders have a shared responsibility in shaping disaster risk reduction as a key priority in development planning and investment.
- A culture of disaster resilience can be developed only if there is a positive nurturing of cross-disciplinary cooperation from local to global levels of practice.
- Better knowledge management of risk, vulnerability and hazards are possible through collective action.

The objectives of a multi-stakeholder partnership in disaster risk reduction could be understood as follows.

- To strengthen collaborative action for disaster risk reduction.
- To generate learning and improved practice for all stakeholders concerned in disaster risk reduction.
- To develop a shared culture of risk reduction such that diverse stakeholders work together to shape DRR as a recognized priority and correspondingly design appropriate DRR strategies and actions.
- To collectively ensure that DRR is prioritized in public policy, planning and investments.
- To develop new, innovative and sustainable approaches in dealing with risk.
- To strengthen horizontal and vertical cooperation, specifically in strengthening coordination of DRR priorities and approaches between different departments of government and the non-state actors.

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The key objectives of multi-stakeholder partnership can also be understood in the context of the Hyogo Framework.

HFA Goals	Purpose of Multi-Stakeholder Partnerships
Ensuring that DRR is a national and a local priority with a strong institutional basis for implementation.	• Developing the capacity of state and local disaster management agencies. • Improving coordination and implementation of DRR by establishing a legal framework. • Mainstreaming DRR into development planning process. • Create state and local disaster management plan.
Identify, assess and monitor disaster risks and enhance early warning.	• Establishing and maintaining a harmonized disaster risk information system. • Building the capacity of state and locals for responding to disaster warning. • Upgrading rapid risk assessment technologies formulated by line departments, universities and researchers. • Developing Disaster management plan of the state based on hazard, risk and vulnerability analysis (HRVA).
Use knowledge, innovation and education to build a culture of safety and resilience at all levels.	• Up-gradation and improvement of high school, secondary, graduate and post graduate level education on disaster management. • Support for research on technologies relevant to DRR. Generating awareness through an integrated multi stakeholder approach. • Carrying out cost benefit analysis for DRR. • Capacity development of the media to help improve public awareness.
Reduce underlying risk factors	• Public private partnership in DRR. • Integrating DRR into climate change adaptation programmes. • Introducing risk sharing mechanism. • Encouraging livelihood diversification. • Ensuring food resilience.
Strengthen disaster preparedness for effective response at all levels.	• Environmental management. Biodiversity conservation • Capacity development for institutions involved in disaster Preparedness. • Formulation of disaster preparedness and contingency plans. • Establishment for assessing disaster

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	preparedness capacity and mechanism for various stakeholders.

The corresponding activities and stakeholders for each of the HFA goals are identified as follows.

Goals	Activities	Stakeholders
HFA 1	• Enactment of Disaster Management law. • Establishing Disaster Management Authority at all levels. • Establishing a platform for DRR at state and local level.	• NDMA • SDMA/UTDMA • Chief Secretary • SEC • Finance Commissioner (Revenue) • Relief Commissioner • Deputy Commissioners • PRIs
HFA 2	• Setting up information system for disaster with proper data maintenance on disaster. • Developing early warning mechanism for each of the hazard. • Participation of community in risk assessment and monitoring.	• SASE • IMD • GSI • IIT • ISR • Geology and Mining Department • Environment and Remote Sensing Department • Telecommunication Department • Information and Public Relation • Irrigation and Flood Control Department • Fire and Emergency Service • PRIs • State Universities • Private sector Industries • Media • Community
	• Exchanging/ sharing information between stakeholders. • Mainstreaming DRR into educational system. • Conducting research and maintaining a database on disaster.	• Education department • PRIs • Universities • Private Sector • Line departments • Community • SDRF (Civil Defence)/UTDRF • Police • Media • IMPA • NGOs • CBOs

