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

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सत्यमेव जयते

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

SHRI BHUPANDER SINGH
ASSISTANT ADVISOR
(Comn & IT)

Subject: Submission of Standard Operating Procedures of ERSS Dial 112.

Sir,

In response to your letter F No 41/2021/ERSS-MEETING/ITC (113439) dated 29 April, 2024 regarding the submission of the Standard Operating Procedures (SOPs) for the Emergency Response Support System (ERSS) Dial 112, I am directed to submit the SOPs for ERSS Dial 112 which include:

1. Call Reception and Categorization: Guidelines for receiving and categorizing emergency calls.
2. Dispatch Protocols: Instructions for dispatching appropriate emergency services.
3. Communication Protocols: Standards for maintaining clear communication.
4. Response Time: Benchmarks for timely intervention.
5. Data Management: Protocols for managing emergency call data securely.

It is to further mention here that the SDMA is committed to continuous improvement and if any feedback needed by your end, please.

(Enclosure 113 Leaves)

Yours faithfully,

ABDUL MAJID
Digitally signed by ABDUL MAJID
Date: 2024.07.01 10:35:27 +05'30'

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

NO. Secy/DMRRR/UTL/2024/ 377-79 Dated: 1.07.2024

Copy to the: -

1. ***The Director CDAC for Kind information.***
2. ***PS with Advisor to the Hon'ble Lt. Governor for kind information .***

STANDARD OPERATIONS PROCEDURES

FOR
EMERGENCY OPERATIONS CENTERS
UT LADAKH

PREFACE

This handbook of Standard Operations Procedures (SOP) for Emergency Operations Centers (EOC) in UT LADAKH is drafted as a guide for persons normally responsible for operations and upkeep of EOC.

The EOC has an important role in disaster response as it is a central command and control facility responsible for carrying out the principles of emergency preparedness and disaster management functions at a strategic level, in an emergency situation. As such the operating staff should work diligently and extend all possible support to Incident Commander (IC) in carrying out disaster management activities.

EOC is mainly responsible for the strategic overview, or "big picture", of the disaster, and does not normally directly control field assets, instead making operational decisions and leaving tactical decisions to lower commands. The common functions of all EOC's are to collect, gather and analyze data; make decisions that protect life and property and facilitate return to normalcy as early as possible.

The document is divided in to three sections. Section "A" provides with general guidelines and information regarding EOC infrastructure in UT LADKAH. Section "B" includes formats for data collection, situation reports as well as important data bases essential for day today functioningof EOC. Section "C" contains relevant extracts from Standard Operating Procedures for disaster response drafted by Disaster Management Cell (DMC).

It is important to note that all databases are normally valid for a limited period and these should be periodically updated.

The Consultant

Leh

March 18, 2024

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SECTION "A"

CHAPTER-1: GENERAL GUIDELINES

Introduction:

A standard operating procedure is "an organizational directive that establishes a standard course of action." In other words, SOPs are written guidelines that explain what is expected and required of public service personnel in performing their jobs. A comprehensive set of SOPs defines in significant detail how the organization intends to operate.

SOPs may be prepared for any function that the organization performs; including administration (operations, equipment maintenance, training of staff, arranging mock drills, etc.) and emergency response operations (issuing alerts to responsible officers, following-up development of disaster situation, allotting and tracking of resources, ensuring communication link continuity etc.). The procedures can be organized and presented in many different ways, depending on the organization's needs and preferences.

SOPs don't address pre-incident plans or pre-plans, which describe strategies for emergency response at a specific facility. Pre-plans allow the organization to gather information on designated locations, identify potential hazards, and assess site-specific factors. SOPs, on the other hand, are more generic in nature. They address general functions like equipment deployment and tactical operations, and they are applicable to all emergency incidents, or at least to a specific category or type of emergency situation.

SOPs are not intended to duplicate technical information or provide step-by-step instructions for doing the job. The knowledge and skills that personnel need to perform specific job tasks—manage programs, operate systems etc.—are addressed in technical protocols and professional training. SOPs, conversely, describe related considerations: safety, use of supplies, equipment maintenance, duties and rights of personnel, command structures, coordination with other organizations, reporting requirements, and so forth.

Stated differently, SOPs don't describe how to do the job (technical skills), they describe the organization's rules for doing the job (procedural guidance). An example might help to clarify this point. For example technical skill is related to operations of warning system and SOP is related to circumstances under which warning systems are to be used.

Need for SOPs

SOPs for operation of Emergency Operations Centers are essential to meet following requirements:

- Legal and regulatory framework— to meet aim of the organization, to follow safe work practices, to ensure performance standards, etc.

- Handling complexity in emergency response techniques and equipment, information management, training systems etc.

- Optimum coordination and reporting requirements with other groups such as emergency response agencies, community managers and planners, domestic and international NGOs and other stake holders

It is important to note that in disaster response operations the decisions that personnel face are more complex and can become controversial. Mistakes have greater repercussions and costs in such situations. Emergency service operational staff needs understanding of regulatory and administrative requirements. Senior officers, on the other hand, need a mechanism to convey operational guidance to the members and ensure departmental compliance with laws, regulations and standards. They need tools to direct and control the rapid pace of change.

For individual workers, SOPs clarify job requirements and expectations in a format that can be readily applied on the job. They explain in detail what the department wants them to do in the situations they are most likely to encounter. The result is improved performance, and morale. For department managers, the advantages are equally great. SOPs provide a mechanism to identify needed changes, articulate strategies, document intentions, implement regulatory requirements, enhance training, and evaluate operational performance. The result is greater operational efficiency and accountability.

CHAPTER-2: EOC ORGANIZATION SET-UP

: Objectives

The key objectives of the Disaster Management Framework and Disaster Management Act as defined by Government of India and UT LADAKH are as under:-

- To promote a disaster risk management approach instead of an *ad hoc* reactive approach to dealing with disasters;
- To recognize the respective roles of different organizations in disaster risk management and provide all possible support to their work within the State framework for disaster risk management; and
- To establish linkages between disaster risk management and the other ongoing activities in different development sectors.

The Disaster Management Act of 2005 and relevant NDMA guidelines have mandated that a State Emergency Operations Centre (SEOC) and EOCs at District level should be established to support disaster response activities.

The **State Emergency Operations Centre (SEOC)** shall be the hub for maintaining a constant vigil on the emerging disaster situation and coordination of response endeavors. It shall maintain regular contact with District Emergency Operation Centers (DEOCs) and assess their requirements and provide regular situation reports to the State government authorities as well MHA and NDMA.

EOCs will be set-up at all District level and will be known as DEOC. The District EOC and the District Disaster Management Authorities (DMCA) shall have the responsibility of supervising the disaster response and shall report on a regular basis to the State EOC about the requirements and needs in the affected areas and extend such assistance as shall be required by the Urban Local Bodies (ULB)s and Panchayat Rajya Institutions (PRI)s.

At the State and District levels inter-sectoral co-operation and co- ordination shall be sought to ensure effective management in times of disasters. It is anticipated that the institutional arrangements being set-up at different administrative levels shall go a long way in streamlining and coordinating the initiatives and efforts being made by various constituents of the administration and shall lead to a synchronous, harmonious and efficacious functioning of disaster risk management mechanism and shall substantially contribute towards strengthening the disaster response capacities across the country in a systematic and steady manner over the coming years. These institutional mechanisms shall help achieve a vision of creating a disaster-resilient state.

Emergency Operations Centre (EOC)

An Emergency Operation Centers (EOC) shall be the information nerve centre and command and control centre for coordination and management of disasters and it shall provide centralized direction and control of any or all of the following:

(a) Receive disaster alerts and warnings from Responsible Agencies and other sources and communicate the same to all relevant agencies;
(b) issue incident specific information and instructions to all concerned
(c) forward reports to all relevant agencies
(d) monitor response and relief operations;
(e) facilitate coordination among agencies providing Critical Disaster Management Facilities;
(f) facilitate coordination of response and relief operations;
(g) requisition resources during disaster;
(h) Perform such other functions as may be directed by the Authority and in the case of District Emergency Operation Centre by a Committee.

The State Emergency Operation Centre (SEOC) shall generally supervise and direct the functioning of District Emergency Operation Centre (DEOC) and District Emergency Operation Centre shall supervise and direct the functioning of transportable, portable Emergency Operation Centre within its jurisdiction. DEOC will also be responsible sub-divisional EOCs if any. Agencies responsible to support disaster response will be present at the State Emergency Operation Centre as well as DEOC to coordinate and assist in taking prompt decisions during response and relief operations.

The agency maintaining an emergency help centre shall collaborate and build linkages with the SEOC and DEOC. The emergency help centre shall develop its Standard Operating Procedures for communicating and sharing information with the State Emergency Operation Centre and District Emergency Operation Centre at all times. The emergency help centre shall, during threatening disaster situation or disaster, operate under the supervision of the State Emergency Operation Centre or the District Emergency Operation Centre, as the case may be.

Monitoring

An Emergency Operation Centre concerned shall, once an early warning has been issued to an affected area, implement real-time monitoring in collaboration with responsible agency. The EOC shall be responsible for:

(a) Monitoring the transmission of warning;
(b) Monitoring the effectiveness of warning based on community reaction to it; and
(c) Gathering information on the incident and updating and disseminating information on response and relief operations.

The EOC should also provide the reports on the effectiveness of warning should be fed back to the Responsible Agency in order to facilitate issue of further warning message.

Resource requests

All resource requests during disaster shall be made by site responders to the District Emergency Operation Centre concerned, which shall be promptly communicated to agency concerned.

Decision Making

All decisions made in the Emergency Operation Centre shall be based on available information. The Emergency Operation Centre shall make its decisions in consultation with Incident Commander (IC) and other relevant Government agencies.

Situation Reports:

EOC at State and concerned District level shall prepare situation reports indicating disaster status, actions taken in response to the disaster, people and live-stock affected and loss of property etc. This report will help senior government functionaries (at state and national levels) makers in deciding on course of action including requesting for international aid if necessary.

Documentation

All decisions made and actions taken during a disaster shall be documented in the format developed by Department of Disaster Management for record keeping. The Emergency Operation Centre is responsible for ensuring that all records are complete and available in the event of a public inquiry. The Disaster Management Centre (DMC) shall after a disaster prepare a lessons learnt report in collaboration with Committees and agencies concerned.

CHAPTER-3: RESPONSIBILITIES OF EOC

Responsibilities during normal times

The Emergency Operation Centre shall during normal times enhance preparedness; ensure that it is well equipped; maintain equipment in operational condition; maintain and update contact details of relevant persons; collect, update and analyze data and disseminate information; and perform such other functions, as may be directed by the Department of Disaster Management or Chairperson of a Committee, as the case may be.

A District Emergency Operation Centre shall report on a monthly basis or as and when directed by the State Emergency Operation Centre in a format prescribed by the State Emergency Operation Centre.

Early Warning system

The Early Warning System is a monitoring and advisory tool to identify hazard and notify all vulnerable population and responding agencies of threatening disaster situation or disaster. A Responsible Agency shall be required to collect, assimilate and disseminate information about the threatening disaster situation or disaster. It shall keep track of developments in respect of specific hazards assigned to them. An Early Warning System shall monitor threatening disaster situation and notify and update all vulnerable population and amongst others the Emergency Operation Centers in accordance with its standard operating procedures.

An Early Warning shall comprise of three phases namely, advisory, watch and warning. The following guiding principles must be adhered to while taking decision to disseminate early warning i.e. Certainty, Severity, Timeframe, Frequency and action

The message content and form shall be simple and brief; user friendly and easily understandable by common people; and suited to the needs of the community. A standard emergency warning signal both in audio and visual form shall be developed to alert the general public by the Responsible Agency. Early warning icons for different hazards based on severity levels shall be developed by the Responsible in consultation with Department of Disaster Management.

The dissemination of early warning messages shall be made through different modes of communication and both the latest technology and conventional methods shall be used for dissemination of information, which shall include telephones, mobile applications, radio, TV, Internet, notifications via news papers, local sirens and direct person to person contact.

The messages issued during an Advisory, Watch and Warning phase shall be facilitated by the Emergency Operation Center. The District Emergency Operation Centre shall ensure that watch and warning messages are issued in a timely manner.

Withdrawal of Warning

The Responsible Agency shall, in consultation with Emergency Operation Center, engage with media industry to ensure that the community is clearly advised when the threat has eased or ended. A responsible agency issuing the initial message shall issue warning withdrawal message through appropriate means.

Operational units in EOC and their responsibilities:

EOCs will have following equipments and systems:

1. IT system consisting of Desktop computers, Resource database server, Voice recorder, Video-conferencing system and Radio over Internet Protocol, Routers and LAN
2. Communication system consisting INMARSAT Sat Phone, INMARSAT BGAN terminals, Digital Telephone exchange, smart mobile phones, IP telephone with display
3. Internet and VPN links
4. VSAT network, fixed VSATs, portable VSATs and ERV
5. VHF radio network
6. Video and audio system consisting of LED display units, video and audio amplifiers
7. Incident Response System software
8. Office equipment including fax machines, scanners and printers
9. Back-up power system including UPS and Diesel Generator sets

EOCs will include:

- Disaster Response Centre,
- Operations room
- Videoconference rooms

EOCs will be manned by technically qualified operational staff, which will ensure that responsibilities described in details in preceding paragraphs are fulfilled. Work of EOC staff can be divided into following categories:

a. In house system performance verification
b. Checking availability of network links and take corrective action in case a fault is detected
c. Perform allotted functions during normal times
d. Work related to early warning systems such as receive disaster related information from public and alerts from responsible agencies, process the information and forward to relevant agencies and issue warnings to public after getting permission from responsible officers
e. Coordination work during disaster response
f. Taking care of documentation and preparation of situation reports
g. Following-up with relief and rehabilitation work

Standard Operating Procedure for performing above mentioned tasks will be as described in following paragraphs.

Standard Operating Procedures (Guidelines)

EOC staff will ensure that the work as described herein is carried out within specified time period and results are recorded for future guidance.

In house system performance verifications, availability of network links and initiate corrective actions if necessary

Sl. No.	System details	Performance tests	Periodicity	Remarks
1	Desktop computers	Operating system working OK and antivirus software is functional	Every day	
2	Resource database server	Data is not corrupted and back-up server is functioning OK and data on both servers are in sync	Every day	
3	Telephone lines	All lines are functional	Every day	
4	Voce recording system	Recording of all lines is functioning properly and time stamp is proper	Every day	
5	Videoconferencing system	Check system working OK with setting-up VC with any three DEOCs	Every day	Checking of all DEOCs should be completed once in a week
6	Radio over Internet Protocol gateway	Check system is able to interconnect wireless radio unit with VoIP phones at EOC	Every day	
7	SMS based EWS	Check system functionality	Every day	
8	INMARSAT Phones	Make a test call on any one phone to check performance	Every day	Checking of all phones should be completed once in a

				week
9	BGAN terminal	Make a data transmission (send a test e-mail) on any one unit to check performance	Every day	Checking of all terminals should be completed once in a week
10	Smart mobile phones	Make a call and data transmission (send a test e-mail, access Internet) on any one unit to check performance	Every day	Checking of all terminals should be completed twice in a week
11	VoIP phones	Make and receive calls on all phones	Every day	
12	Internet links	Check the link is working by accessing Internet and checking data speed (using dedicated web sites for this purpose)	Every day	
13	Virtual Private Network links	Make a test call and data transmission to all DEOCs	Every day	
14	VSAT network	Make a test call and data transmission to all DEOCs	Every day	
15	Portable VSAT	Set-up the unit and check voice and data transmission	Once in a fortnight	
16	ERV	Check functioning of all systems in the ERV	Once in a fortnight	
17	VHF radio network	Check intercommunication between handsets	Three sets per day	Checking of all radios should be completed once in a week
18	Video display units	Check functionality and reception of TV news	Every day	

19	Audio and video amplifiers / distribution units	Check functionality	Once in a week	
20	ICS software	Check functionality including interoperation with resource data base, GIS maps , Google earth etc.	Every day	
21	Office equipment (fax, scanners etc.)	Check functionality	Every day	
22	Back-up power system UPS	Check load handling capability for half an hour	Once a week	
23	Back-up power system Genset	Check load handling capability for one hour	Once a week	

Functions during normal times:

