National Meet on "Disaster Risk Management – Trends and Technologies"

Organized by

National Remote Sensing Centre (NRSC)

Indian Space Research Organization (ISRO)

Dept. of Space, Govt. of India

In association with

Ministry of Home Affairs (MHA)
Govt. of India

27-28th February, 2023

at Hyderabad International Convention Centre (HICC),

Hyderabad, India

Under the Disaster Management Support Programme (DMSP) of Indian Space Research Organisation (ISRO), National Remote Sensing Centre (NRSC) has been playing a key role in providing space-based support in all phases of natural disasters for an effective disaster risk management in the country as per the Sendai Frame Work. NRSC has been working in close association with MHA, NDMA, SDMAs, NDRF, CWC, GSI, FSI, etc., in the country for more than two decades towards disaster management in India for floods, cyclones, landslides, earthquakes, forest fires, agricultural drought etc. To create awareness and to bring synergy between all the decision makers, relief commissioners, disaster management officials and researchers in the country and to understand the advanced technological developments in disaster risk management, a 2-day National Meet on "Disaster Risk Management – Trends and Technologies" was organized by NRSC (ISRO), in association with the Ministry of Home Affair (MHA), during February 27-28, 2023 at HICC Hyderabad, towards promoting space technology in implementing the Honourable Prime Minister's 10-point agenda in building disaster resilient country.

The targeted audience were scientists, engineers, managers, stake holders, researchers, disaster management authorities, decision makers working in the field of disaster early warning & response and disaster vulnerability & risk assessment. About 165 delegates have participated in the National Meet from 39 organizations and institutions across the country, such as, ISRO, MHA, NDMA, NDRF, NIDM, CWC, IMD, IITM, GSI, WIHG, FSI, NIH, INCOIS, NCMRWF, NGRI, NCESS, DRDO, IITs, NTPC, Disaster Management Authorities from several disaster-prone States, State Remote Sensing Centres, etc.

The inaugural session was chaired by the Chief Guest Shri S Somanath, Secretary, Department of Space and Chairman ISRO. He shared that the space technology has been playing a key role in addressing the problems faced due to the natural disasters and ISRO is supporting the disaster risk management with its capabilities in communication, earth observation and navigation from space, he has stressed upon need of more satellites for disaster management in India. He stressed that the ability to work together is the key to disaster preparedness, and ISRO is willing to work together with other departments.

Shri Kamal Kishore, Member Secretary, NDMA was the Guest of Honour to this event. He commended the excellent work being done by ISRO and stressed that the decision makers need the synthesis of all the risk information, and emphasized the need to do the retrospective analysis of the products that we have already produced to make sure that they are better utilized by the end users and decision makers.

The inaugural session was graced by the Special Guests of Shri Atul Karwal IPS, Director General, NDRF and Shri Hitesh Kumar IAS, Additional Secretary, MHA. In their address, need of ground level plans for disaster risk management was highlighted. Dr Prakash Chauhan, in his welcome remarks, mentioned that the outcomes of this National Meet will go a long way in terms of defining trends and technologies in the space based services required for addressing various aspects of disaster risk management.

Shri Somanath, Secretary, DoS & Chairman-ISRO addressing the National meet

Delegates of the National Meet

The conference was focused on the recent trends and technologies and research by various organizations and consisted of expert lectures, interactive sessions and panel discussions. New technologies, research gaps, data limitations, knowledge sharing opportunities were discussed for future course of action for disaster risk reduction.

The national meet deliberated on 6 themes, viz., Disaster Risk Management; Hydrological Disasters; Meteorological Disasters; Geological Disasters; Drought and Forest Fire, Climate Change Impact, Geospatial Services and Capacity Building; for best technological solutions to disaster risk reduction in the country addressing Prime Minister's 10 point agenda. There were 6 lead talks by eminent scientists and 32 invited talks by experts covering all disaster themes. The chairs include Dr K Radhakrishnan, Member, Space Commission and Former Secretary, Department of Space, Shri Kamal Kishore, Member Secretary, NDMA, Shri Atul Karwal IPS, DG, NDRF, Shri SK Jindal IAS, JS-DM, MHA, Shri Shantanu Bhatawdekar, Scientific Secretary, ISRO, Shri Harsh Gupta IAS, JS, NDMA, Dr Saibal Ghosh, DDG, GSI, Shri Manoj Rajan IFS, Commissioner, KSDMA, Shri Kunal Satyarthi IFS, Advisor, NDMA, Dr R Krishnan, Director, IITM, and Prof Santosh Kumar, NIDM.