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		• Academia
HFA 4	• Providing disaster risk insurance scheme pre and post disaster to community. • Linking disaster history database to information system for poverty reduction. • Enacting building codes regulations. • Encouraging community based DRR practice amongst practitioners and policy makers.	• Social Welfare • Health department • PRIs • Public Sector Industries • Planning Development Authority • Economics and Statistics department • Media • NGOs • CBOs • Rural department • Agriculture department • CA and PD • Forest Department
HFA 5	• Ensuring availability and accessibility of disaster preparedness mechanism and personnel at the state and local level. • Organizing training by conducting regular mock drills at state and local level. • Preparing Contingency plan and ensure its strict implementation. • Providing multi-stakeholder contingency fund and mechanism for emergency response.	• Civil Defence • Police • Army • PRIs • NGOs • CBOs • NDRF • SDRF/UTDRF • Community • Irrigation and Flood Control Department • Private sector • Other Line Departments • Media

The specific roles of each of the stakeholder are detailed in Table below:

Specific roles of each of the stakeholder		
Stakeholder	**Roles**	**Intervening Phase**
NDMA	• Lay down policies on disaster management. • Approve the national plan. • Lay down guidelines to be followed by the state line departments for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects. • Coordinate the enforcement and implementation of the policy and plan. • Recommend provision of funds for the purpose of mitigation.	• Prevention and Mitigation • Preparedness • Response • Recovery
SDMA/UTDMA	• Lay down guidelines and approve the disaster	• Prevention and Mitigation

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Or LDMA	management plan prepared by the line departments of the state/UT in accordance with the National Authority and ensure its strict implementation. • Review and update measures taken for mitigation and preparedness by the departments of the state/UT.	• Preparedness • Response • Recovery
NIDM	• Strengthening disaster management at national level by developing human resource and their capacity, and policy advocacy. • Promote a culture of prevention and preparedness at all levels by organizing training, indulging in research and documentation.	• Prevention and Mitigation • Preparedness • Response • Recovery
State Executive Committee	• Assist SDMA in the performance of its functioning. • Coordinate and monitor the implementation of the National Policy, National Plan and the State Plan. • Strengthening disaster management at State/UT level by developing human resource and their capacity, and policy advocacy. • Evaluate preparedness at all governmental or non-governmental levels to respond to any threatening disaster situation or disaster and give direction for enhancing such preparedness. • Provide information to the National Authority relating to different aspects of disaster management.	• Prevention and Mitigation • Preparedness • Response • Recovery
NDRF	• Inculcate a culture of preparedness amongst all stakeholders. • Carrying out mock drills and joint exercise with various stakeholders. • Ensure capacity building of state police personnel by training them in the basics of disaster management. • Respond to a situation which is beyond the capacity of the state.	• Prevention and Mitigation • Preparedness • Response • Recovery
UTDRF/Civil Defense	• Carrying out mock drills and joint exercise with various stakeholders in the state and local level. • Ensure capacity building of police personnel by training them in the basics of disaster management. • Respond to a situation which is beyond the capacity of the districts or community.	• Prevention and Mitigation • Preparedness • Response • Recovery
IMD	• Forecast and monitor meteorological information and disseminating the information to	• Prevention and Mitigation • Preparedness

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	the concern State authority. • Issuing of severe weather warnings to the Authority and Community.	• Response • Recovery
GSI	• Regular monitoring of landslide and avalanche in region prone to the hazard. • Carrying out landslide/avalanche zonation in the state.	• Preparedness • Response • Recovery
Snow Avalanche Study Establishment (SASE)	• Provide avalanche forecasting and alerts. • Assist the state in developing avalanche control measures.	• Prevention and Mitigation • Preparedness • Response • Recovery
Academia	• Review and suggest the up-dation of state legislation/policy guidelines as and when required. • Proper data maintenance on hazard for mapping the same. • Documentation of good/best practices (or lessons learnt) that are implemented across the state for each phase of disaster. • Technological and Process Innovation in hazard forecasting, warning and communication.	• Prevention and Mitigation • Preparedness • Response • Recovery
IMPA, GMCs, Agri-University, University of Ladakh	• Enhance the capacity of community by organizing awareness camps. • Educate the masses and government officials about the disaster. • Organize training programmes by conducting regular mock drills. • Prepare contingency plan and ensure its strict implementation.	• Prevention and Mitigation • Preparedness • Response • Recovery
Private sector (Insurer, Contractors, IT companies, Suppliers, Industries)	• Provide necessary equipment and services to the authority for efficient and effective disaster response. • Launch a micro insurance programme for the community pre and post disaster.	• Prevention and Mitigation • Preparedness • Response • Recovery
Civil Society (NGOs, CBOs)	• Establish community level coordination mechanisms. • Initiate appropriate mechanisms for mainstreaming DRR concerns with concern stakeholders. • Mobilize and channelize volunteers and funds for relief and rehabilitation. • Establishing network among service providers. • Promotion of alternative technology for livelihood and housing sector. • Assist the authority in identifying hazards, safe evacuation routes and Post Disaster Needs	• Prevention and Mitigation • Preparedness • Response • Recovery