Sl. No.	**System / function details**	**Action to be taken**	**Periodicity**	**Remarks**
1	Resource data base	Check for updates from Districts	To be worked out based on total number of locations from where data is to be received	Update for all sites to be completed every six months
2	Disaster Response Centre	Information collected from incoming communications (telephone calls, SMS or e-mails) to be tabulated , time stamped and forwarded to respective agencies for further action	Every day	
3	SEOC	Collect data from each DEOC regarding functions allotted	Once in a week	Compilation of data from all DEOCs to be forwarded to DMC office

				once every month
4	DEOC	Forward feedback on all allotted functions to SEOC	Once in a week	
5	Mock drills	SEOC should prepare periodic mock drill activity plan and schedules in consultation with concerned ESF organization (Fire brigade, health ministry, transportation department etc.) as well DEOCs	Once in a month for different activities and disasters	It should be ensured at least one mock drill is conducted for each type of disaster within each six monthly period
6	Contact lists of responsible agencies / Officers	Check and update names , telephone numbers, mobile numbers and e-mails of responsible officers of Emergency support Function organizations at SEOC and DEOC locations	Once in a month	
7	Formats for requisitioning resources including man power	Check for updates if necessary	Once in a month	

Functions during pre-disaster and disaster period

Sl. No.	System / function details	Action to be taken	Periodicity	Remarks
1	Receive alerts from responsible agencies including international	Study the inputs and forward the information to concerned official agency for further instructions	As and when received	Actions to be taken on top priority

	organizations			
2	Issuing of warning messages to government organizations responsible for disaster response	Forward alert / warning messages to these organizations after obtaining clearance from responsible officers	As and when received	Actions to be taken on top priority
3	Forwarding of warning messages to disseminating agencies such as Radio , TV channels	Approved messages to be sent in Common Alerting Protocol (CAP) format for broadcasting to public	As and when received	Actions to be taken on top priority
4	Forwarding of E W messages to public	Approved messages to be sent via SMS format for broadcasting to public or authorised village officials	As and when received	Actions to be taken on top priority
5	Monitoring of effectiveness of EW messaging	EOC should collect feedback from people who received alert / warning messages to check effectiveness of EWS	As and when necessary	
6	Setting-up of Incident command	EOC in consultation with DMC will set-up Incident command post for quick decision making process		
7	Updates on disaster situations	• EOC should collect inputs on changing disaster situation from various sources such as radio and TV news channels, Video from disaster locations, emails and voice messages received from DEOCs and persons engaged in rescue and relief operation • EOC should prepare periodic situation reports for submission to DMC	As and when necessary	

		and other senior government functionaries		
8	Rapid damage assessment report	• EOC should collect rapid damage assessment reports from agencies operating in the field • Compile a concise report for submission to senior government functionaries so that a decision can be arrived at regarding whether there is a need for external (State level or from International aid agencies) assistance	Regularly during disaster response operations	
9	Determining Level of disaster	EOC will study the rapid damage assessment report and take a call on deciding level of disaster in consultation with DMC and DMC	After receipt of first damage assessment report	The decision on level can be updated based on subsequent damage reports
10	Ramping-up of Staff strength	EOC will decide on additional staff deployment in operations room as well as DRC based on level of disaster	After declaration of level of disaster	
11	Preparation of Incidence Activity Plan (IAP)	EOC will prepare IAP in consultation with Incident commander and concerned ESF department personnel	After declaration of level of disaster	
12	EOC activities report	A report regarding various actions taken by EOC operational staff in pre and post disaster stages along with time stamps for analysis and corrective actions if necessary	Every day during disaster response period	
13	Decision making	EOC operational staff should take decisions in	Every day during	

		consultation with responsible senior government officials using available tools in the EOC and situation reports received from the field staff These tools include a. IRS software b. Disaster resource Database c. Archived data on similar disasters in the past d. Dynamic resource availability e. External aid component etc.	disaster response period	
14	Documentation of all events, decisions arrived at	EOCs both SEOC and concerned DEOCs are responsible to keep complete documentation of pre and post disaster response activities	Compilation to be done throughout disaster response activities and to be submitted to DMC office for safe keeping and future actions if any	Documentation is important to help of post disaster enquiry commissions set-up if any and For analysis and corrections to improve response to future disasters

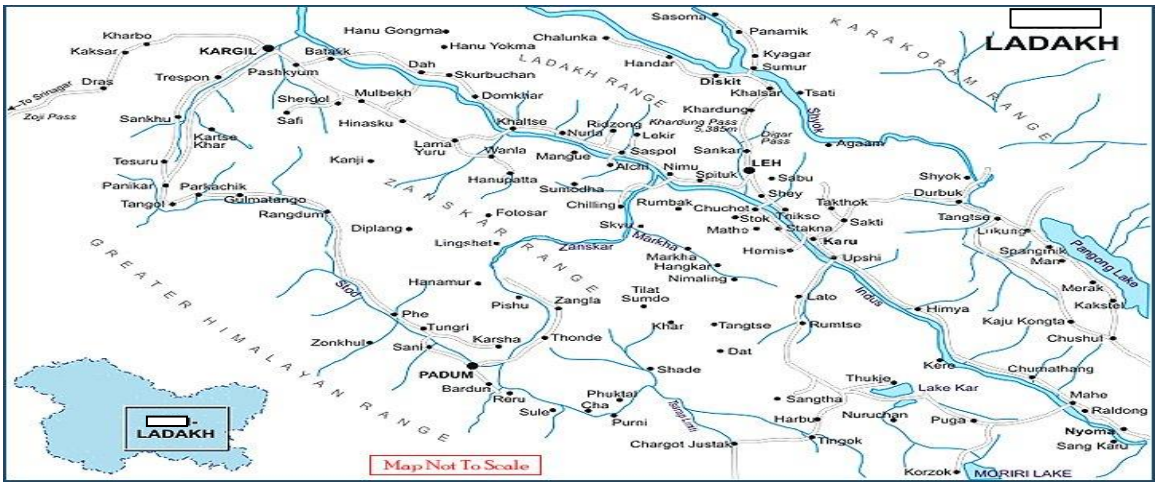
The EOC thus will be nerve centre of all pre and post disaster activities. EOC will also be responsible for communications with other responsible organizations (ESF) and inter organizational correspondence should be done as per approved formats.

CHAPTER – 4: EOC INFRASTRUCTURE

Introduction:

General information regarding state and disaster vulnerability

Ut Ladakh is located in northern part of India and has common border with Jammu and Kashmir . The state has an international border with China and Pakistan . Total area of the state is 86904 km2.



(Map UT LADAKH)

The state is endowed with immense natural beauty and is, undoubtedly, one of the most popular tourist destinations for domestic as well as international tourists. There are large variations in the climate across the state. Most areas of the state receive substantial snowfall due to high altitudes as well as higher latitudes.

Brief information on Hazard profile of the state is given below. This information will help the bidder in design of highly reliable emergency communications systems to ensure high system availability even during disaster situations.

Hazard Profile of UT LADAKH

State of UT LADAKH is prone to various hazards both natural and manmade. Main hazards consist of earthquakes, landslides, flash floods, avalanches ,fires, road accidents etc.

1. **Earthquake:**

Earthquake of Magnitude:5.2, Occurred on 19-02-2024, 21:35:17 IST, Lat: 35.45 & Long: 74.93, Depth: 10 Km ,Location: 148km NW of Kargil, Ladakh, official statement added.

An earthquake of magnitude 3.4 on the Richter scale struck Ladakh on December 2. The tremors were felt in the region at 8.25 a.m., according to the National Center for Seismology (NCS). The epicentre was located at a latitude of 35.44 and a longitude of 77.36, with a depth of 10 km.

"Earthquake of Magnitude:3.4, Occurred on 02-12-2023, 08:25:38 IST, Lat: 35.44 & Long: 77.36, Depth: 10 Km, Location: Ladakh," the NCS said in a post on X

Leh and Ladakh both lie in the Siesmic Zone-IV of the country, which means they are at a very high risk in terms of vulnerability to earthquakes. Lying in the tectonically active Himalayas region, Leh and Ladakh are prone to frequent tremors.

Earthquake-prone regions of the country have been identified based on scientific inputs related to seismicity, earthquakes that occurred in the past and the tectonic setup of the region. Based on these inputs, the Bureau of Indian Standards (BIS) has grouped the country into four seismic zones viz. zones V, IV, III and II. Zone V expects the highest level of seismicity whereas zone II is associated with the lowest level of seismicity.

2. **Landslides**

Another form of the natural hazards in the state is the frequent occurrences of landslides. The hills and mountains of UT LADAKH are liable to suffer landslides during monsoons and also in high intensity earthquakes. The vulnerability of the geologically young and not so stable steep slopes in various Himalayan ranges, has been increasing at arapid rate in

the recent decade due to inappropriate human activity like deforestation, roadcutting, terracing and changes in agriculture crops requiring more intense watering etc.
Although widespread floods problems do not exist in the state because of topographical nature, continuing attention is necessary to reduce flood hazards in the state, more particularly the flash flood hazard the incidences of which are increasing causing large scale damage. Besides, with the increase of road connectivity and number of vehicles plying on these roads in the State, the number of road accidents and loss of precious human lives is increasing day by day.

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NDMA guidelines on Incident Response System (IRS) have defined Emergency Operations Centre (EOC) and its functions as: #

EOC is an offsite facility which will be functioning from the State / District headquarters and which is actually an augmented control room having communication facilities and

space to accommodate the various Emergency Support Functions (ESF). It is a combination of various line departments of Government and other agencies whose services are generally required during incident response.

These officials will be able to take decisions on the spot under the guidance of Response Officer (RO) and will be able to assist the RO in achieving the incident objectives. RO will also ensure that the line departments do not issue parallel and contradictory instructions to their field level officers.

The EOC will take stock of the emerging situation and assist the RO in mobilizing the respective line department's resources, manpower and expertise along with appropriate delegated authorities for the on-scene Incidence Response Teams (IRT). EOC will keep the RO informed of the changing situation and support extended. This responsibility can be discharged most effectively only if it has the required information through a failsafe communication facility and an ideal information technology solution with Decision Support System (DSS). In addition to the above web based connectivity will further help in accessing situational awareness, decision support and multi-agency coordination. It will allow all collaborating agencies and departments inside and outside EOC environment to share information, make decisions, activate plans, deploy Incident Response Teams (IRT)s , perform and log all necessary response and relief activities and make the EOC effective.

It is very important to put the above capabilities in place. Personnel manning EOCs need to communicate with senior officers, first responders at disaster sites as well as organisations supporting Disaster Management (DM) activities.

Need for reliable communication links:

Communications links are essential for:

1. Reception of disaster alerts from agencies such as Indian Meteorological department (IMD), Central Water Commission (CWC), state irrigation department etc.
2. Collection of data on parameters responsible for disasters such as rainfall, release of water from dams, snowfall etc.,
3. Reception of data necessary for Decision Support System (DSS)
4. Collection of data for State Disaster Resource Network (SDRN)
5. Establishing audio / videoconferencing with senior officers of various organisations responsible for DM activities as well as from disaster sites for better coordination to facilitate effective response to disaster situations
6. Round the clock call centre based coordination centre for communication with, government officials, public, NGOs etc.

7. To issue disaster alerts to senior officers and Early Warning Messages to vulnerable public.

Communication links between decision makers at various levels and operational response teams/personnel at the disaster site have to be highly reliable (nearly 100%). Unfortunately, at the time of emergency situations such as natural or man-made disasters, the first casualty is the public telecommunications infrastructure of wired phones and wireless (cell phones) phones as well as other communication network resources.

Public communication networks are affected during natural or manmade disasters due to multiple causes including:

1. Non availability of mains during floods due to failure of electrical generation / transmission equipment or switching off of supply to prevent electrocution
2. Back-up power supply equipment for cell phone systems or telephone exchanges installed on ground floor or in basements being flooded,
3. Damage to buildings housing communication equipment and transmission towers due to earthquakes or
4. Severe congestion of cellular as well as land line telephone network switches due to sudden rush of traffic after major disasters

Considering the crucial role of EOCs and inter EOC communication links during such emergencies, it is proposed to set-up well equipped EOCs at state, district and vulnerable subdivision levels along with reliable information and communication network employing both terrestrial as well as satellite-based systems with adequate redundancy for expected reliability (>99.5%). Equipment proposed for deployment at disaster sites will provide long distance and on site communication facilities (for rescue forces). This equipment automatically aligns with satellite and has short set-up time (normally less than 30 minutes).

Emergency Communications Network:

Proposed Himachal State EOCI will have reliable communication network backbone that will be operational on 24*7 basis. The proposed communication network is expected to facilitate effective disaster response by maintaining continuous communication between the Emergency Operations Centres (**"EOC"**) at state, district, and command centres specifically set-up at disaster sites using specially designed Mobile EOC or portable emergency communication systems. The network will be used for information management (data, video and voice communications) and to support incident and information management systems during all stages of disaster management.

State Emergency Operations Centre (**"SEOC"**) will be the nucleus centre as all disaster related information and is planned as a state's central coordination and control facility responsible for carrying out the principles of emergency preparedness and disaster management functions at a strategic level in an emergency situation to restore normalcy in the affected areas and population within shortest possible time.

The proposed Emergency Communications Network (ECN) will provide voice, data and video communication facility (minimum data rate @ 512 Kbps). The ECN will be based on different communication technologies to provide required level of redundancy to achieve high reliability.

The network will use following network resources:

- Public telephone (including mobile) network
- Wireless radios (base stations as well as handheld sets and repeaters) operating in Very High Frequency (VHF) band at State and District Headquarters and at disaster sites
- Fixed , Portable and vehicle mounted Very Small Aperture Terminals (VSAT) network using Satellite capacity
- Satellite phones (as and when permitted by regulatory authorities)

The system will also have data distribution capability so that information regarding disaster build-up can be conveyed to district and vulnerable sub-division level authorities as well as other government agencies at state level. The ECN will interconnect all State, district and sub-divisional level EOCs.

The EOCI is an enabler of EOC functions defined above and will serve DMC for enhancing emergency management capabilities in the state. The overall functional requirements of EOCI will commensurate with the functional requirements of EOC and the framework of disaster management.

General functional capabilities expected of EOCI will include–

1. To interconnect various nodes during all cycles of disaster and to support telephone, radio and data communications
2. Effective and efficient emergency information management
3. Effective and efficient Incident management using decision support system infrastructures and related services at State EOC essential for emergency planning, information analysis, information exchange, communication, collaboration and coordination.
4. Flexible call center infrastructures and services to satisfy information management service during normal period as well as during emergencies.
5. Issuing public alert and warning
6. Secure and controlled access to sensitive areas in SEOC building.

Connectivity and Internetworking requirements

- Horizontal and vertical connectivity between SEOC, DEOC, ESF(s), and public telecom based EOCI backbone.
- Only voice connectivity on VHF radio between SEOC and DEOCs will be available

- Connectivity between SEOC, DEOC, and disaster location(s) using VSAT network at nominal 128 Kbps. The data rate will be increased to 512 Kbps from affected districts EOCs and ERVs
- High speed Internet connectivity of 8 Mbps data rate at SEOC to support Information Management Services
- Create data communication redundancies at DEOC using MPLS VPN or Internet broadband links at 2.0 Mbps rates will have to be provided at all DEOCs
- Establish LAN within SEOC
- Establish LAN using wireless medium at ERVs.

