Karnataka State Natural Disaster Monitoring Centre

An Autonomous Body, Registered under Society Registration Act, Affiliated to Department of Science & Technology, Government of Karnataka
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1. INTRODUCTION:

- Karnataka State has the distinction of being first in the country to establish Drought Monitoring Cell (DMC) in 1988 as an institutional mechanism to monitor the Drought.

- Activities broadened to also include monitoring other natural disasters and renamed as Karnataka State Natural Disaster Monitoring Centre (KSNDMC) in 2007.

- Executive Committee chaired by Principal Secretary, Dept., of IT, BT and S&T with Principal Secretary, Revenue as Vice Chairperson – Members from line depts., and scientific organizations

- Governing Body headed by the Chief Secretary with Development Commissioner as Vice President – Members comprising line departments and Scientific organizations

- Natural Disasters Management heavily depends on inputs from Science and Technology.

- KSNDMC has been serving as a common platform to the various response players in the field of natural disaster management by providing timely proactive science and technology inputs.

- The Master Control Facility will strengthen the activities of the centre in providing information, reports, advisories to the community, research organizations and the Government.

- The Centre provides inputs to the farming community, agriculture and horticulture based sector, fisherman, transport sector, power and electricity sector, State and District level Disaster Management Authorities in Karnataka through state of the art natural hazards monitoring sensors, information and communication system.

2. NATURAL HAZARDS IN KARNATAKA

Climate Related Hazards	Drought Flood Cloudburst Hailstorm Lightning Coastal Erosion Storm Surge Cyclone
Geological Hazards	Earthquake Landslide Tsunami
Hydrological Hazards	Groundwater depletion and Aquifer Salinity
Biological Hazards	Plant : Pest and Insect attack Human: Plague (Kolar under highest risk) SARS, Bird Flu

KARNATAKA STATE'S VULNERABILITY TO NATURAL DISASTERS:

- 80% of the Geographical area in the state is prone to Drought.
- 22% of the Geographical area in the state is prone to moderate earthquake risks with possibility of earthquakes with magnitude of 5 to 6.9.
- 24% of the Geographical area in the state is prone to cyclone and heavy winds.
- Land slides do affects the areas with slops of more than 30% .
- The 359 km coastal line is prone to sea-erosion and Tsunami threat.
- Hailstorms are experienced almost every year and causes damages to crops, human life's and livestock's.
- All the districts in the state are vulnerable to more than one natural hazards.
- Thunder storms, cloud burst and lightening causes considerable damages and loss to lives and properties.

OBJECTIVES OF KSNDMC:

- Disaster Management depends heavily upon the inputs from Science and Technology.
- KSNDMC is providing a formal common platform to achieve synergy in the field of disaster management in Karnataka.
- The main Objectives are:
  - Hazard mapping and vulnerability studies.
  - Strengthening of information technology for Natural Disasters Management
  - Monitoring and impact assessment of natural hazards
  - Human Resource Development mainly by imparting training.
  - Natural Disaster early warning system

ACTIVITIES OF KSNDMC:

- Core activities towards scientific studies related to Natural Hazards with existing monitoring system.
- Maintenance and strengthening the monitoring system related to Natural Disaster in the State.

FORECASTING, EARLY WARNING, ADVISORIES AND PREPAREDNESS IN MANAGEMENT OF NATURAL DISASTERS:

- Disaster Management is multidisciplinary and has complexity of information sharing and reporting
- It is common experience that information is not available on real/near real time to the community and response players. It takes long time to obtain the information and lot more time to integrate and generate information/reports/advisories. A study reports that 40% of the time is spent on searching for the source for information, 30% of time is spent on waiting for the information to arrive and another 30% of the time is spent in understanding and customizing to the users requirement
- The Disaster Management Act 2005, Government of India reiterates paradigm shift in Disaster Management from rescue, relief centric approach to preparedness, early warning approach
- It is said that one dollar spent on early warning and preparedness helps in reducing the cost on rescue, relief and rehabilitation by 7 dollars. The investment made on early warning and preparedness has high cost-benefit ratio.

- It comprises installation of field monitoring sensors - weather, geological, hydrological; collection of data on real time, transmission of the same to a central computational/analysis centre; data processing; analysis; alert recognition; simulation through appropriate mathematical models, customized report generation ; dissemination of the alerts/reports/advisories to the users
- This requires Speedy Collaboration and close cooperation between stakeholders
- What is needed for implementation:
    - Sensing the pre-cursor
    - Transmission of raw data
    - Processing of data, Alert recognition,
    - Dissemination of warning
- Weather forecast & agriculture advisories to farming community.

DISASTER PREPAREDNESS AND EARLY WARNING:

DATA :

- Telemetric Rain Gauges – GRAMPANCHAYATS, 15mins data.
- Satellite Linked Automatic Weather Stations-200 nos., 15 mins data.
- Conventional Rain Gauges, 1100-daily.
- River Flows from the gauging sites of WRDO & CWC.
- Seismic Monitoring Stations, 12 PSMS & 6 Short period-CONTINUOUS DATA.
- Agricultural, Horticultural, Hydrological, Satellite derived info-daily.
- Daily reports, Alerts, Forecasts & Advisories send to DC's CEO's, HQA's, AC's, Tahsildars, JD's (Agri), AD's (Agri), Agri Officers, SP's, Raitha Samparka Kendras, Print and Electronic Media.
- **Disaster information system.**
- Disseminating information through SMS.
- Daily updating web
- Issuing daily reports on Rainfall / Temperature / Wind speed / Wind direction and Relative humidity / rainfall forecast twice day, Weekly, Monthly, Seasonal and Annual Report on rainfall, agriculture, reservoir levels, minor irrigation tank status and ground water levels.

MASTER CONTROL CENTRE (MCC):

- MCC at Bangalore to receive and analysis data on near real time from the existing :
  - 1600 Telemetric Rain Gauges
  - 200 Satellite and GPRS linked weather stations
  - 13 Earthquake Monitoring Stations
  - Strong database centre
  - Web enabled database management system
  - Real time data dissemination
  - Early warnings and advisories related to Natural Disasters
- The MCC is operating 24hrsX7daysX365days helpdesk (080-22745232 & 22745234) to forecast rainfall and weather.
- It is proposed to install Doppler Weather Stations, Tidal Gauging Stations and Landslide Monitoring Stations in the State.

PROVIDING VALUE BASED SERVICES IN MANAGEMENT OF:

- Drought
- Flood
- Cyclone
- Hailstorm
- Heavy winds
- Storm Surges
- Tsunami
- Earthquake
- Landslides

ADVISORIES & SERVICES TO:

- Common man
- Agrarian Community
- Agro based sector
- Fisherman
- Transport Sector
- Power and Energy
- Irrigation and
- Others