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	Assessment (PDNA).	
Media	• Impart mass education / awareness about the perceived hazards and steps for its prevention. • Establish a system of early warning linkages with the community and the authority. • Sensitize the masses on possible risk during pre and post disaster. • Provide information on self-help (do's and don'ts) during the disaster. • Provide accurate information about the disaster and unbiased coverage on response and rehabilitation.	• Prevention and Mitigation • Preparedness • Response • Recovery
Community	• Acts as a source of useful ideas those based on indigenous and technical knowledge and skills. • Assimilating various innovations emanating from outside with the local knowledge. • Establish appropriate and effective local knowledge early warning mechanism and ensure Community • Preparedness that it reaches the smallest unit of institution (family). • Testing new knowledge, skills, techniques that they have gained at the community level. • Participate in planning and designing of evacuation safety routes for emergency response.	• Prevention and Mitigation • Preparedness • Response • Recovery
PRI	• Setting up of a disaster management committee which will maintain network with regional and state level disaster management authority and centres. • Identify and integrate appropriate resources into governmental plans for effective disaster preparedness. • Organize awareness campaigns and promote community education on disaster preparedness • Articulation of community need for developing preparedness plan through community involvement and Panchayat ownership. • Encouraging people to insure assets and livelihood. • Dovetailing Risk Reduction into various development programmes and state government. • Supplementing rescue and relief efforts in different coordinating agencies. • Assist in damage needs assessment in identifying victims for compensation and its distribution. • Supervise and monitor long term reconstruction	• Prevention and Mitigation • Preparedness • Response • Recovery

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	and mitigation projects. • Mobilizing funds to use disaster resistant construction technology in vulnerable areas.	
Airport Authority of India (AAI)	• Carry out airport safety audit. • Prepare airports to avoid congestion of incoming relief goods by training the staff on how to access surge capacity and logistics and cope with an influx of aid. • Ensure availability of warehouse space, forklift, pallet truck, and adequate staff. • Provide accurate latitude and longitudinal details of helipads during rescue operations.	• Response • Recovery
Indian Air Force (IAF)	• Positioning of relief materials through air dropped in those areas which are not accessible by road or waterways. • Sharing of data with civil authorities on various aspects: affected areas, casualties, medical aid required, relief material required, rescue effort required. • Earmark hospitals for casevac (or casualty evacuation). • Conduct aerial search and rescue in difficult terrain.	• Response • Recovery
Army	• Assist the authority in institutionalizing Incident Command System. • Evacuation and rescue of (marooned) people. • Transportation of relief material. • Provide logistics back up. • Setting up and running of relief camps with provisions of medical aid. • Immediate restoration and maintenance of essential services. • Emergency construction and repair of roads and bridges.	• Response • Recovery
International organizations - UN Agencies, Red Cross etc.	• Assist the government in terms of equipments, expert personnel, finance and logistics when it is beyond the capacity of the state to respond.	• Response • Recovery