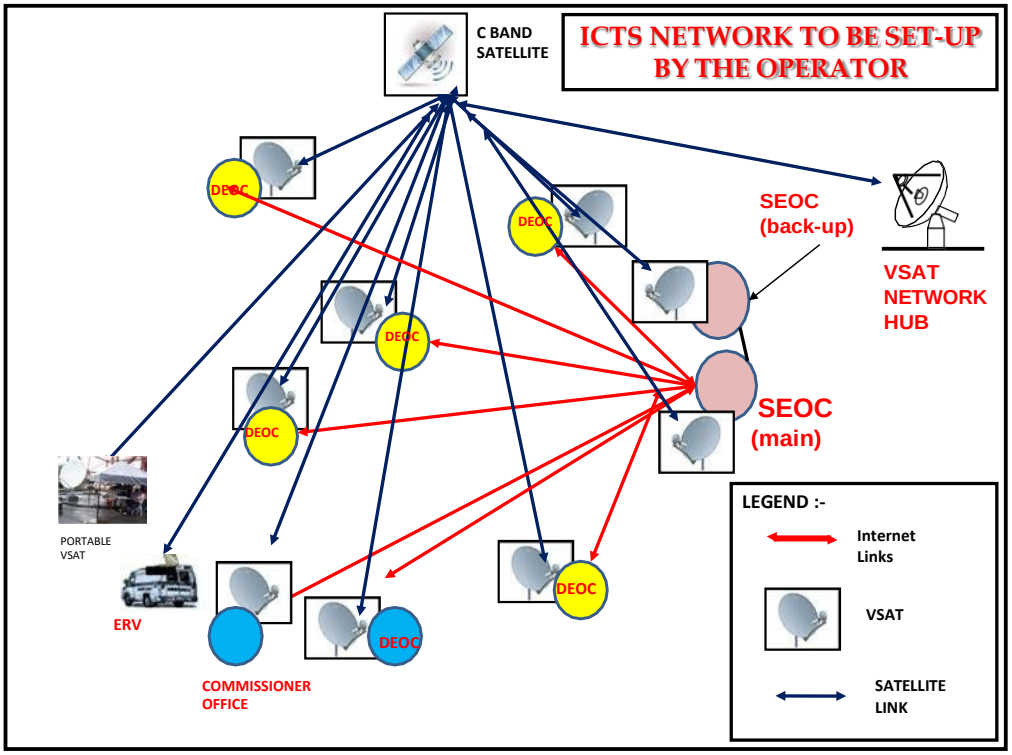
Core Services

- Fixed / Mobile Communication system (Terrestrial, wireless and satellite)
- Data Communication
- Unified Communication with interconnection capability between different communication technologies (e.g. wireless, VSAT etc.)
- Video-Conferencing services
- Video / data analysis
- Incident Response Application
- Disaster Management Information Service
- Call center and Alert and Warning service
- Internet links including antivirus software
- Web or Crisis Information Management Portal
- Database Management services

EOCI Network design criterion:

The EOCI is proposed to be a very reliable, wide area complex converged (voice, video and data) network system using multiple technologies (technology redundancies). An extremely reliable, flexible, secure, scalable, and portable (terrestrial / satellite) EOCI network will cover:

a. The State EOCs (SEOC) in 1+1 configuration,
b. DEOCs, (11)
c. Portable VSATs (10)
d. ERVs, (7)
e. ESFs at State Head quarters,
f. ESFs at District Head quarters,
g. Alert and Warning dissemination nodes (around 200)



Network schematic

PSTN backbone will be used for inter and intra organizational day-to-day operations with VSAT network for back-up voice, data and video connectivity and the VHF Wireless radio as second fallback communication backbone available 24*7. The network design would permit direct interface with Internet broadband based on public telecom service provider's network to meet situation where DMC has decided to isolate EOCI services from SWAN backbone.

Connectivity matrix to provide necessary redundancy will be:

Sr. No.	Node	Primary connectivity	Back-up	Additional back-up
1	State EOC (SEOC),	PSTN	VSAT	Wireless radio and Internet links
2	DEOCs	PSTN	VSAT	Wireless radio and Internet links
3	Portable VSATs	VSAT	Satellite Phone#	
4	ERVs	VSAT	Satellite Phone	
5	ESFs at State Head	PSTN	Broadband	Telephone network

	quarters,		Internet	
6	ESFs at District Head quarters	PSTN	Broadband Internet	Telephone network
7	Alert and Warning towers	GSM (cell phone)	Satellite Phone	VHF radio if available

Broadband Internet refers to capacity as given below:

- SEOC - 8.0 Mbps dedicated (1:1) Internet leased line and
- DEOC - shared Internet link connectivity @ 2.0 Mbps

The EOCI will have meet high-availability standards. The target overall network availability during emergency situations for EOCI will be equal to or better than 99.50 %

Sr. No.	**Component**	**Availability Target (%)**
1	ICT Network (Including connectivity between SEOC, DEOC, ERV, on SWAN or MPLS-VPN or VSAT)	> 99.5
2	Incident Response Application and Information Management Portal	98.0
3	Alert And warning Network system including remote facilities	99.5
4	EOCI – Audio / Video system	98.0
5	ERV – Interior, LAN and other facilities	99.5
6	All other support infrastructures	99.5

CHAPTER-5: SYSTEMS AND SPECIFICATIONS

Major installations and systems

Sr. No.	Details of the facility	Quantity	Remarks
1	State EOC at UT LADAKH	1	
2	A back-up SEOC at a suitable location to takeover control in case of failure of main SEOC at Shimla or for load sharing in case of a major natural disaster	1	Back-up SEOC will be collocated at one of the DEOCs.
3	Disaster Response Center (DRC) at main SEOC	1	
4	Disaster Response Center (DRC) at back-up SEOC	1	
5	Disaster Management Information System (DMIS) portal	1	
6	EOCs at District level	2	
7	IP based terrestrial and communications network to interconnect all EOCs and offices of ESF departments as well offices of senior government functionaries	1	• MPLS VPN Links and • Broadband Internet Links
8	Satellite • handheld phones and • Wideband data terminals	 00 00	
9	Incident Response System,	1	with built in back-up
10	EWS system including hardware and software	1	with built in back-up
11	• Fixed wide band VSAT network operating on shared Hub, with 13 remotes • SCPC VSAT nodes at SEOC	1 2	SCPC links at both SEOCs will interconnect SEOC with shared Hub and will provide back-up linkages to fixed, portable and transportable VSATs
12	Portable VSAT systems	0	To be stationed at most vulnerable District headquarters and SEOCs
13	Emergency Response Vehicles	0	

Table: Systems and Equipment for network

Detailed list of equipments / systems / software

Sr. No.	Details of equipment / system or facility	Quantity	Remarks
1.0	**Primary SEOC**		
A. 0	**I T equipment and systems**		
a.	Desktop computers with LCD VDU	2	• Supervisor 1 • Operator 6
b.	Resource data base servers	1+1	Redundant units
c.	DMIS Portal	1	
d.	Voice recorder for telephone lines	2	
e.	Videoconferencing multi unit switch	1	
f.	Video conferencing systems	2	One VC unit each, conference room and press briefing room
g.	Audio conferencing and audio system in conference hall	1	One conferencehalls
g.	Radio over Internet Protocol (RoIP) gateway	1	For interconnectivity between wireless radio and normal telephones (landline, Cell phone etc.)
h.	Multiple WAN port router	1+1	To provide communication links switchover in case of failure of working link

e.	IP telephones with display	2	For use of operational staff, operators and supervisor department representatives
f.	VSAT	1	
A. 2	**Video display and audio systems**		
a.	Display 50″ LED unit		
b.	Video amplifiers, distributors and switching units	2	
c.	Audio amplifiers, distributors and switching units	0	
A. 3	**Incident Response System**		
a.	Web based software	1	
b.	Hardware (servers)	1+1	
c.	Expenses on preparing resource data base	1	Approximate cost of travel and salaries of manpower for data collection and data entry
d.	Training and installation	1	Installation at Primary as well as back-up SEOC and training of operating staff and government officers
A. 4	**Office equipment**		
a.	Scanner and Heavy duty printers	3	

c.	Plotters	0	
A. 5	**Power supply and infrastructure**		
a.	15.0 KVA UPS with one hour back-up battery capacity		
b.	100.0 KVA capacity Diesel generator		
c.	Furniture, lighting etc.		
2.0	**Back-up SEOC**		
A. 0	**I T equipment and systems**		
a	Desktop computers with LCD VDU	2	• PCs for operational staff(2)
b	Voice recorder for telephone lines	2	
c	Videoconferencing multi unit switch	1	
d	Video conferencing systems	1	One VC unit each, in conference room and press briefing room
e	Audio conferencing and audio system in conference hall	1	One conference
f	Radio over Internet Protocol (RoIP) gateway	1	For interconnectivity between wireless radio and normal telephones (landline, Cell phone etc.)
g	Multiple WAN port router	1+1	To provide communication links switchover in case of failure of working link

c	Digital Telephone exchange	1	
d	Smart Mobile phones	4	
e	IP telephones with display	0	For use of operational staff, DRC operators and ESF department representatives
f.	TDMA shared Hub VSAT	1	
g.	SCPC VSAT	1	

a.	Desktop computers with LCD VDU	00	
b.	Multiple WAN port router to provide communication links switchover in case of failure of working link	11	
c.	Videoconferencing System	11	
C. 1	**Communication systems**		
a	INMARSAT handheld Phone	22	
b	INMARSAT BGAN data terminals	22	
c	Digital Telephone exchange	11	
d	Smart Mobile phones	44	
e	IP telephones with display	44	For use of operational staff, DRC operators and ESF department representatives
f.	TDMA shared Hub VSAT	11	
C. 2	**Display systems**		
a	LED display screens 40"	22	In operations room
b	LCD projector with screen	11	In conference room
C. 3	**Office equipment**		
a	Fax machines	11	
b	Scanner and printers (Multi Functional Unit)	11	
C. 4	**Power and infrastructure etc.**		
a	UPS 5.0 KVA	11	
b	D G Sets 15 KVA	11	
D.	**Emergency Response Vehicle**		
	Fully equipped ERV	7	
E.	**Portable VSAT**		

	Each unit with integrated wireless radio base station	00	
F.	**Wireless radio (VHF Band)**		
a	Base stations	00	
b	Handsets	00	
G.	**Early Warning System (EWS)**		
a.	Text and voice message based system at each SEOC	2	

: SPECIFICATIONS OF IMPORTANT EQUIPMENT AND SYSTEMS

A. I T SYSTEMS

1.1 (a) Desktop Computers --- Will be located at both SEOC, DEOCs in Disaster Response Centres (DRC) and Operations rooms

Sr. No.	**Characteristics / attributes**	**Specifications and quantity**
1	Processor	Intel i7 10 gen or better / similar processor from othersources
2	RAM	8 GB
3	Hard Disk	500 GB/1 TB
4	Operating System	Windows 11pro
5	Ports /Accessories etc.	

a	USB- 2 or better, ports	2 or more
b	DVD reader / writer	In built Qty. 1
c	Monitor	16 inch LCD / LED type
d	Keyboard	QWERTY alphanumeric qty. 1
e	Mouse	USB port Optical mouse wired or wireless qty. 1
f	Network ports	RJ 45 100/ 1000 Base T qty. 1
6	Restore / recovery	Software CD
7	Warranty	3 years on site

1.1 **(b) Servers**: Will be located at SEOC for use in Incident Response System. Disaster Resource Data Base, Early Warning System,

SERVER: General specifications

Sr. No.	Characteristics / Attributes	Specifications
1	**Key features**	
	Hot swapping abilities	Hot-swap fans and power supplies without bringing the system down
	CPU	Intel i7 Core
	Chipset	Intel C 200 Series or equivalent Chipset
	RAM	16 GB , DIMM slots for double data rate 3 (DDR3) memory
	L3 Cache	8MB
2	**Preferred features**	• A modular, bladed design • Electrically-isolated passive mid-planes, which are designed to remove single points of failure and active components along signal paths • Dynamic processor resiliency, which automatically replaces processors in the event of failure and protects against downtime

3	**Hard disk capacity**	Minimum 1 TB
4	**RAID controller**	RAID card (for RAID Configuration)
5	**GbE Ports**	Minimum 16, expandable up to 64
6	**Supported OS**	Microsoft widows 2008, 2012
7	**High availability (HA)—**	• 2N (N+N) redundant power supplies • N+1 fans (or greater depending on the load) • Online replaceable and redundant Onboard Administrator (OA), utilities, clock, and service processor subsystems
8	**Interfaces**	VGA and 2 USB ports for local human interface
		21 Inches LED Monitor, Keyboard and Mouse
		1 RS-232 serial port and 10/100 BASE-T LAN
9	**Removable media**	Built-in DVD-ROM, accessible from all partitions
10	**Onsite warranty**	3 years

WINDOWS SERVER: For Incident Response System (IRS)

Sr. No.	Characteristics / Attributes	Specifications
1	CPU socket	4 Core 3.1 GHz (64-bit processor)
2	Memory (RAM)	2 GB expandable to 8 GB
3	**Hard Disk**	**500 GB**
4	**Network Adaptor**	Gigabit Ethernet adapter (10/100/1000 base T
5	Supported Client operating systems	Windows 8, Windows 7,
6	Router	A router or firewall that supports IPv4 NAT.
7	Internet Access	At least 2 Mbps rate and a Fixed IP address

8		Super-VGA resolution 1024 × 768
9		Keyboard and Microsoft® Mouse
10		DVD-ROM drive

SQL SERVER: For Disaster Resource Data Base

Sr. No.	Characteristics / Attributes	Specifications
1	CPU	Pentium III-compatible processor 3.1 GHz or faster.
2	Memory (RAM)	4.0 GB
3	Operating System	Windows Server 2008 R2 Standard, Enterprise, and Data centre
4	Hard disk space	Total will vary depending on selected components. See Table 5.2.
5	Monitor	VGA or higher resolution. 1024 x 768 for graphical tools.
6	Key board	QWERTY
7	Pointing device	Microsoft mouse or compatible pointing device.
8	CD/DVD ROM	CD or DVD drive as needed for given installation media.

1.1 (c) MULTI WAN PORT ROUTERS

For installation at SEOC

Sr. No.	Characteristics / Attributes`	Specifications
1	Ports	16 ports of 10/100 Mbps Fast Ethernet, including 2 WAN ports and 1 dedicated network edge port
2	security	Proven state full packet inspection firewall, and hardware encryption and High capacity, high

		performance IPSec
3	VPN capabilities	Intuitive, browser based device manager and setup wizards
4	Multi WAN ports	Up to 7 WAN ports with load balancing; WAN ports that can be configured to support only specified IP ranges and / or services
5	Routing Standards	• 802.3, 802.3u • IPv4 (RFC 791) • Routing Information Protocol (RIP) v1 (RFC 1058) and v2 (RFC 1723)
6	Network protocols	• Dynamic Host Configuration Protocol (DHCP) server, DHCP client, DHCP relay agent • Static IP • Point to Point • Protocol over Ethernet (PPPoE) • Point to Point Tunnelling Protocol (PPTP) • Transparent bridge • DNS relay, Dynamic DNS (DynDNS, 3322)
7	Routing protocols	• Static • RIP v1 and v2
8	Network Address Translation (NAT)	• Port Address Translation (PAT) • Network Address Port Translation (NAPT),
9	Security Firewall	Denial of service (DoS), IP spoofing, email alert for hacker attack
10	Access rules	Up to 50 entries
11	Port forwarding	Up to 30 entries
12	Blocking	Java, cookies, ActiveX, HTTP proxy
13	Secure management	HTTPS, username/password, password complexity

14	IPSec	100 IPSec site to site tunnels for inter EOC connectivity
15	Quick VPN	50 Quick VPN tunnels for remote client access
16	Encryption	Advanced Encryption Standard (AES) encryption; AES -128, AES -192, AES- 256
17	VPN pass through	PPTP, L2TP, IPSec
18	Prioritization types	Application based priority on WAN port
19	Priority	Each service can be mapped to one of 3 priority levels
20	NAT VPN throughput	≥200 Mbps
21	IPSec VPN throughput	≥ 80 Mbps
22	Web user interface	Simple browser based device manager (HTTP/HTTPS)
23	Management protocols	Web browser, Simple Network Management Protocol (SNMP) v1 and v2c, Bonjour
24	Event logging	Syslog, email alerts, VPN tunnel status monitor
25	Upgradability	Firmware upgradable through web browser, imported/exported configuration file

Low end router for installation at DEOC

Sr. No.	**Characteristics / Attributes`**	**Specifications**
1	Device	Router-4 port integrated switch
2	Ports	4 , 10/ 100 Mbps Fast Ethernet
3	Enclosure	Desktop or rack mounted
4	Data link protocol	Fast Ethernet
5	Performance	NAT throughput ≥ 100 Mbps VPN throughput ≥ 50 Mbps
6	Capacity	IPSec VPN tunnels ≥50 PPTP VPN tunnels ≥ 5

7	Network / transport protocol	PPTP, L2TP, IPSec, PPPoE, DHCP, DNS,
8	Routing Protocol	RIP-1, RIP-2, static IP routing
9	Remote Management Protocol	SNMP 1, SNMP 2, HTTP, HTTPS
10	Features	NAT support, PAT support, NAPT support, Syslog support, Stateful Packet Inspection (SPI), firmware upgradable, static IP mode, IPv4 support, DHCP relay, DNS relay, DHCP client, Denial of Service (DoS)
11	Compliant Standards	IEEE 802.3, IEEE 802.3u
12	Warranty	3 Years onsite

1.1 (d) VIDEOCONFERENCING SYSTEM END-POINTS

Installation at SEOC and DEOC:

Sr. No.	**Name of the component / facility**	**Specifications**
1	Camera	HD 1080p, 12 x zoom or higher,
2	Remote control	PTZ
3	Integrated codec	HD 720p @25 fps or better
4	Bandwidth requirement	128, 256, 384, 512 Kbps and 2.0 Mbps
5	Video inputs	2 sources
6	Output ports	HDMI and or DVI to suit interface requirements of display unit
7	Accessories	Remote control, cables and power supply

