Virtual Classroom based Training Program
on
Application of Geospatial Techniques in Disaster Risk Management

Through Zoom Platform

27th November, 2026 (Time: 15:00 to 17:00 Hrs.)

Concept Note:

Gujarat faces many hazards. Its long coastline is exposed to cyclones, storm surge and coastal erosion; its river basins and growing cities to floods; its semi-arid regions to recurrent drought; and its seismic setting, forests and industrial areas to earthquakes, forest fires and technological accidents. In every disaster, officers need to answer a few basic questions quickly: where is the hazard, which people, crops, forests and infrastructure are affected, and how can they be reached. Geospatial techniques such as satellite remote sensing, Geographic Information Systems (GIS) and Global Navigation Satellite Systems (GNSS/GPS) give this location-based information in a timely and reliable manner.

These techniques are useful in every phase of disaster management. Before a disaster, they help in preparing hazard, vulnerability and risk maps, identifying safe locations and evacuation routes, and mapping resources. During a disaster, they help in monitoring floods, cyclones, drought and forest fire, supporting early warning, and guiding the movement of men and material. After a disaster, they help in rapid damage and loss assessment and in planning recovery and risk-informed reconstruction. Using the same maps and data also helps different departments coordinate better and avoid confusion during an emergency.

Many of the required tools are now freely available to field officers. WebGIS applications allow maps and spatial layers to be viewed, queried and overlaid through a web browser without special software. ISRO's Bhuvan geoportal provides satellite imagery, thematic maps and disaster-related services, while Bhoonidhi helps users search and obtain Indian satellite data. VEDAS, developed by the Space Applications Centre, allows earth observation data to be visualised and analysed for themes such as agriculture, water, forests and coastal areas. Mobile GPS-based applications further help in collecting field data and geo-tagged photographs for quick damage assessment. Knowing which tool to use for which purpose can greatly improve the speed and quality of decisions in the field.

Each department can use these tools in its own work. In agriculture, satellite images and field photographs help in monitoring crop condition, assessing drought and moisture stress, and estimating crop damage after floods, heavy rain or unseasonal rain, which supports faster and fairer relief. In the forest and environment sector, they help in receiving and responding to forest fire alerts, monitoring forest and

mangrove cover, identifying encroachment, mapping wildlife habitats and tracking plantations. In the water resources sector, they help in mapping water bodies and reservoir spread, checking canal networks, preparing flood inundation maps and planning water conservation and recharge structures.

Gujarat has strong institutions in this field, including the Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-N) in Gandhinagar, the ISRO Space Applications Centre in Ahmedabad, and the State disaster management system, which already use spatial information for decision support. However, field officers often do not know what data and tools are available or how to use them in their routine work. Regular training can bridge this gap and help ensure that the benefit of these facilities reaches the district, block and village level.

Geospatial information is most useful when it is combined with local knowledge. Satellite images show what is happening over a large area, but field verification, geo-tagged photographs and local reports are needed to confirm the situation on the ground. Officers should also understand the limits of the data, such as cloud cover during the monsoon, the time gap between satellite passes and the level of detail available, so that maps are interpreted correctly and decisions are not based on incomplete information. A basic understanding of these points helps field staff use geospatial products with confidence.

The training will be conducted online through short expert presentations, live demonstration of the geoportals and tools, and an interactive question and answer session, so that participants can see how the tools work and ask about their own field situations. Participants will be asked to complete a short questionnaire and feedback form at the end of the program. Presentation material and links to the portals will be shared with the participants so that they can continue to use the tools after the session.

Keeping this in view, a virtual classroom training program is planned on 27th November 2026 for officers and field staff of the Agriculture, Farmers Welfare & Co-operation Department; the Narmada, Water Resources, Water Supply and Kalpsar Department; and the Forest and Environment Department. The program will introduce the basics of remote sensing, GIS and GPS and their role in disaster management, show their use in hazard monitoring, early warning and risk mapping, and familiarize participants with WebGIS, Bhuvan, Bhoonidhi, VEDAS and mobile tools for damage assessment and data collection. The training is expected to increase the capability of field functionaries to understand, access and use geospatial information in disaster preparedness, response and recovery in their daily duty execution.