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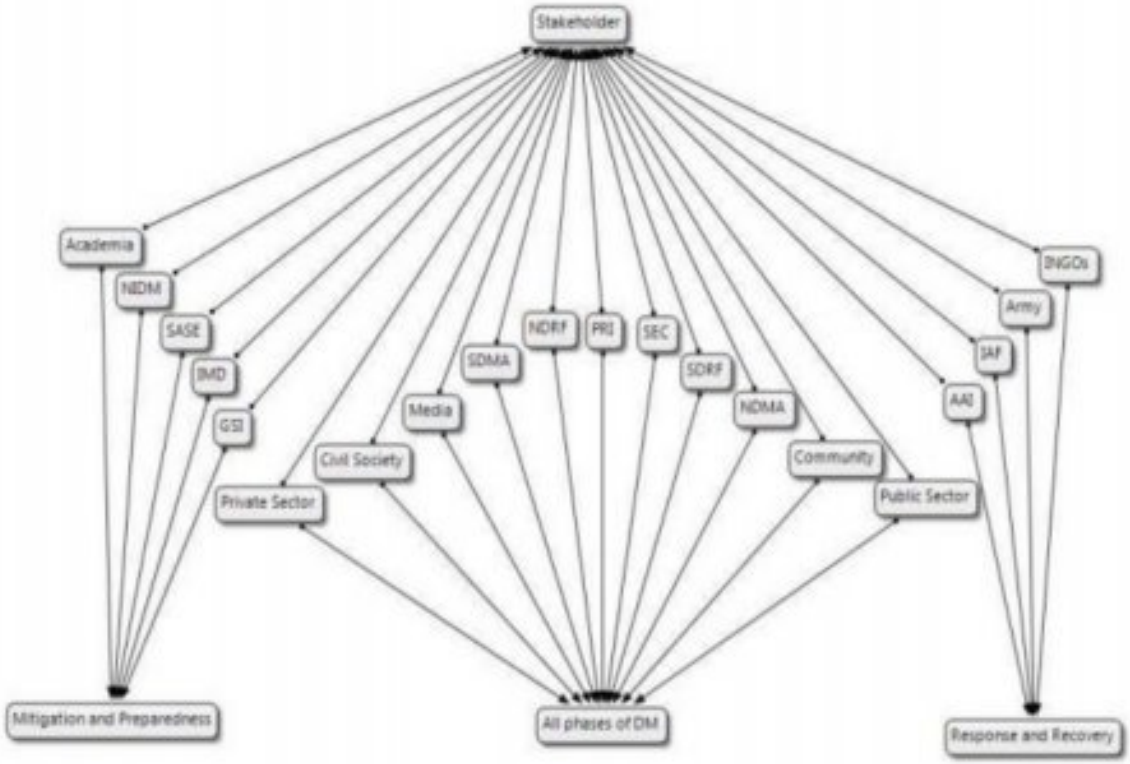
A summary of the above discussion on diverse stakeholders and roles within the context of disaster management in the union Territory of Ladakh is Illustrated in the following figure:



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CHAPTER-9 Rehabilitation and Reconstruction

The rehabilitation and reconstruction phase will be carried out in accordance with the reconstruction and rehabilitation plans framed by Ladakh Disaster Management Authority (LDMA) in conjunction with implementing authorities. The guiding principles of rehabilitation and reconstruction are given below.

Key Principles Guiding Rehabilitation and Reconstruction:

- In the reconstruction and rehabilitation phase, the focus has to shift from response and immediate relief to the livelihood enhancement and employment generation plans and programs with food-for work arrangements.

- Every group involved in the social, economic, and physical reconstruction of the affected region must grant and respect people's right to information and right to participate in the planning process, with full freedom of expression at every stage of planning and execution.

- There should be complete transparency and accountability on the part of the State and the donor agencies.

- Community participation must be sought through representatives of various socio-economic sections within as a precondition for design, planning, site and material selection, material procurement, construction, and utilization of resources.

- The vulnerable members of the community should be given the top priority in skilled and unskilled livelihood opportunities arising during the reconstruction and rehabilitation process.

- Whether for cities, towns, or villages, relocation should as far as possible, be avoided.

- New community location should be planned with clear consent from the village commune or the Grama Panchayat.

- Where there is even partial, minimum relocation of a community, forcible, unjust land acquisition should be avoided.

- The scheduled castes, schedules and nomadic tribes, other socially and economically backward class communities, disabled population, women-headed households etc. should be especially protected against land alienation.

- Reconstruction planning should include apart from housing, community amenities [health, education, water supply, grazing ground, etc.], all of which can be part of the final village resettlement plan.