(e) VIDEOCONFERENCE BRIDGE (SWITCH):

Sr. No.	**Name of the component / facility**	**Specifications**
1	Preset configurations	

2	Codec support	
3	Network support	
4	Bandwidth support / channel	
5	Bridge capacity	
6	Meeting rooms	Virtual meeting rooms, entry queue
7	IVR based or DTMF signalling	Conference setting and concluding
8	Connecting signal Supports	dial in, dial out, on-demand and scheduled conferencing

PORTAL AND SOFTWARE

1.2(a) Disaster Management Information System (DMIS)

S. No.	Specifications
1.1	DMIS Portal is to cater for information dissemination amongst all stake holders
1.2	The system should support menus driven by statically defined role-based access control for various stake holders as per requirements to access information regarding status of disaster (s)
1.3	The system should support: • Syndicated content from news feeds (RSS) • External web-based applications with options to launch in popup window, display in iFrame and content syndication via web clipping • Web services (SOAP, WSDL and UDDI) • Web Services for Interactive Applications (WSIA) • Free text searches • Structured searches driven by metadata • Management of content from multiple repositories • In-place editing of content • Content conversion (e.g. Word to HTML) • Widely used operating system and web browsers • Industry standard database management system and • Widely used directory servers
1.4	The system should support various JAVA based applications
1.5	The system should provide mechanisms for provisioning user identities and

	relationships among multiple LDAP-based directories
1.6	The system should Provide Secure Socket Layer support for HTTPS (web-based front-end) & LDAP (directory server)
1.7	The system should Provide a mechanism for balancing the user and/or request load across several logical and/or physical servers
1.8	The system should Provide a web-based administration tools
1.9	The system should Provide for non-intrusive monitoring of key activities and resources, such as sessions, threads, database connections, caches, memory , etc
1.10	The system should Support role-based access to system functions provided by the portal so that end-users are provided with the appropriate set of application functions relevant to their role within the state disaster management operations and their organizational affiliation.
1.11	The system should Facilitate the creation of multiple portal sites on one instance with each site having its own URL, look and feel, pages, users and groups, and search index. Application should support Integration services to allow access to disparate data, applications, news feeds and Web services.
1.12	The system should allow The administrator to configure user interface to deliver a standard taxonomy and terminology. Site management must enable department level customization of specific elements
1.13	The system should Provide integrated views across diverse and distributed information sources, including query optimization and integrated caching
1.14	The system should Provide federated search capabilities to enable property-based and full-text queries against multiple repositories, returning an aggregated result set.
	Following specifications are not mandatory. However system with these facilities will be preferred over others
1.15	Provide the capability to Invite - Using information provided during the location of those individuals or roles, invite them to collaborate and to share valuable information.

1.16	Instant messaging. Provide ability to converse virtually through the exchange of

	text, audio, and/or video based information in real time with one or more individuals within the disaster management community.

(b) INCIDENT RESPONSE SYSTEM (IRS)

Sr. No.	Specifications
1.1	The IRS should facilitate sharing of visual and textual information on various aspects of a disaster to decision makers working at National, District EOCs as well as from disaster sites.
1.2	It should provide all necessary components for a comprehensive disaster & emergency management solution including: • Alert and warning Notification, • Crisis Information Management, • Calls and message Dispatch System, • GIS, Map Data, Collaboration Framework, • Unified Communication for Planning, Dynamic Incident & Asset Management and Recovery Services.
1.3	The system should support shared information on: • How and where the disaster event has taken place or is taking place, • Relevant geospatial data using GIS layers to indicate location of the event, with historical context (whether similar event has occurred in the past at the place or nearby areas) • People likely to be affected by the event and possible extent of damage to houses etc. • Location of resources necessary to ensure effective response • Advice from experts on similar incidences in the past

1.4	The system must display incident, event and response and recovery resource information in a geospatial context to facilitate computer-aided management of response and recovery operations by allowing for real-time tracking and situational reporting in an affected area.
1.5	The system should have ability to handle all types of files (documents, presentations, spreadsheets, images, multimedia and others) either by uploading and storing; or by linking to them.
1.6	It should be possible to index unstructured content, such as radio, telephony, images, video, documents, using relevant metadata, including geospatial attributes
1.7	The system should also support creation of links between different files, so as to link several files to a particular incident report
1.8	It should provide search capability for searching data records within the system, including geospatial attributes

1.9	The system should support Web-based administration tools to enable remote system management at any time or place
1.10	The system should have a comprehensive policy-based security administration to provide all users specific access based on user's responsibilities and should ensure maintenance of authorization policy in a central repository for administration purposes.

1.3 (a) INMARSAT BGAN

9202 BGAN Technical Specifications

Satellite TX Frequency:	1626.5–1660.5 MHz
Satellite RX Frequency:	1525–1559 MHz
GPS Frequency:	1574.42–1576.42 MHz
SAT Continuous TX	Up to 3.25 hours at 128 kbps
SAT Continuous RX	Up to 5.5 hours at 128 kbps
SAT Standby Time:	Up to 36 hours
Weight:	1.4 Kg (3.1 lbs)
Dimensions (Approximate):	216 mm x 216 mm x 45 mm (8.5″ x 8.5″ x 1.8″)
Operating Temperature:	-5˚ C to +55˚ C with battery -25˚ C to +60˚ C with DC supply
Battery Charging	0˚ C to +40˚ C
Storage Temperature:	-20˚ C to +60˚ C with battery -25˚ C to +80˚ C excluding battery
Humidity:	95% RH at +40˚ C
Wind:	Operational wind loading (with stand secured to ground) 40 km/h (25 mph)
Water and Dust:	IP- 55 Compliant
Non-operational Mechanical	200–2000 Hz, 0.3 m 2 / s 3; MIL -SPEC 810 B METHOD 500.3 procedure 1

Data Connectivity:	RJ 45 connector Two-line RJ 11 for voice and fax
Other Features:	Rechargeable lithium ion battery SIM / USIM Slot (behind battery)

9202-bgan-land-portable-satellite-terminal/technical-specifications

1.3 (b) VOIP READY EPABX
Installation at SEOC and DEOC

Sr. No.	Function / Characteristics	Specifications
1	Number of telephone lines and extensions	
2	Approval for operations on B T Telephone lines	
3	System Memory	
4	Caller Line Identification (CLI)	
3	Audio conference capability	
4	Voice over IP gateway	
5	Direct Inward Dialling	
6	Digital IP phones	
7	Greeting message	
8	Voice mail capability	
9	Password protection for voice mails	
10	support ISDN PRI (Primary Rate Interface)	
11	Re-dialling	
12	Hunting facility	
13	Remote programming	

14	Maintenance	Should work with PC based console maintenance system
15	Battery	Built in back-up battery of adequate capacity to operate the exchange and extensions for two hours with full functionality
16	Battery charger	Built in with sufficient capacity to charge system back-up batteries
17	Temperature (Operating)	
18	Humidity	

1.3 (c) TELEPHONE CALL LOGGER (RECORDER)

(To be installed at Disaster response Centres at SEOC and DEOCs)

Sr. No.	Characteristics / Attribute	Specifications
1	Number of telephone lines that can be monitored / recorded	
2	Voice coding methods	
3	Storage Capacity / Media a) Direct to Hard Disk Recording b) Parallel recording in Hard Drive of server c) Storage in flash memory	a.
4	Record Trigger modes	
5	Frequency Response	
6	Input Impedance Analogue Input ports	
7	Signal to Noise Ratio of recording	
8	PC Recording Port	
9	Power	
10	Temperature (Operating)	
11	Humidity	

1.3 (d) VERY HIGH FREQUENCY (VHF) RADIO SYSTEM

TRANSCEIVER BASE STATION

Sr. No.	Name of the component / facility	Specifications
1	Encoding system	Analogue
2	Operating Frequency range	
3	Base station power rating	
4	Signalling	
5	Data transmission	
6	Power Supply	
7	Antenna	Wideband antenna to work over entire frequency range along with transmission cable to connect base station to antenna
8	Antenna Tower	
9	Operating temperature range	

VHF RADIO HANDHELD SETS

Sr. No.	Name of the component / facility	Specifications
1	Coding	Analogue
2	Operating Frequency range	
3	Peak power rating	
4	Signalling	
5	Power Supply	
6	Operating temperature range	

2. PORTABLE VSAT SYSTEM

Portable Very Small Aperture Terminal (VSAT) operating in C Band is planned for Emergency Communication network. The communication equipment is expected to operate from disaster sites

and will be used by first responders engaged in rescue and relief operations. The equipment will have to function in harsh environmental conditions, hence we expect that proposed system will be ruggedized and will be in the category normally used by military for its operational requirements. Ruggedized packing boxes should be provided for the equipment with possible back-packing capability. The antenna system should have auto locking on satellite and auto tracking capabilities.

Overall system requirements:

- The system should be suitable for ground installation along with necessary mechanical supports. The system should support a gateway to extend satellite connectivity amongst first responders using VHF radio.
- A telescopic mast to mount wireless network antenna and electrical hoisting mechanism for the mast should be provided with the system.
- Auto locking on target satellite and auto tracking mechanism.
- Rain proof equipment enclosure to house Solid State power Amplifiers (if system is not mounted on antenna feed), Satellite Modem and other peripheral equipment. Rain proof connectors for interconnection with other sub-systems including back-up power supply equipment. The system needs to operate in rain and should have essential enclosures to ensure reliable operation in 50 MM / hour rain.
- Equipment operating on DC source that requires low input power will be preferred.
- Weight per package to be less than 30 Kilograms. However vendor may offer systems of higher weight with suitable modifications for ease of carrying (backpack or other methods) it in the field.

Sr. No.	**Characteristics**	**Specifications**
1	Antenna size and reflector	
2	Operational frequency band	
3	Power handling capability	
4	Axis adjustment range Elevation Azimuth	
5	Auto-locking and	• Antenna should automatically track and lock on the pre-

	tracking capability	assigned satellite from any position with built in GPS and any other required hardware and software. Polarization should be automatically aligned for maximum antenna gain and cross polarization isolation
6	Set-up time from equipment installation on the ground up-to establishment of communication link	Around 20 Minutes
7	Climatic conditions for operation within specifications	
8	Operating voltage range and Power Supply	
9	Carrying weight in packed conditions	

3. EMERGENCY RESPONSE VEHICLE (ERV)

Components and capability requirements

ERV are vehicle mounted systems that can be relocated to wherever required in response to an emergency incident. The ERV provide capability for Emergency Operations team members to execute coordination and management activities in the event of an emergency incident where the facility based emergency operation center cannot be activated or maintained in response to the emergency incident. ERVS will be driven to any location where they are needed. ERV will have the capability for providing service en route from one location to another, as well as service when they set up at a stationary site.

The ERV would be equipped with basic communications equipment, computers and video display systems to provide similar support as the primary EOC. It should be of sufficient size to accommodate the equipment and the operators. The equipment on the ERV would be interoperable with EOC systems in fixed facilities.

The ERV would be maintained in a complete state of readiness. It would self propelled or transportable without special equipment, and be capable of travelling over public roadways, including rough (poor quality) roadway surfaces.

Sr. No.	**Characteristics / system or equipment**	**Specifications**
1	Chassis	
2	VSAT	
3	Interior	
4	Power supply	
5	Computers (Work stations)	
6	Radio Frequency Transceiver base station 136-174 MHz (VHF) frequency band	
7	VHF Radio Frequency Handheld sets operating in 136-174 MHz frequency band	

Sr. No.	Characteristics / system or equipment	Specifications
8	High Frequency Transceiver	
9	Auto deployable mast for wireless antennas	
10	High Speed Internet Access	
11	Video Teleconferencing with any node on network	
12	High Speed Fax (G3 Fax)	
13	Voice Communications with Multiple redundancy	• VSAT, • Wireless Radio • Satellite phones • Telephone system & • Cellular network,
14	On-Scene Video Monitoring	Through camera/video system
15	Computer-Assisted Dispatch	Fax, Email, file transfer etc.
16	Computer/Server Capabilities	Hardwired and wireless LAN. Workstations should have Ethernet connection and 220 V AC protected receptacle. All computer based software packages pre-installed
17	Personnel (Functions)	IT Support, Driver/Operator, and Communications Support

ALERT/ WARNING SYSTEM

Sr. No.	Attribute / Characteristics	Specifications
1	General	• This will be an emergency notification system as a critical messaging platform, to effectively manage emergency communications and notifications. • The system should be capable of sending simultaneous alerts to specific groups of individuals and agencies thru SMS, automated voice calls, faxes and e-mails • Send alerts/notifications and get responses to & from - administration and first response groups, local enterprises and establishments • Communicate over multiple channels (voice/SMS/e-mail/fax/IP/radio networks/digital signage, etc) • Ability to send quick, customized & multi-lingual alerts to chosen individuals or groups of individuals • The alerts could be pre-configured and scheduled for delivery • Ability to consume inputs from other 3rd party systems and then generate the alerts for dissemination • Ability to setup various categories of sub-user accounts centrally, with their own rights & privileges
2	Redundancy	The system should have built in hardware redundancy to ensure reliable operation even in case of failure of one location

3	Interface with multiple media for dissemination	Should have Common Alerting Protocol (CAP) capability
4	Radios/sirens	• EWS should be capable of triggering alerts over available sirens, radios networks etc. using SMS • It should be possible to link sirens the EWS thru IP connectivity.
5	Voice alerts	It should be possible to embed GSM SIM modules in the uniquely addressable PA systems; central radio broadcast stations, so that voice alerts can be directly played on air.
6	Digital display boards	The EWS should also be capable of linking with digital display boards and also CAP(common alerting protocol) compliant systems
7	Alerts over smart phones	EWS should also be capable of sending and receiving alerts thru smart phone applications and other IP interfaces
8	Remote Control Unit (RCU)	• The RCU should receive and decode warning instructions sent from EOC using GSM or other media • Each remote unit shall work off backup battery (maintenance-free) for operating sirens • Optional local control should be available for manual operation of warning broadcast for local community
9	D C Voltage operated sirens	

SECTION "B"

(DATA BASES AND FORMATS)

Village Code						

Resource Data Base Format

Village :_____
Gram Panchayat :_____
Tehsil :_____
District :_____

Hazard Profile:

Type	Intensity [H, L, M]	Last Occurrence [mm/yy]
Earthquake		
Flood		
Avalanche		
Landslide		
Fire / forest fire		
Road accident		

Confirmation Date [by Gram Panchayat]---------- [dd/mm/yy]

Mock Drill (if any) Date---------- [dd/mm/yy]

Last Modified Date---------- [dd/mm/yy]

Place:

Date: [dd/mm/yy]

_____

Name and signature of person entering the data

_____

(signature, seal and designation of certifying officer)

RESOURCE INVENTORY

I. DEMOGRAPHICS		
	POPULATION	**Nos.**
A.1	Total population	
A1.1	Male Population	
A1.2	Female Population	
A1.3	Scheduled Caste Families	
A1.4	Scheduled Tribe Families	
A1.5	Other Backward Class Families	
A1.6	Children between the age of 0-6 years	
A1.7	Persons above the age of 65 years	
A2	**Permanent Disability**	
A2.1	Handicapped persons	
A2.2	Blind persons	
A3	**Total No of Families**	
A3.1	Total number of BPL families	

A4	**Literacy Rate of village**	
A4.1	Male Literacy Rate	
A4.2	Female Literacy Rate	
A4.3	Total Literacy Rate	

II. SHELTER		
B	**SHELTER**	**Nos.**
B1	Pucca Houses	
B.1.1	Houses with Naliya Roof	
B.1.2	Houses with Slab Roof	
B.2	Kuchcha Houses	
B.2.1	Bhunga	
B.2.2	Mud Houses	
B.2.3	Thatch Houses [Zopaadi]	
B.2.4	Any other residential areas [ ]	
B.2.5	Hotels	[Capacity:____rooms]
B.3	**SAFE SHELTER AND AREAS EARMARKED FOR TEMPORARY SHELTER**	
B.3.1		Capacity: Accomodates___People
B.3.2		Capacity: Accomodates___People
B.3.3		Capacity: Accomodates___People
B.4.1		Capacity: Can accommodate___tents
B.4.2		Capacity: Can accommodate___tents
B.4.3		Capacity: Can accommodate___tents

III. AREA		
C	**AREA DETAILS**	**Quantity [Hac.]**
C1	**Area**	
C1.1	Land under agriculture	
C.1.2	Forest Land	

C.1.3	Cultivable Waste land/Grass land/ Gauchar land	
C.1.4	Uncultivable waste	
C.1.5	Area under habitation	
C2	Land under pvt. Ownership [Agri]	
C.2.1	Irrigated land	
C.2.2	Non irrigated land	
C3	**Soil**	
	Type of Soil (Pls. Tick in appropriate boxes)	
C.3.1	Brown Soil [ ]	
C.3.2	Sandy Soil [ ]	
C.3.3	Rocky or waste soil [ ]	
C.3.4	Others [ ]	
C4	**Land holding Pattern**	**Nos.**
C.4.1	Land holders	
C.4.2	Small Land holders	
C.4.3	Marginal Land Holders	
C.4.4	Average Land Holding (Hec.)	