The Panel discussion on the concluding day was chaired by Dr Prakash Chauhan, Director, NRSC, with Shri Shantanu Bhatawdekar, Scientific Secretary, ISRO, Dr R Krishnan, Director IITM, Dr Kalachand Sain, Director WIHG, Shri Harsh Gupta IAS, JS, NDMA in the panel. Important takeaways from this National Meet were to focus on the problem solving approaches, identification of critical gap areas, development of constellations of large number of small satellites, including constellation of SARs in the inclined orbit, and making available high resolution DEMs from ALTMs and UAVs.

RELEASES

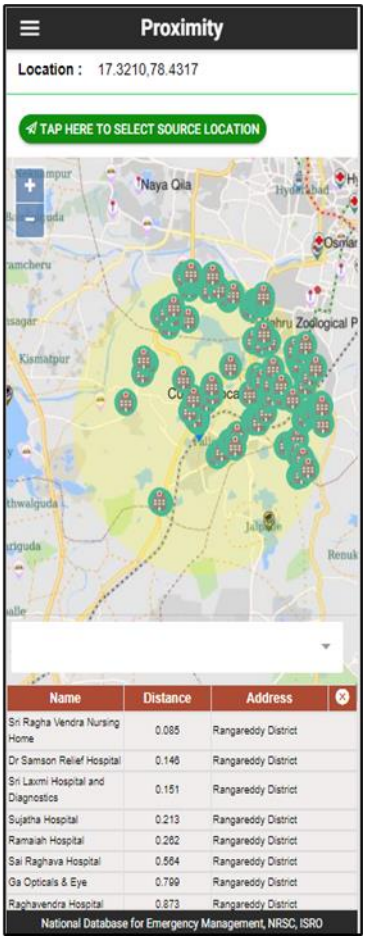
1. NDEM Lite - Mobile App

Shri Kamal Kishore, Member Secretary, NDMA, released the mobile App, NDEM Lite during the inaugural event of the National Meet on Disaster Risk Management.

National Database for Emergency Management (NDEM) operationalised by ISRO, which serves as a unique Geo-portal to disseminate space based inputs along with services of forecasting organizations addressing all natural disasters in all phases at PAN India level with the amalgamation of multi-scale geospatial database coupled with decision support system tools.

In order to make NDEM portable and compatible for the mobile devices, NDEM Lite is developed with essential services, which is a mobile version of the NDEM 4.0, and is aimed at aiding field officers and DM officials. The app is integrated with Decision Support System (DSS) tools and basic geospatial services and Point Of Services (POIs) to aid in relief and rescue operations.

NDEM Lite is equipped with dynamic scale based rendering capabilities, location based services for fetching the essential facilities with SMS function and incident reporting with a provision to take field photographs.