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• New housing and community reconstruction should have facilities for land conservation, maximum rainwater harvesting, soak pits & drainage, along with other appropriate technology measures to fill water and energy requirements.

• In reconstruction, the choice of technology should necessarily be based on multiple criteria, including self-reliance of the community, availability of the material, and specific hazard proofing technology.

• There should be no forcible, stereotype housing imposed on people, killing or rejecting their diversity of type of technology, and cultural aspects.

• Wherever possible, retrofitting should be a priority over new construction.

• Representatives of affected communities, people's organizations, NGOs, and the local government should form a body for decision making at every level of planning and execution of a project, where funds and inputs are to come from outside the community.

• All funds received from any agency, national or international, including the collection of surcharges, must be deposited into a separate fund / account related to the specific disaster and must be utilized only for the purpose for which it is assigned.

• An independent high-power committee with eminent persons from various walks of life should be immediately constituted to monitor the planning and execution, including expenditure at each - national, state and local - stage.

Approaches in Rehabilitation and Reconstruction:

Table below summarizes the approaches that would guide the rehabilitation and reconstruction phase and in developing the implementation plan.

Approach	Steps
Strategy Formulation and Setting Standard for Reconstruction.	• Development of an over-all strategic vision on reconstruction with a phased program and clear implementation time frame with DRR mainstreaming in development planning. • Key actors need include both State/UT and Central government and humanitarian organizations.
Setting up the Institutional Arrangements.	• Quick assessment of strengths and weakness of pre-disaster delivery mechanism. • Defining the institutional implementation model that could address the immediate and long terms goals of recovery. • Key actors need include both State and Central government and humanitarian organizations. and Third Sector organizations.
Setting up Consultative Mechanisms	• Establishing multi-stakeholder partnership to assess the strengths, challenges/limitations and risks associated with various institutional options. • Consultation with sub – national government, civil society, private sector, technical institutions and academia etc. to foster partnership and benefit from specialized skills and capabilities

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	• Key Actors will include community, local governing bodies, NGOs, Community-based organizations and the various line departments.
Preparatory Exercises, Survey and Fieldwork	• Assessment of risks • Post – Disaster Damage, Loss and Need assessment • Key Actors will include social and technical experts along with other stakeholders mentioned above.

Components of Rehabilitation and Reconstruction Processes:

The key components in the rehabilitation and reconstruction phase are given below.

Detailed Damage Assessment:

While a preliminary damage assessment is carried out during disaster response phase, a detailed assessment must be conducted before commencing reconstruction and rehabilitation activities. The relevant Government departments and local authorities shall initiate detailed assessment at their respective level for damages sustained in housing, industry/services, infrastructure, agriculture, health/education assets in the affected regions. Detailed survey of building is required for assessment of damage and decision regarding repair, reconstruction and strengthening or demolition. It is the responsibility of the district/local administration, which covers all aspects of private as well as public properties, including loss of crops etc. An inventory of all such details is to be prepared along the estimated costs of damages and sent to the state government who may release the required funds. Certain crucial information that needs to be collected during this phase is given as follows in Table below:

Information	Illustration
Number of affected people requiring assistance	• This figure will determine all other estimates and calculations, and therefore, needs to be established as precisely as possible. • Assistance for provisions of temporary accommodation, food, clothing, medical care, etc.
Water needs	• Assessment should examine whether each person is having access to minimum 15 liters of potable water per day to cover drinking, cooking and personal hygiene needs. • Assessment should check whether each hospital in the affected region is able to provide minimum 100 liters per person per day for patients and staff. • The criteria of access to water points, such that one water point per 250 people and the maximum distance from any shelter to the nearest water point should be 500 meters, has to be verified. • Assessment should check whether each family