IV. AGRICULTURE PATTERN		
D	**MAJOR CROPS CULTIVATED**	**Land Under Cultivation (in Hectors)**
D.1	Pulses [ ]	
D.2	Oil seeds [ ]	
D.3	Millet [ ]	
D.4	Wheat [ ]	
D.5	Maize [ ]	
D.6	Barley [ ]	
D.7	Others [ ]	

V. LIVESTOCK RESOURCES		
E	**LIVESTOCK**	**Nos.**
E.1	Cows	
E.2	Buffalos	
E.3	Bullock	
E.4	Sheep & Goats	
E.5	Poultry	
E.6	Others [ ]	

VI. LIVELIHOOD ACTIVITY		
F	**OCCUPATION PATTERN**	**Numbers [write '0', if no]**
F1	**Persons engaged in Primary Activities**	
F1.1	Persons engaged in Agriculture	
F1.2	Landless Agriculture Labour	
F1.3	Persons engaged in Livestock	
F1.4	Persons engaged in Fisheries	
F1.5	Persons engaged in Mining and quarrying	
F1.6	Persons engaged in Plantations and orchards and allied activities	
F1.7	Any other, Pls. specify	
F2	**Persons engaged in Secondary Activities**	

F2.1	Persons engaged in Manufacturing, Processing Servicing and Repairs in Household Industries	
F2.2	Persons engaged in Manufacturing, Processing Servicing & Repairs in other then Household	
F2.3	Persons engaged in Construction industry	
F2.4	Persons engaged in Trade and Commerce	
F2.5	Persons engaged in Transport storage & communication	
F2.6	Any Other Pls. Specify	
F3	**Persons engaged in Tertiary Activities**	
F3.1	Person engaged in Service Sectors (Govt.)	
F3.2	Person engaged in Service Sectors (Pvt.)	
F3.3	Other jobs	
F4	**Non workers**	

VII HEALTH			
G1	**Health [Public Infrastructure]**	**Numbers**	**Capacity [Number of Beds]**
G1.1	Hospital		
G1.2	Community Health Centre		
G1.3	Primary Health Centre		
G1.4	Sub Centre		
G1.5	Veterinary Hospital / Veterinary Center		
G1.6	Any Others (Pls. Specify)		
G2	**Manpower [Public Infrastructure] Nos.**		
G2.1	Doctors		
G2.2	Specialist Doctors		
G2.3	Aurvedic Doctor		
G2.4	Homeopathic Doctor		
G2.5	Veterinary Doctor		
G2.6	ANM		
G2.7	Paramedical staff (Other than ANM)		
G2.8	Trained Dai		
G2.9	Any other, Pls. Specify		
G3	**Health Facilities [Public Infrastructure] No. and quantity**		
G3.1	OPD Facility		
G3.2	X-Ray Facility		
G3.3	Pathological Laboratory		
G3.4	Minor Surgery Equipment		
G3.5	Ambulance Facility		
G3.6	Any Other, Pls. Specify		
G3.7	First Aid kits		
G4	**Health [Private Infrastructure]**		
G4.1	Hospital		
G4.2	Clinic		
G4.3	Veterinary center		
G4.4	ANM		
G4.5	Ambulance		
G4.6	Medical Shops		
G4.7	Pathological Lab		
G5	**Manpower [Private Infrastructure]**		**Nos.**
G5.1	Doctors		
G5.2	Specialist Doctor		
G5.3	Paramedicals [Except ANMs]		

H1	WATER SUPPLY [Public]	Yes	No	Numbers, if yes
H1.1	Dam/Check Dam			
H1.2	Pond			
H1.3	Well			
H1.4	Tap water supply [House to House]			
H1.5	Bore wells –Tube wells			
H1.6	Hand Pumps			
H1.7	Community Water Post			
H1.8	Government tanker			
H1.9	Any Other, Pls. Specify			
H2	**WATER SUPPLY [Private]**			
H2.1	Private Wells			
H2.2	Private Tube Wells / Bore wells			
H2.3	Private Hand Pumps			
H2.4	Other			

I	ELECTRICITY	Yes	No	Remarks
I .1	GEB Office / Sub-Station			
I .2	Electricity Available in Village			
I .3	Street Light facility			
I .4	Any Other, Pls.Specify			
1.5	Generator (public)			
1.6	Focus lamps (public)			
I.7	Torches (public)			

J1	COMMUNICATION [Public]	Numbers, if yes, WRITE '0', if no
J1.1	Telephone Exchange	
J1.2	Telephone Connection	
J1.3	Mobile Phones	
J1.4	VHF Sets	
J1.5	Television Sets	
J1.6	Radios	
J1.7	STD/PCO Booths	
J1.8	Any other, Pls. specify	
J1.9	Megaphones, Microphone	
J1.10	Sirens	
J1.11	Ham Radio	
J2	**COMMUNICATION [Private]**	**Numbers, if yes**
J2.1	Telephone Connections	
J2.2	TV Sets	
J2.3	Radio	
J2.4	Mobile	
J2.5	VHF	
J2.6	Ham Radio	
J2.7	Others Please Specify	

K	TRANSPORTATION			
K 1	**Type of Approach Road**	**Yes**	**No**	**Condition of the Road (Good, Bad, Normal)**

K1.1	Pucca Road	Yes		
K1.1.1	Cement Concrete (CC)	Yes		
K1.1.2	Asphalt			
K1.1.3	Mettle			
K1.4	Kachha Road		No	
K1.5	Any other, Pls. Specify			
K2	**Transport (Public)**	**Yes**	**No**	**Numbers, if yes**
K2.1	Public Bus [ST] /Mini Bus			
K2.2	Jeep			
	Transport [Private]	**Yes**	**No**	**Numbers, if yes**
K3.1	Bus			
K3.2	Mini Bus			
K3.3	Trucks			
K3.4	Jeep			
K3.5	Motor Bike/ Scooter			
K3.6	Tractors			
K3.7	Boats			
K3.8	Others [ ]			

L	**EDUCATION**	**Nos.**	**No of Rooms**	**No of Teachers**	**No of Students**	**Safe Shelter ???? [Yes/No]**
L1	College					
L2	Higher Secondary School					
L3	Secondary School					
L4	Primary School					
L5	Angan wadi					

M	**SANITATION**			
	Sanitation Facility	**Yes**	**No**	**Numbers if yes**
M1	Community Toilets			
M2	Community Bathrooms			
M3	Waste Water Disposal System [Open/Closed]			If Closed pls. Specify the Type
M4	Cleaning of solid waste is done regularly?			
M5	Vehicles for Solid Waste Management			
M6	Men power for Solid Waste Management			
M7	Cremation site			
N	**OTHER FACILITIES/ INFRASTRUCTURE**	**Yes**	**No**	**Numbers, if available**
N1	Community Hall			
N2	Co-op Society			
N2.1	Agricultural			
N2.2	General purpose			
N2.3	Milk Dairy			
N3	Workshed			

N4	Police Station/Out Post			
N5	Fair price shop			
N6	Petrol Pump			
N7	Kerosene Depot			
N8	Cooking Gas Agency / Depot			
N9	Other			

O1	**Search & Rescue Equipments**	**(PUBLIC) Nos.**	**(PRIVATE) Nos.**
O1.1	JCB		
O1.2	Crane		
O1.3	Bulldozer		
O1.4	Gas Cutter		
O1.5	Tree Cutter		
O1.6	RCC Cutter		
O1.7	Dumper		
O1.8	Loader		
O1.9	Rope		
O1.10	Chain		
O1.11	Heavy Hammer		
O1.12	Crowbars		
O1.13	Hand Saw		
O1.14	Heavy Axe		
O1.15	Light Axe		
O1.16	Heavy Jack		
O1.17	Shovels		
O1.18	Short Ladder		
O1.19	Petromax Lamp		
O1.20	Generator		
O1.21	Torches		
O1.22	Gloves (Leather/Rubber)		
O1.23	Tarpaulin		
O1.24	Others		

CONTACT INFORMATION OF GOVERNMENT STAFF AND SKILLED PERSONS

DistrictName	E-mailID	Phone Number
Leh	dcleh_jk@nic.in	01982252010
Kargil	dckgl_jk@nic.in	01985232216

Department Name	E-mailID	Phone Number
Agriculture	agriculturedepttleh@gmail.com	9622181920/01982252028
Animal Husbandry	drmiqbalvet@gmail.com	01982252187
Metrology	ddo-acmeterology-leh@ladakh.gov.in	01982252172
Cooperative	drcleh2018@gmail.com	9906349061/01982252034
Culture	Ladakhculturecentre11@gmail.com	9419218232/01982252088
Revenue	Sdmkhaltsi123@gmail.com	8492848911
Education		9419114677/01982252053
Common Area Department		9622181920
Excise and Taxation		9419500546
Fisheries	adfishleh@gmail.com	9419342851/01982252511
Food, Civil Supplies and Consumer Affairs	fcsaleh@gmail.com	01982252376
Forest	lehforestdivision@gmail.com	9419844303/01982252038
Fir		9906262252
Higher Education		9419114677
Horticulture	horticultureleh@gmail.com	9419176547/01982252920
Industries		
Information and Public Relations		01982252124
Information Technology		9419176566/01982252632
Irrigation and Flood Control	xenirrigationleh@gmail.com	01982252047
Labour and Employment	Alcleh2015@gmail.com	9419144996/01982252158
Municipal Committee		9797627784/01982253464
Prasar Bharti-DD	rameshrc007@gmail/com	9622997522

Medical	cmolehladakhmohfw@gmail.com	9469178966/01982252012
LREDA		9419438898/01982255733
Police	spleh@police.ladakh.gov.in	95441900280/01982244043

DistrictName	E-mailID	PhoneNumber
Leh	dcleh_jk@nic.in	01982252010
Kargil	dckgl_jk@nic.in	01985232216
Public Works		9419186625/01982252040
District Sts & evaluation	dseoleh@gmail.com	9419218731
Social Welfare	dswoleh@yahoo.com	9596984033/01982252585
Tourism	adtleh@gmail.com	01982252297
Soil Conservation	dscoleh@gmail.com	9419844303/01982252425
Transport	leharto02@gmail.com	9419353405
Treasury	Dtoleh@gmail.com	7006120424/01982252033
Wild life	Wildlifewardenleh2gmail.com	9419168155/01982252171
Youth Services and Sports	abidkhakshu@gmail.com	9622178050
Funds	lehgpf@gmail.com	9622219258/01982252351

Public Works		9419186625/01982252040
District Sts & evaluation	dseoleh@gmail.com	9419218731
Social Welfare	dswoleh@yahoo.com	9596984033/01982252585
Tourism	adtleh@gmail.com	01982252297
Soil Conservation	dscoleh@gmail.com	9419844303/01982252425
Transport	leharto02@gmail.com	9419353405
Treasury	Dtoleh@gmail.com	7006120424/01982252033
Wild life	Wildlifewardenleh2gmail.com	9419168155/01982252171
Youth Service sand Sports	abidkhakshu@gmail.com	9622178050
Funds	lehgpf@gmail.com	9622219258/01982252351

Name	Designation	Address	Tele.	Fax.	Mobile	E-mail.
Dr S D Singh Jamwal	Director General	Directorate General , National Disaster Response Force (NDRF)	01982260888			igp-ladakh@police.ladakh.in
Sh S.J.Mahmood	D.Inspector General	Agling Police Headquarter Leh	01982260886			dig-ladakh@police.la gov.in
Ms. Shruti Arora	SSP Leh	Leh			9541900280	ssp-leh1@police.ladakh.in
Sh. Shree Raam R	SSP Kargil	Kargil	01985232645			ssp-kargil@police.lad ov.in

	Water & Sanitation		

	Shelter & Retrofit		
	Shelter & Retrofit		
	Shelter & Retrofit		

II. Tehsil Staff

Name	Title	Address	Telephone #
	Tehsildar		
	Block Development Officer		
	Police Officer		
	Dy. Ex Eng (R&B- State)		
	Dy. Ex Eng (R&B- Panchayat)		
	Dy. Ex .Eng. (HPSEB)		
	Dy. Ex. Eng. (Irrigation)		
	J. T. O.		
	R. M. O. / C. S. in charge		
	Medical Officer		
	Depot Manager [ST]		
	Port Manager		

III. Local NGO Detail

Name of NGO	Sector	Address	Telephone #

IV. Contact Details of Emergency Resource Owners/Practioners [Private], elected Panchayat members in the Village Panchayat:

No.	Name	Practice/Resource	Telephone No.	Mobile No.
1				
2				
3				

4				

Directory of Key Officials with Contact Details

PHONE NUMBERS OF SENIOR OFFICIALS IN LADAKH

Name	**Phone** Office	**Phone** Residence	**Designation of Officer**	**Email id**
			Chief Secretary (Home, Vigilance, Cooperation)	
			Addl. Chief Secy. (Animal Husbandry)	
			Addl. Chief Secy. (Administrative Reforms, Training, Foreign Assignment, Redressal of Public Grievances, Transport)	
			Addl. Chief Secy. (Health & Family Welfare, Urban Development)	
			Addl. Chief Secy. (Language Art & Culture, Agriculture, Information Technology)	
			Addl. Chief Secy. (Chief Minister, Youth Service and Sports, Information & Public Relations, Tourism, Tribal Development)	
			Principal Secy. (Forests, Fisheries, Environment & Scientific Technology, Horticulture) Financial Commissioner (Revenue)	
			Principal Secy. (Election, Public Works) Financial Commissioner (Appeal)	

			Principal Secy. (Social Justice & Empowerment, Education)	
			Principal Secy. (Finance, Planning, Economics & Statistics, Twenty Point Programme, Excise & Taxation)	
			Principal Secy. (Personnel, MPP & Power, NCES)	
			Principal Secy. (Printing & Stationery, Rural Development, Panchayati Raj, Town & Country Planning, Housing)	
			Principal Secy. (Ayurveda)	
			Principal Secy. (Industries, Labour and Employment)	
			Principal Secy. (Technical Education, Food, Civil Supplies and Consumer Affairs, Irrigation and Public Health)	
			Secretary (General Administration, Secretariat Administration, Parliamentary Affairs, Sainik Welfare)	
			Secretary (Finance, Public Enterprises, Planning)	
			Secretary (Home, Vigilance)	
			LR-cum-Principal Secy. (Law) Secretary (Lokayukta)	
			UT LADAKH Government Secretariat,, INDIA	

E-mail IDs of Deputy Commissioners

District Name	E-mail ID	Phone Number
Leh		7889661600
Kargil		

E-mail IDs of Heads of Departments in UT LADAKH

Department Name	E-mail ID	Phone Number
Agriculture	agriculturedepttleh@gmail.com	9622181920/01982252028
Animal Husbandry	drmiqbalvet@gmail.com	01982252187
Metrology	Ddo-acmeterology-leh@ladakh.gov.in	01982252172
Cooperative		
Economics and Statistics		
Elementary Education		
Environment, Science and Technology		
Excise and Taxation		
Fisheries		
Food, Civil Supplies and Consumer Affairs		
Forest		
Health and Family Welfare		
Higher Education		9419114677
Horticulture		
Industries		
Information and Public Relations		01982252124
Information Technology		
Institute of Public Administration		
Irrigation and Flood Control	xenirrigationleh@gmail.com	01982252047
Labour and Employment		
Land Records		
Language, Art and Culture		
Local Audit		
Panchyati Raj		
Planning		

Police		
Public Works		
Rural Development		
Sainik Welfare		
Scheduled Casts, Other Backward Classes and Minority Affairs		
Small Savings		
Technical Education		
Tourism and Civil Aviation		
Town and Country Planning		
Transport		
Treasury, Accounts and Lotteries		
Urban Development		
Vigilance		
Woman & Child Development		
Youth Services and Sports		

E-mail IDs of Sub Divisional Magistrates in UT LADAKH

District Name	Sub Division Name	E-mail ID	Phone Number
Nubra			
Changthang			
KHALTSI			

Contact numbers of District officials in UT Ladakh

Leh

DC Office:
SP Office:
Police Assistance:
Fire Services:
Ambulance Services:

Kargil

DC Office:
SP Office:
Police Assistance:
Fire Services:
Hospital Casualty:

.