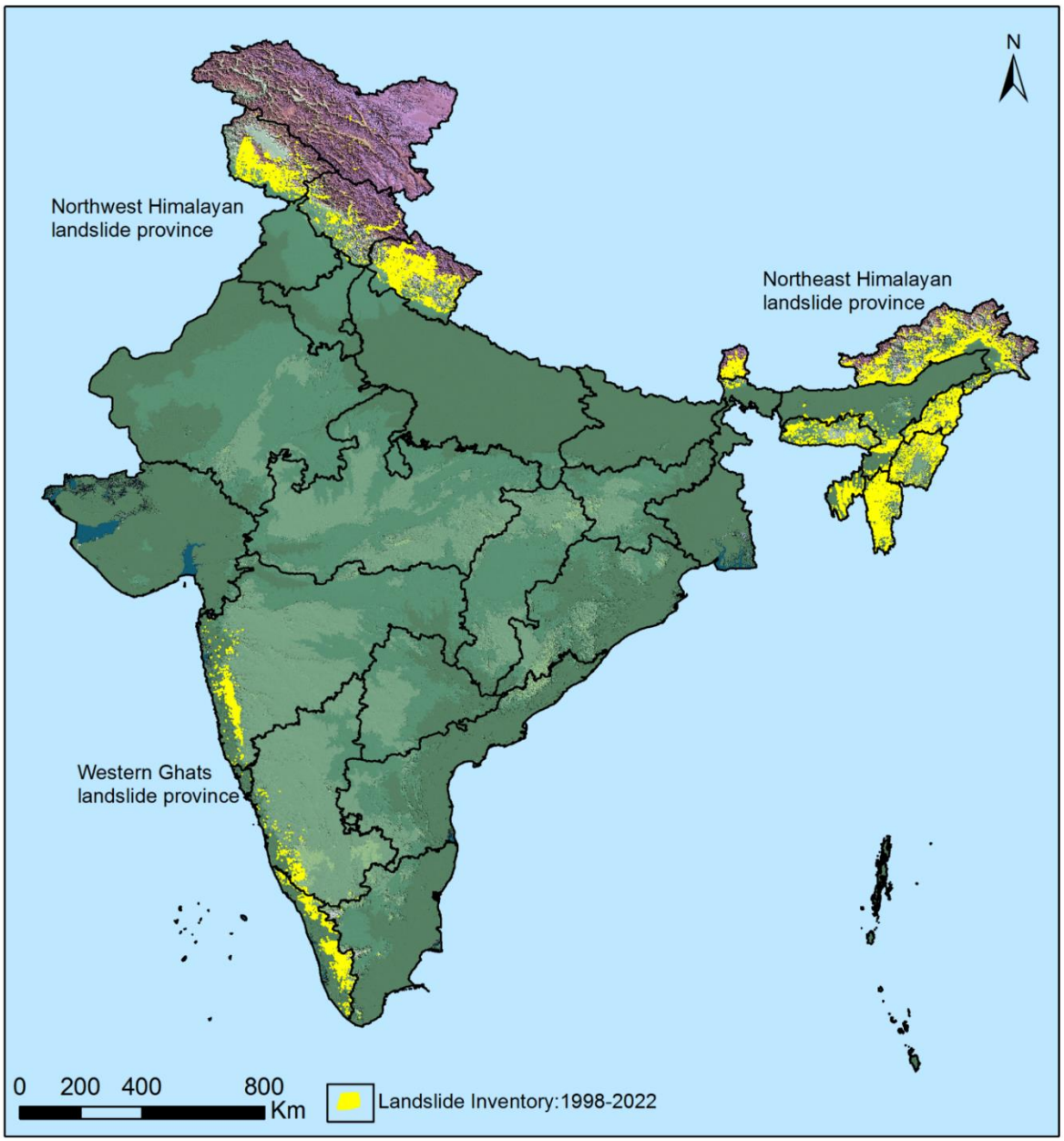
1. Landslide Atlas of India

Shri Somanath, Chairman, ISRO, inaugurated the Landslide Atlas of India prepared by NRSC during the inaugural event.

Landslides are one of the common geological hazards in hilly areas throughout the world. In India, approximately 0.42 million sq. km or 12.6% of land area, excluding snow covered area, is prone to landslide hazard. The “Landslide Atlas of India” prepared by NRSC-ISRO provides geospatial database of ~80,000 landslides in India mapped by NRSC under the DMS programme of ISRO during the 1998-2022 period. The database covers landslide vulnerable regions in 17 states and 02 UTs of India in the Himalayas and Western Ghats. The database includes three types of landslide inventory – seasonal, event-based and route-wise for the 1998-2022 period. Seasonal inventory contains pan-India landslide database corresponding to the 2014 and 2017 rainy season in India. Event-based inventory contains details of some of the major triggering events such as Kedarnath and Kerala disasters, and Sikkim earthquake as well as few large valley blocking landslides. Route wise inventory contains details of landslides along selected routes of tourist and pilgrimage importance. Satellite data of high to very high resolution such as IRS-1D PAN+LISS-III, Resourcesat-1, 2

and 2A LISS-IV Mx, Cartosat-1, 2S and 3, data from international satellites (Sentinel-1&2, Pleiades and WorldView) and Aerial images were used in the mapping of landslides. Some of the mapped landslides were validated in the field using mobile App and news reports.

The geospatial database was used to rank 147 districts in 17 states and 02 UTs of India for their exposure to landslide hazard in terms of key socio-economic parameters (e.g., house, population, livestock and road). Rapid response to catastrophic landslide disasters such as 2013 Kedarnath, 2018 Kerala, 2021 Rishiganga in the form of damage assessment using very high resolution satellite data, also forms part of this Atlas. Lastly advanced techniques in landslide detection, landslide Kinematics using InSAR technique for early warning of landslide, modelling and spatial prediction of landslide hazard are also explained. The Atlas will act as practical guide for researchers and decision makers.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Northwest Himalayan
landslide province
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landslide province
Western Ghats
landslide province
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Landslide Inventory:1998-2022