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	have access to two water collecting vessels of 10-20 liters, plus water storage vessels of 20 liters.
Shelter needs	• Assessment should check whether tents are available for each family comprising of 4-6 people. • Should explore the type of shelter requirements (roofs, walls and floors) in the context of approaching season such as summer/winter/rains. • Should assess the accessibility of locally available shelter resources. • Should access the requirement and type of shelter heating, if necessary. • Assistance sought for repair/restoration of damaged houses.
Nutritional needs	• Assessment should inquire the accessibility of individuals to food rations, in terms of access to at least a minimum of 2,100 kilocalories per person per day. • Special care is to be taken to check the accessibility of special food to treat severely malnourished individuals. • Monitoring of malnutrition using international standards (e.g., Sphere minimum standards) and methods such as weight-for-height, etc. needs to be used.
Sanitation needs	• Assessment should the check the availability/accessibility of toilets such that a maximum of 20 people per toilet have access to it. • Assess, whether use of toilets is arranged by household and/or segregated by sex. • Assess the distance of toilets from dwellings such that there should be no more than 50 meters from dwellings or no more than a one-minute walk. • Assess the distance of toilets from groundwater sources such that toilets should be at least 30 meters away from any groundwater sources and the bottom of the latrine should be at least 1.5 meters above the water table. • Assess whether there exist containers or a system for disposing of solid waste. • Assess the need and methods for vector control (flies, rats, etc.).
Livelihood needs	• Calculations of assistance for agricultural input, replacement/treatment of livestock. • Calculations of assistance for repairing land and

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	other livelihood resources/materials.
Health and Psycho- social care	• Assess the nature and type of short-term and long-term medical care and support that needs to be given the affected persons. • Assess the nature and type of psycho-social care and support that needs to be given to the affected persons.

Assistance to restore houses and dwelling units:

The government of Union Territory of Ladakh may, if needed, will formulate a policy of assistance to help the affected to restore damaged houses and dwellings. Certain guidelines for the same are given below.

• Recovery support for housing reconstruction should be based on indigenous designs and adaptable to perceived/occurred hazards.

• Housing units that are repaired or replaced should account for future hazard risk in design, construction, and materials.

• Housing solution should ensure access to livelihoods, availability of food and water, access to markets, utilities, and transportation, access to religion and religious facilities and any other routines of daily life during normal times.

• Care should be taken to prevent unintended and negative effects on the natural environment, or should address any environmental impacts that are caused by the intervention.

• Housing solution should be sustainable (environment, technical, financial, organizational and social). The burden on these sustainability dimensions should never be imposed upon the affected communities.

Relocation (need based):

The local authorities in consultation with the people affected and under the guidance of the government of Union Territory of Ladakh shall determine relocation needs taking into account the criteria relevant to the nature of the calamity and the extent of damage. Relocation efforts will include activities like:

• Gaining consent of the affected population;

• Land acquisition;

• Urban/ rural land use planning;

• Customizing relocation packages;

• Obtaining due legal clearances for relocation;

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- Getting the necessary authorization for rehabilitation;
- Livelihood rehabilitation measures for relocated communities, wherever necessary.

Re-building Infrastructure:

The government of Union Territory of Ladakh will develop a people-centered infrastructure development plan that will pave way to a resilient future. Certain guidelines for the same are given below.

- Repair, replace and re-establish damaged physical and social and economic infrastructure upon which the society's life-lines depends.
- Infrastructure development that accompanies the recovery effort should be accessible to all populations affected, respective to their physical location, and irrespective of their economic, ethnic, religious, or other background.
- Infrastructure solutions must adequately account for sustainable development of the region - the climate, geography, financial and technical capacity, and projected growth of the communities served all needs to be considered. There should be no negative effect on the natural environment, ensuring that any collateral impacts are resolved.
- Ensure sound environmental impact assessment of potential reconstruction sites in which technical, social, political and economic factors should be included to minimize/reduce the exposure of the affected populations to additional health and natural hazards.
- Incorporate climate proofing at the design stage of the upcoming infrastructure recovery projects.
- Address disaster induced challenges such as accessibility, availability, quality, and financing of health-care related infrastructure and provide better health service, benefits, and accessibility to the poor and other vulnerable population.
- Design the health system infrastructure to be prepared and responsive to all multi hazards in future.