CONTACT DETAILS OF NATIONAL DISASTER RESPONSE FORCE (NDRF)

(FOR SPECIALIZED RESPONSE)

Name	Designation	Address	Tele.	Fax.	Mobile	E-mail.
	Director General	Directorate General , National Disaster Response Force (NDRF)				
	Inspector General					
	Dy. Commander					
	Inspector Control Room					

NDRF BATTALIONS RELEVANT FOR UT LADAKH

Name	Designation	Address	Tele.	Fax.	Mobile	E-mail.
	Commandant					
	Commandant					

FORM Number XXXXXX

Format for First Information Report on occurrence of natural calamity

(To be sent to SEOC and Office of Director DDM, Government of UT LADAKH within maximum of 24 hours of occurrence of calamity)

From: District ---------- Date of Report ----------

To

i) The Director, DDM (Fax:_____email:____)
ii) Officer in charge, SEOC, UT LADAKH

Details of Disaster:

a. Nature of Calamity
b. Date and time of occurrence
c. Affected area (number and names of affected districts)
d. Population affected (approx.)
e. Number of Persons
   i) Dead
   ii) Missing
   iii) Injured
f. Animals
   i). Affected
   ii) Lost
g. Crops affected and area (approx.)
h. Number of houses damaged
i. Damage to public property
j. Relief measures undertaken in brief
k. Immediate response and relief assistance required and the best logistical means of delivering that relief from District /State level
l. Forecast of possible future developments including new risks.
m. Any other relevant information

Officer in charge

DDMA or Relief operations

INCIDENT RESPOND TEAM

S.No.	Field Office address	Name/Designation/Residential address	Phones with STD code
1	DC LEH	CEO DEPUTY COMMISSIONER	(O)
	DC KARGIL	CEO DEPUTY COMMISSIONER	(R)
			(Fax)
			(Mobile)
			(e-mail)
2	CEC LEH	CEC LEH CHIEF EXECUTIVE CONCELLOR	(O)
	CEC KARGIL	CEC KARGIL CHIEF EXECUTIVE CONCELLOR	(R)
			(Fax)
			(Mobile)
			(e-mail)
3	SSP LEH	SENIOR SUPRETENDENT OF POLICE LEH	(O)
	SSP KARGIL	SENIOR SUPRETENDENT OF POLICE KARGIL	(R)
			(Fax)
			(Mobile)
			(e-mail)
4	CMO LEH	CHIEF MEDICAL OFFICER	(O)
	CMO KARGIL	CHIEF MIDICAL OFFICER	(R)
			(Fax)
			(Mobile)
			(e-mail)
5	DFO LEH /KARGIL	DIVISIONAL FIRE OFFICER	(O)
			(R)
			(Fax)
			(Mobile)
			(e-mail)
6	DISTT PANCHAYAT OFFICER LEH	PANCHAYAT OFFICER	(O)
	DISTT PANCHAYAT OFFICER LEH	PANCHAYAT OFFICER	(R)
			(Fax)
			(Mobile)
			(e-mail)
7	UT DRF	DISASTER RELEIF FORCE (POLICE)	
8	DDMR	DEPT OF DISASTER MANAGEMENT AND RELIEF	
9	PARAMILITERY FORCE	ALL PARAMLITERY FORCES	
10			

Resource Inventory near disaster location

S. No.	Men/Material/equipment/Services Description/specification	Qty in No.s	Qty in Wt./ Vol.	Availability Location
1	Manpower			
2	Services			
3	Material			
4	Equipment			

SECTION "C"

RELEVANT EXTRACTS FROM

STANDARD OPERATING PROCEDURES (SOP)
FOR
RESPONDING TO DISASTERS
2024

PREPARED BY:

UT LADAKH
EOC TEAM

ACRONYMS

AHD	Department of Animal Husbandry
AIR	All India Radio
BIS	Bureau of Indian Standards
BMTPC	Building Material Technology Promotion Council
BSF	Border Security Force
CBRN	Chemical Biological, Radiological and Nuclear
CD	Civil Defence
CMO	Chief Minister's Office
CSO	Chief Secretary's Office
CGWB	Central Ground Water Board
CISF	Central Industrial Security Force
CP	Commissioner of Police
CPMF	Central Para Military Forces
CPWD	Central Public Works Department
CR	Control Room
CRPF	Central Reserve Police Force
CWC	Central Water Commission
DAC	Department of Agriculture and Cooperation
DD	Door Darshan
DGCD	Director General Civil Defence
DM	District Magistrate
DOS	Department of Space
DOT	Department of Telecommunication
DRDO	Defence Research Development Organisation
DWS	Department of Drinking Water Supply
ECC	Emergency Command Centre
EOC	Emergency Operation Centre
ERC	Emergency Response Centre
ESF	Emergency Support Functions
GSI	Geological Survey of India
HIPA	Himachal Institute of Public Administration
HUDCO	Housing and Urban Development Corporation
IC	Incident Commander
IDS	Integrated Defence Staff
IMD	India Meteorological Department
IO	Information Officer
IRS	Incident Response System
IRT	Incident Response Team
ITBP	Indo-Tibetan Border Police
MHA	Departments and Organisations of Home Affairs
MES	Military Engineering Service
MOD	Departments and Organisations of Defence

MOF	Departments and Organisations of Finance
MOH	Departments and Organisations of Health
MOUD	Departments and Organisations of Urban Development
NCMRW	National Centre for Medium Range Weather Forecasting
NCES	Non-conventional energy sources
NDRF	National Disaster Response Force
NDMA	National Disaster Management Authority
NIDM	National Institute of Disaster Management
NRSA	National Remote Sensing Agency
PC	Planning Commission
PWD	Public Works Department
RD	Department of Rural Development
RTH	Department of Road Transport and Highways
SAP	State Armed Police
SART	Search and Rescue Team
SDDM	State Department of Disaster Management
SDMA	State Disaster Management Authority
SEMA	State Emergency Management Authority S
FS	State Fire Services
SG	State Government
SOP	Standard Operating Procedures

INTRODUCTION

A prompt, well-coordinated and effective response mounted in the aftermath of disasters not only minimizes loss of life and property but also facilitates early recovery. The important ingredients of an effective response system are: -

i) Integrated institutional arrangements;
ii) State of the art forecasting and early warning systems;
iii) Failsafe communication system;
iv) Rapid evacuation of threatened communities;
v) Quick deployment of specialized response forces; and
vi) Coordination and synergy among various agencies at various levels.

Most importantly, all the agencies and their functionaries must clearly understand their roles and responsibilities and the specific actions they have to take for responding to disaster or threatening disaster situations.

This SOP lays down, in a comprehensive manner, the specific actions required to be taken by various Departments and agencies of Government of UT LADAKH and Organisations under the control of Government of India at the State level and the district administration for responding to natural disasters of any magnitude and dimension.

The objectives of the SOP:-

(a) To provide, in a concise and convenient form, a list of major executive actions involved in responding to natural disasters and necessary measures for preparedness, response and relief required to be taken;
(b) To ensure that all concerned Departments and Organisations of the State Governments and District Administrations know the precise measures required of them at each stage of the process and also to ensure that all actions are closely and continuously coordinated; and
(c) To indicate various actions which would require to be taken by various departments and organisations of the State Government within their sphere of responsibilities so that they may prepare and review the Contingency Action Plans accordingly.

The instructions contained in this SOP should not be regarded as exhaustive of all the actions that might be considered necessary. It will also be necessary for each Department and Organisation, which are required to provide Emergency Support Functions (ESF) to prepare detailed SOPs so as to translate each action point in a number of steps required to be taken by each of them.

All the Departments of the State Governments, District Authorities, Local Bodies and other stakeholders will prepare detailed SOPs in consonance with this SOP, National Policy, State Policy and various Guidelines issued by NDMA (available at www.nama.gov.in) and

SDMA f These SOPs shall prescribe the manner in which various response and relief activities like evacuation, search and rescue, casualty and emergency health management, food, drinking water, sanitation and hygiene, clothing shelter, management of relief camps and restoration of essential services, etc. have to be undertaken.

STANDARD OPERATING PROCEDURES:

The SOP encompasses the following five phases of disaster management for effective and efficient response to natural disasters:-

i) **Preparedness Phase** – This phase will include taking all necessary measures for planning, capacity building and other preparedness so as to be in a state of readiness to respond, in the event of a natural disaster. This Stage will also include development of Search and Rescue Teams, mobilization of resources and taking measures in terms of equipping, providing, training, conducting mock drills/exercises, etc.

ii) **Early Warning Phase** – This phase will include all necessary measures to provide timely, qualitative and quantitative warnings to the disaster managers to enable them to take pre-emptive measures for preventing loss of life and reducing loss/damage to the property. On the occurrence of a natural disaster or imminent threat thereof, all the concerned Agencies will be informed / notified f or initiating immediate necessary follow up action.

iii) **Response Phase** – This phase will include all necessary measures to provide immediate succour to the affected people by undertaking search, rescue and evacuation measures.

iv) **Relief Phase -** This phase will include all necessary measures to provide immediate relief and succour to the affected people in terms of their essential needs of food, drinking water, health and hygiene, clothing, shelter, etc.

v) **Restoration Stage** – This phase will include all necessary measures to stabilize the situation and restore the utilities.

This SOP does not cover long-term measures needed either for mitigation or for rehabilitation/recovery of the affected people and reconstruction of the area.

INSTITUTIONAL MECHANISM

In the aftermath of a disaster, the primary responsibility for undertaking the rescue, relief and rehabilitation measures rests with the concerned district administration. The role of the State Government is supportive, in terms of physical and financial resources and complementary in sectors such as transport, early warning systems, etc. Or otherwise the

State Government comes into direct picture if the magnitude of disaster is so huge that it is beyond the coping capacity of the district administration.

The Disaster Management Act 2005 lays down a three tier institutional structure for disaster management at the national, state and district levels in the form of NDMA, SDMA and DDMA. National Policy on Disaster Management (NPDM) and State Policy on Disaster Management (SPDM) have further specified the roles and responsibilities of various organizations for disaster response.

At national level

National Crisis Management Committee (NCMC)

At the National Level, the Command, Control and Coordination of the disaster response will be overseen by the National Crisis Management Committee (NCMC) under the Cabinet Secretary. NCMC will issue guidelines from time to time as required for effective response to natural disasters. All Ministries/Departments/Agencies at the national level shall comply with the instructions of NCMC. The NPDM prescribes that NCMC shall deal with 'major disasters that have serious or national ramifications'.

Ministry of Home Affairs (MHA)

The Departments and Organisations of Home Affairs is the nodal agency at the National level for coordination of response and relief in the wake of natural disasters (except drought, pest attack and hailstorm). MHA will provide financial and logistic support to the State Governments, keeping in view, their resources, the severity of the natural disaster and the capacity of the State Governments to respond in a particular situation.

National Executive Committee (NEC)

Section 10 (2) (k) of the Disaster Management Act stipulates that the NEC under the Union Home Secretary will 'coordinate response in the event of any threatening disaster situation or disaster'. NEC may give directions to the concerned Ministries/Departments of the Govt. of India, the State Governments and the State Authorities regarding measures to be taken by them in response to any specific threatening disaster situation or disaster.

Other Central Ministries/Departments

The other concerned Central Ministries/Departments/Organisations will render Emergency Support Functions (ESF) wherever Central intervention and support are needed by the State Governments. List of ESF Ministries/Departments along with their roles and responsibilities is given at Annexure- I.

STATE LEVEL

State Executive Committee (SEC)

It will be the responsibility of the State Government to respond to natural disasters and provide relief to the affected people. Section 22(2) (G) of the Disaster Management Act stipulates that the SEC under the State Chief Secretary shall 'coordinate response in the event of any threatening disaster situation or disaster'. SEC shall give directions to any Department of the State Government or any other authority or body in the State regarding actions to be taken in response to any disaster.

Department of Revenue is the nodal department for disaster management and Secretary of the Revenue Department shall implement the decisions of the SEC pertaining to State level Response to natural disasters.

Disaster response being a multi-agency function, other Departments of the State Governments will provide emergency support functions in their relevant domains at the State/District levels as per the ESF Plan placed at Annexure - II. The departments of the State at the state and district level would appoint Nodal Officers to perform ESF as per the profarma given in Annexure – III.

DISTRICT LEVEL

District Disaster Management Authority (DDMA)

Section 30(2)(xvi) of the Disaster Management Act stipulates that the DDMA under the chair of the Collector or District Magistrate or Deputy Commissioner, as the case may be and the co-chair of the elected representative of the local authority, shall 'coordinate response to any threatening disaster situation or disaster'. The Collector/District Magistrate/Deputy Commissioner, as the head of administration at the district, shall be the focal point in the command and control for disaster response at the district level, in accordance with the policies/guidelines/instructions from the national and state levels. Depending on the nature of disaster and response he will be the Incident Commander himself or delegate the responsibility to some other officer as per the IRS guidelines issued by the NDMA.

All the Departments/Agencies of the Central and State Governments in the District/City involved in response and relief will work in accordance with the directions of the Incident Commander.

The lower administrative units of Districts Viz; Subdivisions under the administrative control of a Sub-divisional Magistrate/Officer (Civil) and Tehsils under the administrative control of the Tehsildar will coordinate the functioning of the various departments in their respective jurisdiction. The PRIs and ULBs or any other local authority shall render necessary assistance to the district authority.

The Incident Command Teams at Subdivision and Block levels under SDO (C) or Tehsildar as the case may be will be responsible for all response and relief works.

Mechanism for International Assistance

As a stated policy of the Government of India no appeals shall be made seeking foreign aid for disaster response. However if the foreign national governments voluntarily offer assistance as a goodwill gesture in solidarity of the disaster victims, the Departments and Organisations of Home Affairs will coordinate with the Departments and Organisations of External Affairs for obtaining and channelizing such assistance.

All national and international non-government agencies while rendering emergency support functions on the ground will function under the overall command of the State Government through the Incident Commander.

EMERGENCY OPERATIONS CENTRES (EOC) s

Objectives of EOCs:

The EOCs /Control Rooms at National, State and District levels will be the nerve centres for coordination and management of disasters. The objectives of the EOCs shall be to provide centralized direction and control of any or all of the following key functions:

i) Receive and process disaster alerts and warnings from nodal agencies and other sources and communicate the same to all designated authorities.
ii) Monitor emergency operations
iii) Facilitate Coordination among primary and secondary ESF
iv) Departments and Organisations/Departments/Agencies.
v) Requisitioning additional resources during the disaster phase
vi) Issuing disaster/incident specific information and instructions specific to all concerned
vii) Consolidation, analysis, and dissemination of damage, loss and needs assessment data;
viii) Forwarding of consolidated reports to all designated authorities.

Location of EOC

Emergency Operation Centres/Control rooms will be set up at State and district levels with requisite facilities. The EOCs/Control Rooms already in existence at these levels will be suitably upgraded. (Reference: NDMA Guidelines on "National Disaster Management Information and Communication System").

The EOC will be set up at a suitable location and the building should be multi-hazard resistant so as to withstand the impact of disasters and remain functional during the emergency phase.

Communication Network of EOCs

Under the National Communication Plan being implemented by the Government of India, the EOCs at all the three levels shall have a fail proof communication network with triple redundancy of NICNET of NIC, POLNET of Police and SPACENET of ISRO in addition to the terrestrial and satellite based communication to ensure voice, data and video transfer.

Under the network, the EOCs/Control Rooms of all the States will be directly connected with the NEOC/ Control Room of MHA at the National level. The district EOCs/ Control Rooms will be connected with the respective State EOCs/Control Room. Suitable personnel will be selected and imparted training in the operation of Control Rooms will be posted to man these EOCs/Control Rooms.

National Integrated Operations Centre (NIOC)

The National Integrated Operations Center is being maintained and run on 24 x 7 basis

at MHA, North Block, New Delhi with latest and state of the art equipment. A SOP on Issuing Alerts and Electronic Messaging in the Event of Disaster Situations has been prepared a summary of which is given in chapter – 4. An alternate NIOC has been established at National Disaster Management Authority (NDMA) which is a mirror image of the National IOC and will be a back-up to handle any eventuality if for any reason the NIOC at MHA becomes non-operational.