Typical infrastructure building activities during the reconstruction phase would include:

- Disaster proofing and retrofitting of buildings.
- Creation/ retrofitting of structures such as roads, bridges, dams, canals etc. that may have been destroyed/ damaged due to the disaster.
- Restoration of basic infrastructure facilities, for example, ports, airports and power stations.
- Construction of health centres, first aid centres and hospitals.

Re-building Livelihoods:

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Livelihood recovery is an important component of the rehabilitation and reconstruction phase. Some of the essential guidelines for livelihood recovery are given below.

• Restore livelihood activities by replacing or repairing assets that have been destroyed or disrupted in disaster.

• Enhance the capacities of livelihood related line departments.

• Strengthen Community Based Organizations (CBOs) and communities in planning, implementing, monitoring and evaluating community livelihood rehabilitation plans.

• Diversify or transform livelihood by developing new skills and strategies based on existing knowledge and experience to improve people's resilience.

• Identify new and improved marketing methods and trade routes.

• Ensure that gender sensitive approach/methods are incorporated in the livelihood rebuilding processes. • Enhance the resilience of communities to future climatic change events by livelihood diversification and biodiversity conservation.

• Organized comprehensive rehabilitation package for livestock-dependent livelihoods including restocking, shelter construction and income-raising activities.

• Establish community-based animal health care delivery system to reduce livestock deaths in the rehabilitated area.

Psycho-social Care and Support:

Psycho-social care and support is an important component of disaster rehabilitation and reconstruction. Some of the essential aspects that needs to be maintained for the same are given below.

• Impart essential skills of psychosocial care to community level workers engaged in relief, rehabilitation and reconstruction as part of the overall rebuilding process.

• All medical personnel should be trained in the essentials of mental health care so that they recognize these conditions and treat the affected population with specific interventions and thus avoid dependence on non-specific interventions like the use of pain relievers, sleeping tablets, vitamins and injections.

• Providers of psychosocial care should be sensitive to culture, ethnic, religion, racial and language diversities.

• Administrators should integrate psychosocial care as part of the overall care programmes.

• Ensure that Standard Operating Procedure is developed for proper rapport building between care givers and survivors (follow up).

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• Carry out psycho social needs assessment at individual, family and community level.

• Conduct periodic assessment on mental health and psycho social needs keeping in mind the physical, social and economic factors that perpetuate mental health.

• Monitor and evaluate PSSMHS intervention.

Finalizing Reconstruction and Rehabilitation Plan:

The effectiveness of any reconstruction and rehabilitation is based on detailed planning and careful monitoring of the relevant projects. The Financial Commissioner (Revenue) / SDMA/UTDMA will oversee reconstruction and rehabilitation work and ensure that it takes into account the overall development plans for the state. The SDMA/UTDMA will approve reconstruction and rehabilitation projects based on (i) identification of suitable projects by relevant departments and (ii) project detailing and approval by the relevant technical authority.

Funds Generation:

The government of Union Territory of Ladakh shall finalize the fund generation mechanism, which includes:

• Estimation of funds required based on detailed damage assessment reports and consolidation of the same under sectoral and regional heads;

• Contracting with funding agencies and evolving detailed operating procedures for fund flow and corresponding agreements and activities.

Funds Disbursement and Audit:

The Financial Commissioner (Revenue) or UTDMA, in conjunction with relevant agencies, shall monitor disbursal of funds by:

• Prioritizing resource allocation across approved projects;

• Establishing mechanisms (like a chain of banks, collection centres, nature of accounts, spread etc.) for collection of funds;

• Ongoing monitoring and control of fund usage throughout actual project implementation.

Project Management:

The rehabilitation and reconstruction effort requires the coordinated efforts of several stakeholders. The project management capabilities of diverse stakeholders need to be synergized efficiently such that the project is executed on time, in accordance with the technical specifications and to the satisfaction of the beneficiaries.

Information, Education and Communication:

Communication activities are necessary to convey to the larger community the scope and nature of the proposed reconstruction and rehabilitation effort so as to increase the stakeholder Awareness and buy-in for the ongoing activities. Hence, the relevant government departments, district administration and local authorities shall undertake:

- Ongoing media management/ Public Relations: To ensure accurate communication of the reconstruction and rehabilitation measures being taken to various stakeholders;
- Community management: This includes communicating to the affected communities with a view to appraising them of efforts being made for their relocation/ rehabilitation/ reconstruction;
- Feedback mechanisms: Using the communication network to get feedback on reconstruction and rehabilitation measures.

Dispute Resolution Mechanisms:

The Financial Commissioner (Revenue) /Administrative Seceretary/UTDMA/ SDMA, in conjunction with relevant agencies, shall institutionalize mechanisms to address beneficiary grievances at various levels, as well as explore innovative ways of dispute minimization like involving the community in reconstruction initiatives. Appropriate mechanism with penalties for dealing with false claims will be evolved to prevent misuse of assistance.

Implementing Initiatives for Recovery of Reconstruction Costs:

The government of Union Territory of Ladakh shall finalize and implement select recovery measures such as:

- Imposing tax surcharge levies (central)
- Imposing local taxes
- Facilitation of funding responsibility sharing by beneficiaries etc.

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CHAPTER-10 Plan Maintenance

Plan maintenance is a dynamic process of updating the plan on a periodic basis. The back-bone of maintaining the plan is carrying out mock drills, undertaking periodic vulnerability and risk assessment, improvising in the context of new development programmes/projects and updating the plan accordingly. The Finance Commissioner (Revenue), Commissioner of Relief, Revenue Department shall prepare, review and update State Disaster Management Plan. The concerned officer shall also ensure that disaster management drills and rehearsals are carried out periodically.

While updating the plan the following aspects need to be considered by the COR every year:

i) Critical analysis of the outcome of exercises and mock drills as part of plan testing.

ii) Risk and Vulnerability Assessments and the incorporation of the same in the plan.

iii) Incorporation of lessons learnt in the updated plan as an outcome of mock exercises through identification of gaps and measures to fill them.

The plan must be thoroughly tested and evaluated on a regular basis once in a year. The plan testing should preferably be organized on the first Monday in the months of March every year. After plan testing and incorporation of lesson learnt, the Commissioner of Relief should send a copy of the revised and updated plan to the following officials:

(a) Chief Secretary/Advisor, Government of Jammu and Kashmir

(b) Chief Executive Officer, State/UT Disaster Management Authority, J&K

(c) Principal Secretary, Revenue Dept

(d) Finance Commissioner (Revenue)/Adm. Seceretary DMRRR

(e) Head of all line Depts.

(f) State EOC

(g) District EOCs

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(h) ERCs

(i) IMD

The main objectives of plan testing are to:

Determine the feasibility and compatibility of back up facilities and procedures.

(i) Determine the feasibility and compatibility of back up facilities and procedures.

(ii) Identity areas in the plan that need modification.

(iii) Identify training needs of key stakeholders.

(iv) Assess the ability of the organization/department to respond to disasters.

All the departments, which have specific roles and responsibilities in State Disaster Management Plan, must have a system to ensure that all Officers of their departments who have a specific role to play are fully conversant with their responsibilities/tasks.

Debrief and Evaluation-Mock Drills:

• After the mock exercise debriefing and evaluation is very important. It is of critical importance that these insights are collected from participants (who participated in the exercise) and used to modify the plan.

• Hot debriefing is very effective as it is carried out immediately after the exercise. It also includes documentation in terms of recommendations and improvements of the plan.

• The lessons learned from the mock exercise are likely to be similar to those from real events. The only major difference is that exercises are controlled events, specifically designed to test procedures and they can be repeated again and again until sound/workable arrangements are in place.

Review / Updation of Plan:

The UT Disaster Management (Ladakh Disaster Management Plan), Plan should be reviewed and updated regularly by month of April-May, based on inputs as under:

(a) Drills and Rehearsals;

(b) Recommendations from all Departments in their Annual Disaster Management Report;

(c) Lessons learnt from any disaster event in other states and countries;

(d) Directions from Ministry of Home Affairs, National Disaster Management Authority, Government of India, etc. The SDMA/UTDMA/LDMA and all other concerned agencies will interact with various stakeholders at different levels to learn and document their experiences, and there by improvising the UT Disaster Management Plan.