SEOC and DEOC

State Governments and District Administration would also set up State Emergency Operation Centre and District Emergency Operation Centres and provide adequate manpower for manning them effectively and arrange training for the EOC Staff on EOC operations. State Governments has also made an EOC Manual containing SOP/ Protocol for activation of SEOCs and DEOCs during emergency/disasters.

Emergency Support Functions (ESFs)

Disaster response is a multi-agency function. There will be one Lead or Primary Agency which will be responsible for managing and coordinating the response while other agencies will support and provide assistance in managing the incident. Each ESF will be headed by a lead Departments and Organisations/organisation responsible for coordinating the delivery of goods and services to the disaster area, and is supported by numerous other organizations. These ESFs will form integral part of the Emergency Operation Centres (EOCs) and each ESF should coordinate its activities from the allocated EOC. Extension teams and workers of each ESF will be required to coordinate the response procedures at the disaster affected site. The ESFs finalized at the State level have been placed at Annexure - II and the same can be suitably modified and adopted at district level, if need be and Nodal Officers get appointed for each department of the State Government and Central Government located at district level as per Annexure – III.

Incident Response System (IRS)

IRS is a management system to organize various emergency functions in a standardized manner while responding to any disaster. Under IRS an incident commander and officers trained in different aspects of incident management, such as logistics, operations, planning, safety, media management, etc. form a specialist incident management team and manage the disaster/emergency.

Though India has a well established robust administrative structure right from national level to village level with coordinating officials at each level for managing disasters, there is a need to strengthen and professionalize the same by incorporating the principles of the IRS. The NDMA has issued guidelines in IRS and the same are available in the NDMA website (www.ndma.gov.in) for reference.

As per the Government of India policy on disaster management IRS will be integrated into the existing system and Incident Response Teams shall be put in place in each district by imparting training in different facets of incident management to district level functionaries. The emphasis will be on the use of technologies and contemporary systems of planning and execution with connectivity to the joint operations room at all levels.

The members of the IRT teams will be imparted specialized training in the HIPA or any other designated Training Institutes. These Teams will be deployed at the district level by the concerned District Magistrate or designated authority. The State level IRTs will be deployed on the request of the district authority.

Contact Details

A comprehensive directory of officers involved in disaster management at various levels will be prepared for National and State levels giving their names, addresses, telephone numbers, mobile numbers, email address, Fax numbers. Such directory will be widely circulated and updated annually.

Mock Drills

Search and Rescue Teams at the State, District and Local Levels will carry out mock drills on various disasters situation annually. For floods etc. these will be carried before the monsoon period, tentatively in June. For earthquakes, landslides, snow avalanche, etc., such drills can be done in the month of October. The district and State levels, mock exercises will be carried out for testing the effectiveness of all the preparedness machinery including manpower and equipment. Mock drills would be carried out regularly (at least four times a year as per the SDMA's decision) in educational institutions, hospitals, temples and all other government buildings where large number of people stay or visit regularly.

Resource Inventory –

Government of India has launched India Disaster Resource Network (IDRN), which is a web enabled resource inventory for disaster management. The District Magistrate will ensure that necessary entries have been made in the Web-portal and updated at-least once in a month. Nodal Officer (DM) i.e. ADC/ADM/AC will ensure that it is monitored personally

CHAPTER-4

EARLY WARNING

Nodal Agencies for Early Warning

Following are the Nodal agencies in the Government of India mandated for early warning of different natural hazards:

Disasters	Agencies
Cyclone	Indian Meteorological Department
Tsunami	Indian National Centre for Oceanic Information Services
Floods	Central Water Commission
Landslides	Geological Survey of India
Avalanches	Snow and Avalanche Study Establishment
Heat and Cold Waves	Indian Meteorological Department

The State Government has identified some more Nodal agencies for EWS/disaster response for hazards not covered above as per the detail given below:-

Disasters	Agencies
Epidemics	Health and Family Welfare Department
Dam Failure/flooding	Department of MPP and Power Projects
Forest Fires	Department of Forest
Domestic Fires	Department of Fire Services
Industrial/Chemical disasters	Department of Industries & ut ladakh State PCB
Flash Floods	I & PH
Road Accident	Police

These agencies shall be responsible for keeping track of developments in respect of specific hazards assigned to them and inform the designated authorities/ agencies at National, State and District levels about the impending or actual disasters. Some of these agencies have developed guidelines for early warning. Other agencies would also develop guidelines for early warning/communication of impending disasters/disasters and share with the SDMA immediately.

Electronic Messaging System (EMS)

The NEOC, MHA has developed an SOP for issuing of different categories of alerts to all decision makers at the national level. The same system of alters will be followed in the State to avoid confusion. Summary of SOPs is as under:-

Categorisation of Alerts

Specific hazards have different categories of alters as indicted below. For the purpose of dissemination of alters to CMO/CSO/Relief Commissioner/Secretary (Revenue), a uniform system has been devised by categorizing each type of alert in stages
– Yellow, Orange and Red. While generating and transmitting alerts to IOC, MHA, the concerned agency will indicate the category of the event as well as its corresponding stage (Red/Orange/Yellow).

Alerts falling in **Yellow stage** will not be communicated to PMO/Cabinet Secretariat through EMS. Alerts falling in **Orange stage** will be communicated to PMO/Cabinet Secretariat with 12 hourly updates or when it is upgraded to the Red Stage, whichever is earlier. Alerts falling in **Red stage** will be communicated to PMO/Cabinet Secretariat with 3 hourly updates or at more frequent intervals as warranted by the situation. Any changes in the category of alerts will be suitably integrated in the next message due as per the previous categorization.

Action Plan

Yellow Stage

i) IC, State EOC will transmit information on disaster situations falling in yellow stage to Deputy Secretary/Additional Secretary/Special Secretary (Revenue/DM) hereinafter referred to as the Branch Officer, DM in ladakh Secretariat.
ii) Alerts will be transmitted further to Secretary (Revenue/DM) and Nodal officer of SDMA only on specific instructions from Branch Officer DM.
iii) Alert messages will also be sent to the concerned Departments/ Organizations/ Agencies rendering ESF for their information and necessary action where required.
iv) All designated Nodal Officer of DM in different Departments**.**
v) Alerts would also be communicated to the vulnerable communities through the available means.

Orange Stage

i) All Departments/Agencies will be required to transmit 12 hourly updates.
ii) All Departments/Agencies generating alerts will be required to transmit information to IC State EOC and DEOCs within 30 minutes of the receipt of information regarding the upgradation of the stage.
iii) Alerts will be transmitted by IC State EOC to:

- Chief Secretary/ Principal Pvt. Secretary (CM)/ PS to Revenue Minister/and to the Nodal Officer of SDMA.

- All designated Nodal Officer of DM in different Departments**.**

iv) All concerned ESF Departments/Organizations/Agencies will be informed by IC, State EOC to be in readiness and make all necessary standby arrangements.

v) IC, State EOC will transmit alerts to the concerned Districts authorities.

vi) Alerts would also be communicated to the vulnerable communities through the available means.

Red Stage

i) All concerned Departments /Organizations /Agencies will be required to transmit alerts to IC, State EOC and district EOC **immediately** on receipt of information and not later than 30 minutes of the occurrence of the disaster events falling in the **Red Stage.**

ii) IC, State EOC will constantly monitor the position and transmit 03 hourly updates to the following:

- Chief Secretary/ Principal Pvt. Secretary (CM)/ PS to Revenue Minister/and to the Nodal Officer of SDMA.
- All designated Nodal Officer of DM in different Departments**.**

iii) All concerned ESF Departments/Organizations/Agencies will be informed by IC, State/district EOCs to be in readiness and make all necessary standby arrangements.

iv) IC, State EOC will transmit alerts to the concerned Districts authorities. The district EOC would intimate and alter all concerned.

v) Alerts would also be communicated to the vulnerable communities through the available means by State and district EOCs.

FLOOD

Central Water Commission has developed a network of flood forecasting stations and issues Daily Flood Bulletins to all designated Authorities/Agencies of the Central Government and State Governments/ district Administration during the South East Monsoon season for all the major river basins in the following categories:

Category	Description	Stage
IV	Low Flood (Water level between Warning Level and Danger Level)	Yellow
III	Moderate Flood (Water Level below 0.50m. less than HFL and above Danger Level)	Yellow
II	High Flood (Water Level less than Highest Flood Level but still within 0.50m. of the HFL)	Orange
I	Unprecedented Flood (Water Level equal and above Highest Flood	Red

	Level (HFL))	

LANDSLIDE

Geological Survey of India issues alerts and warnings to all designated authorities and agencies of the Central Government and State Governments/ district Administration for landslides in the following categories.

Category	Description	Stage
IV	Landslides of small dimensions that occur away from habitations and do not affect either humans or their possessions.	Yellow
III	Landslides which are fairly large and affect infrastructural installations like strategic and important highways and roads, rail routes and other civil installations like various appurtenant structures of hydroelectric and irrigation projects.	Orange
II	The landslides that may occur on the fringes of inhabited areas and result in limited loss of life and property.	Orange
I	Landslides of large dimensions that is located over or in close vicinity of inhabited areas like urban settlements or fairly large rural settlements. Activity on these slides can result in loss of human lives, dwellings on large scale.	Red

AVALANCHES

Snow and Avalanche Study Establishment (SASE) of the Defence Research and Development Organization (DRDO) Chandigarh is responsible for issuing alerts and warnings to all designated authorities and agencies of the Central Government and State Governments/ district Administration for avalanches in the following category:

Category	Description	Stage
Low	Generally favorable condition. Triggering is possible only withhigh additional loads and on very few extreme slopes. Valley movement is safe. Movement on slopes with care.	Yellow
Medium	Partly unfavorable condition. Triggering is possible on most avalanche prone slopes with low additional loads and may reach the valley in medium size. Movement on slopes with extreme care. Valley movements with caution. Avoid steep slopes. Routes should be selected with care.	Yellow

High	Unfavorable condition. Triggering possible from all avalanche prone slopes even with low additional loads and reach the valley in large size. Suspend all movement. Airborne avalanches likely.	Orange
All Round	Very unfavorable condition. Numerous large avalanches are likely from all possible avalanche slopes even on moderately steep terrain. Suspend all movements. Airborne avalanches likely.	Red

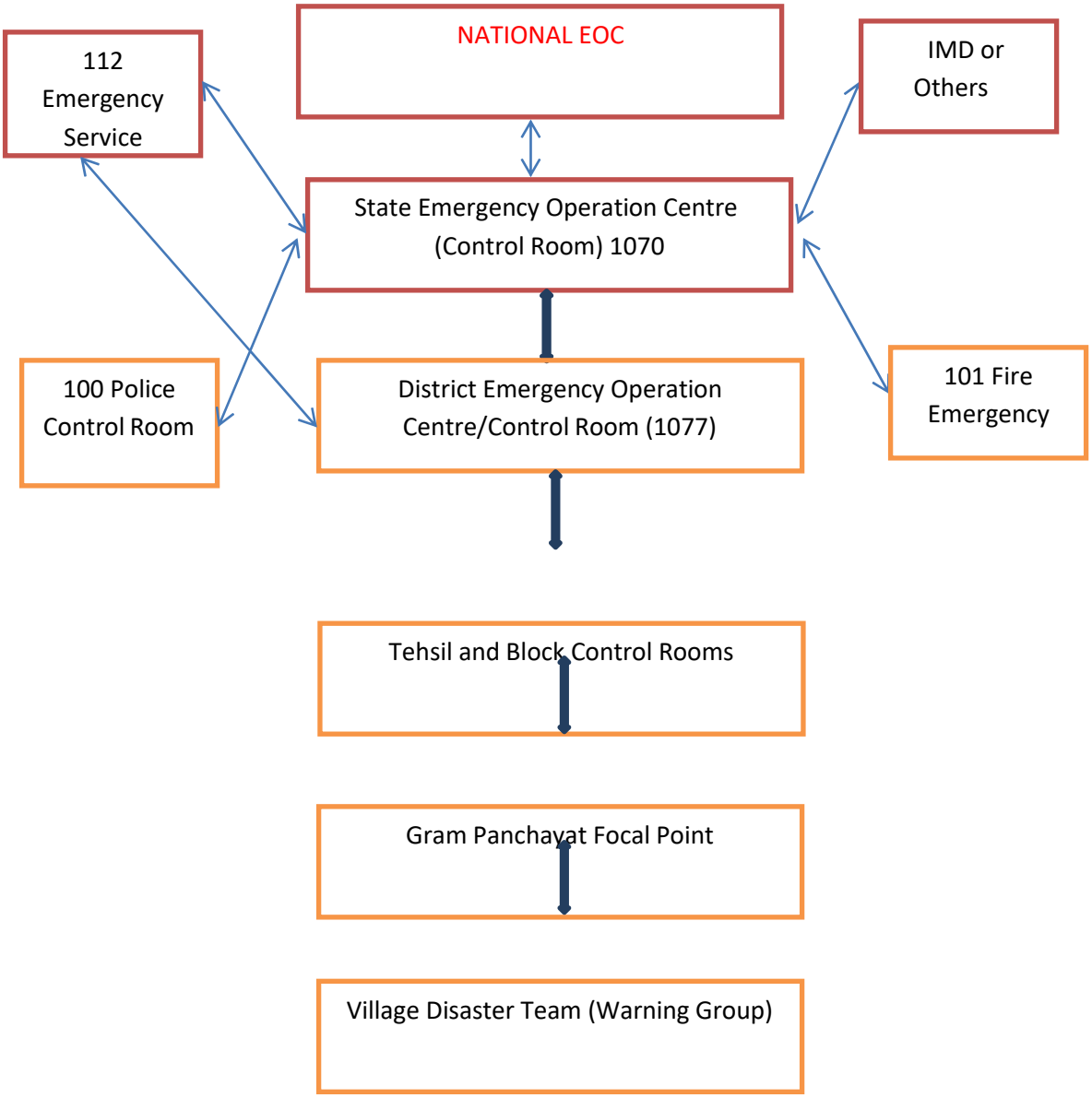
EARTHQUAKE

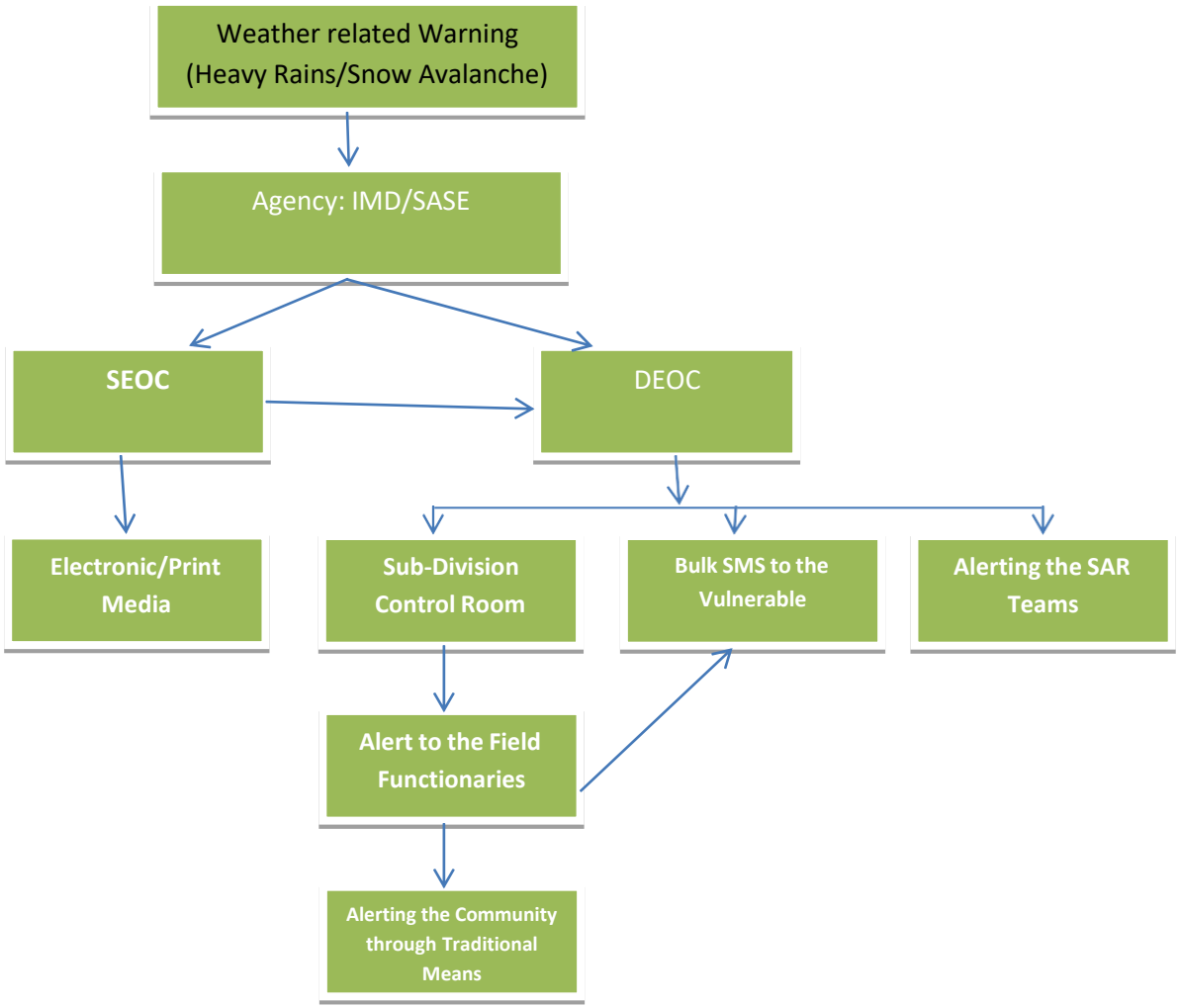
Early warning or prediction of earthquake is not possible. However it is possible to detection and monitor the earthquakes and the aftershocks. IMD is the nodal agency of Government of India responsible for monitoring seismic activity in and around the country. IMD is responsible for quickly estimating the earthquake source parameters immediately on occurrence of an earthquake and disseminate the information to all the user agencies including the concerned State and Central Government agencies responsible for carrying out relief and rehabilitation measures. IMD shall also transmit earthquake information to public information channels, press, media etc. and posts in its Website**.**

Category	**Description**	**Stage**
Slight	M < 5.0	Yellow
Moderate	5.0 ≤ M ≤ 6.9	Orange
Great	M ≥ 7.0	Red

IMD is also responsible for monitoring under- sea earthquakes which could generate tsunamis on the Indian coastal regions. IMD shall disseminate to all concerned user agencies including the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad for issue of tsunami Alerts and Warnings.

IMD operates an Earthquake Operational Centre on a 24X7 basis with theoperational responsibility of keeping a round-the-clock watch of seismic activity in andaround the country. The Centre shall retrieve waveform data from remote field stationseither in real time or through VSAT / dial up communication facilities, data analyses andquick dissemination of earthquake information to various user agencies including Stateand Central Government departments dealing with relief and rehabilitation measures. The earthquake information is transmitted to public information channels, press, mediaetc. and posted on IMD's Website. The Duty officer of IMD is available at 011-24619943 / 24624588 for earthquake related information. The information on recent significant earthquakes can also be obtained from an Interactive Voice Recording System (IVRS) through the following number: 011-24657879.

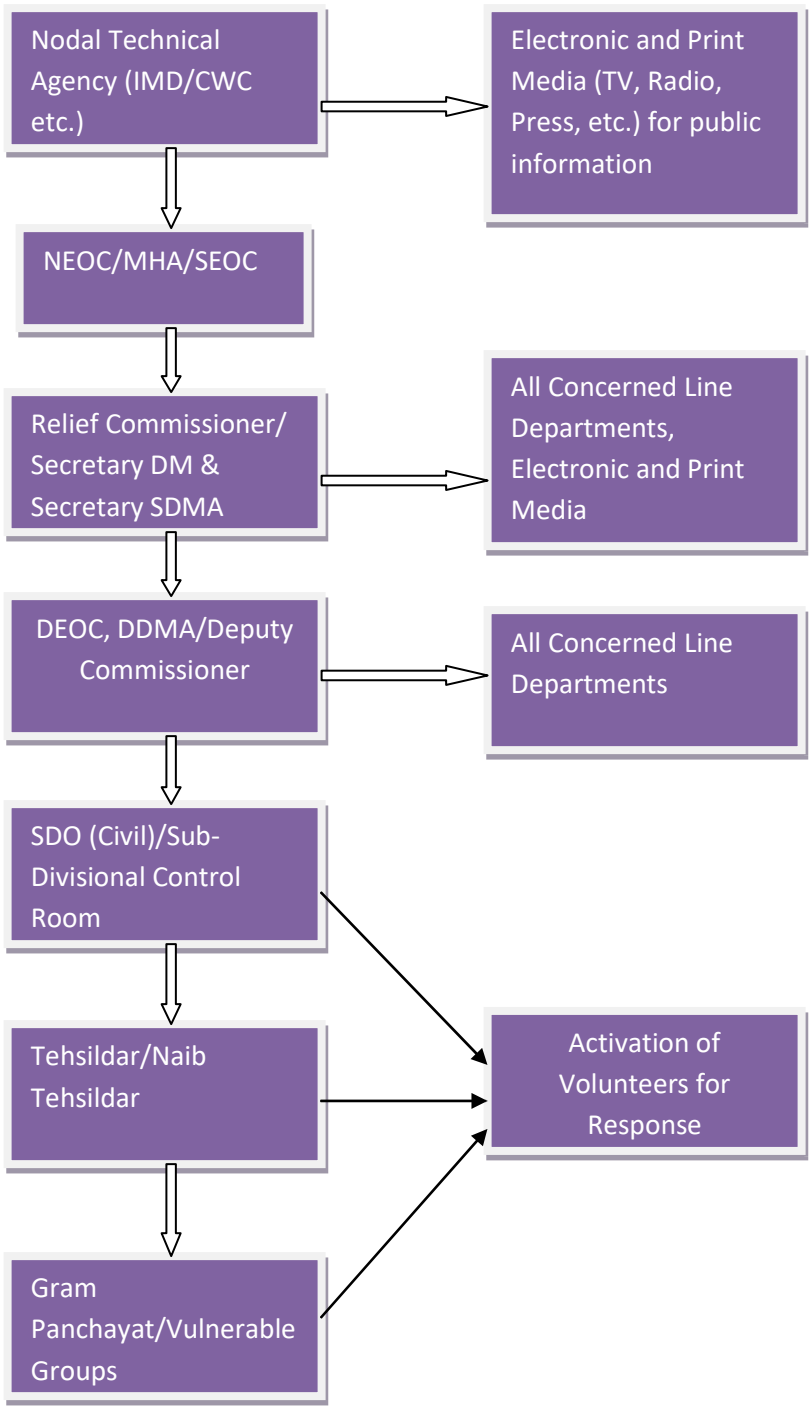

NATIONAL EOC
112 Emergency Service
IMD or Others
State Emergency Operation Centre (Control Room) 1070
100 Police Control Room
District Emergency Operation Centre/Control Room (1077)
101 Fire Emergency
Tehsil and Block Control Rooms
Gram Panchayat Focal Point
Village Disaster Team (Warning Group)



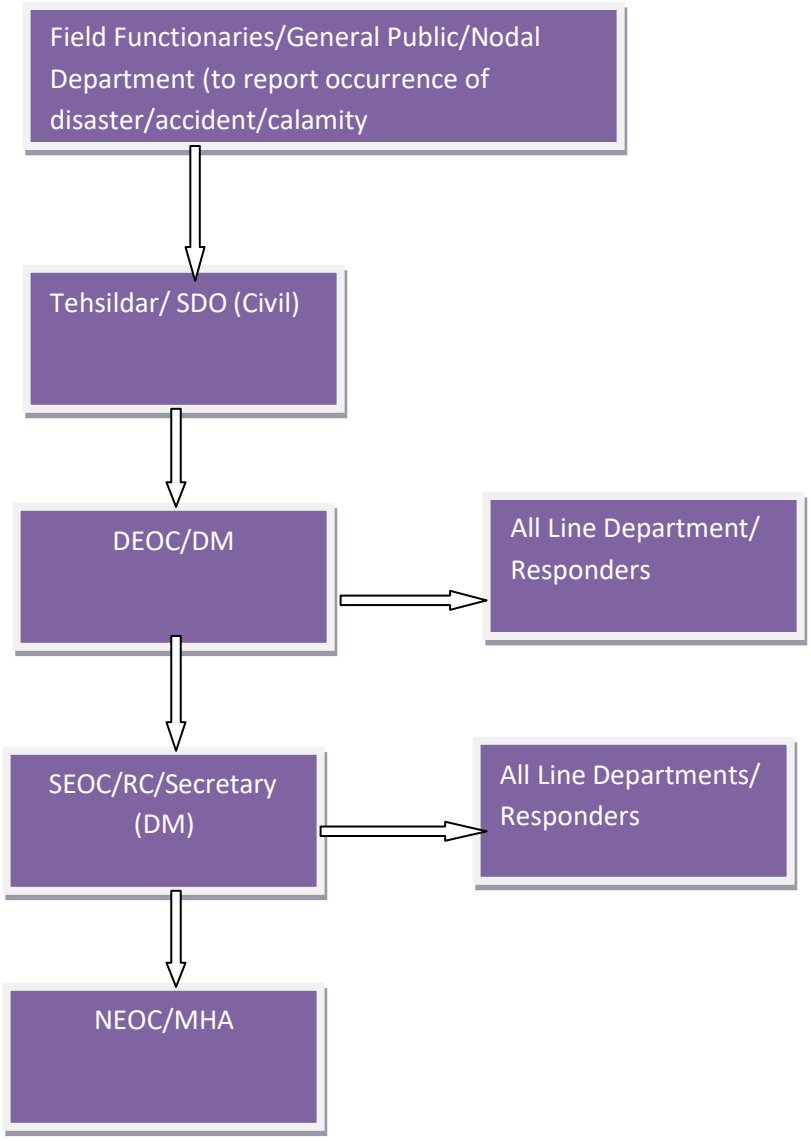
A Model of Top down flow of Early Warning

i) Arrangements shall be made for supply of food material, drinking water, etc.
ii) Thereafter, follow up action shall be undertaken by all concerned at all levels as envisaged under Response and Relief Phases.

Information flow chart in Case I: where early warning signals are Available



Information Flow Chart in Case II: Where Incident happens without any early warning signals



ANNEXURE-I

Emergency Support Functions (ESFs) Plan at National Level

In the aftermath of a major natural disaster wherein Central Government's assistance is to be provided to States/UTs the command, control and coordination will be carried out under the ESFs Plan.

NEOC shall activate the ESFs and the concerned Ministry/Department/Agency of each ESFs shall identify requirements in consultation with their counterparts in affected States, mobilize and deploy resources to the affected areas to assist the States/UTs in its response action.

ESFs shall be responsible for the following:

1. They will coordinate directly with their functional counterpart in States to provide the central government assistance required. Request for assistance will be channeled from the district level through the designated State departments/ agencies. Based on the identified requirements by the States, appropriate central assistance shall be provided by an ESF Department/ Agency to the state or at the state's request, directly to an affected area.

2. The designated authorities for each of ESF shall constitute quick response teams and assign the specific task to each of the member.

3. The designated authorities for each of the ESF shall identify and earmark the resources i.e. Manpower and materials to be mobilized during the crisis.

4. An inventory of all the resources with details shall be maintained by each of the designated authority for each of the ESF.

5. The designated authority for each of the ESF will also enter into pre-contracts for supply of resources, both goods and services to meet the emergency requirements.

6. The designated authority for each of the ESF will be delegated with adequate administrative, legal and financial powers for undertaking the tasks assigned to them.

Annexure - II

GOVERNMENT OF UT LADAKH
DEPARTMENT OF REVENUE (DMC)

Emergency Support Functions (ESFs) Plan

In the aftermath of a major natural disaster wherein State Government's assistance is required for the districts, the command, control and coordination will be carried out under the ESFs Plan.

EOC shall activate the ESFs and the concerned Department/Agency of each ESFs shall identify requirements in consultation with their counterparts in affected districts, mobilize and deploy resources to the affected areas to assist the district (s) in its/their response action. The State EOC shall maintain a close link with the District EOCs and NEOC.

ESFs shall be responsible for the following:

7. They will coordinate directly with their functional counterpart in districts to provide the state government assistance required. Request for assistance will be channeled from the district both through the Deputy Commissioner and designated departments/ agencies. Based on the identified requirements by the districts, appropriate assistance shall be provided by an ESF Department/ Agency to the district or at the Deputy Commissioner's request, directly to an affected area.

8. The designated authorities for each of ESF shall constitute quick response teams and assign the specific task to each of the member.

9. The designated authorities for each of the ESF shall identify and earmark the resources i.e. Manpower and materials to be mobilized during the crisis.

10. An inventory of all the resources with details shall be maintained by each of the designated authority for each of the ESF.

11. The designated authority for each of the ESF will also enter into pre-contracts for supply of resources, both goods and services to meet the emergency requirements.

12. The designated authority for each of the ESF will be delegated with adequate administrative, legal and financial powers for undertaking the tasks assigned to them.

Primary and Secondary Agencies

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

Agency for Each Emergency Support Functions and Roles to be performed

ESF No.	ESF	Primary Agency	Secondary Agency	Responsibilities of Primary Agency	Activities for Response	Role of Secondary Agency
1.	Communication	BSNL	Police Units of Armed Forces in the area	Coordination of national actions to assure the provision of telecommunication support the state and district; Coordinate the requirement	Responsible for coordination of national actions to assure the provision of telecommunication support the state and district response elements;	Make available police wireless network at the affected locations; Coordinate for the other networks

				of temporary telecommunication in the affected areas.	Coordinate the requirement of temporary telecommunication in the affected areas.	network etc.; The units of armed forces in the area would provide communication network on the request of the competent authority.
2	Public Health	Department of Health and Family Welfare	Department of AMCHI	To coordinate, direct and integrate State level response; Direct activation of medical personnel, supplies and equipment; Coordinate the evacuation of patients; Provide human services under the Dept of health; To prepare and keep ready Mobile Hospitals and stock; To network with private health service providers; To provide for mass decontamination;	Provide systematic approach to patient care; Perform medical evaluation and treatment as needed; Maintain patient tracking system to keep record of all patients treated; Mobilization of the private health services providers for emergency response. In the event of CNBR disaster to provide for mass decontamination of the affected population; Maintain record of dead and arrange for their post mortem.	To perform the same functions as assigned to the primary agency; Provide manpower to the primary agency wherever available and needed; Make available its resources to the primary agency wherever needed and available.

				Check stocks of equipment and drugs.		
3.	Sanitation/ Sewerage Disposal	Urban Development and Rural Development	Irrigation and Public Health	Make arrangement for proposal disposal of waste in their respective areas; Arrange adequate material and manpower to maintain cleanliness and hygiene.	Ensure cleanliness and hygiene in their respective areas; To arrange for the disposal of unclaimed bodies and keeping record thereof; Hygiene promotion with the availability of mobile toilets; To dispose off the carcass.	Repair the sewer leakages immediately; Provide bleaching powder to the primary agencies to check maintain sanitation.
4.	Power	NHPCLtd.	PDD LEH / KARGIL	Provide and coordinate State support until the local authorities are prepared to handle all power related problems; Identify requirements of external equipment required such as DG sets etc; Assess damage for national assistance.	Support to Local Administration; Review the total extent of damage to the power supply installations by a reconnaissance survey; To provide alternative means of power supply for emergency purposes; Dispatch emergency repair teams equipped with tools, tents and food; Hire casual labour for the	Make arrangement for and to provide the alternative sources of lighting and heating to the affected populations and for the relief camps.

					clearing of damaged poles etc.	
5.	Transport	Department of Transport	HRTC, Civil Aviation, GAD	Overall coordination of the requirement of transport; Make an inventory of vehicles available for various purposes; Coordinate and implement emergency related response and recovery functions, search and rescue and damage assessment.	Coordinate arrangement of vehicles for transportation of relief supplies from helipads/airports to the designated places; Coordinate arrangement of vehicles for transportation of SAR related activities.	Make available its fleet for the purpose of SAR, transportation of supplies, victims etc; Act as stocking place for fuel for emergency operations; Making available cranes to the Distt. Administration; GAD and Civil aviation will coordinate for helicopter services etc. required for transportation of injured, SAR team, relief and emergency supplies.
6.	Search and Rescue	Civil Defence, Home Guards, Fire and Emergency Services	NDRF, SDRF, Armed and Para military forces, Police, Red Cross, VOs, Volunteers and 108.	Establish, maintain and manage state search and rescue response system; Coordinate search and rescue logistics during field operations; Provide status reports of SAR updates throughout the affected areas.	GIS is used to make an estimate of the damage area and the deployment of the SAR team in the area according to the priority; Discharge all ambulatory patients for the first aid which has the least danger to health and others transported to safer areas.	108 and Red Cross to make available ambulances as per requirement; SDRF, VOs and Volunteers to assist the primary agency in SAR; NDRF, Armed and para military forces to