

**One Week Training Programme on Science & Technology for Disaster Risk Reduction at
RRSC-North, National Remote Sensing Centre, ISRO**

(July 8-12, 2024)

The Regional Remote Sensing Centre - North (RRSC-North) of the National Remote Sensing Centre (NRSC), under the auspices of the Indian Space Research Organisation (ISRO), in collaboration with the National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Government of India, organized a one-week training program on "Science & Technology for Disaster Risk Reduction" from July 8 to July 12, 2024. The Training program was an outcome of discussions held between RRSC-North and NIDM and was conducted at the latter's request. This program saw active participation from 56 individuals representing 26 different organizations and departments, spread across 15 states and Union Territories. The training aimed to enhance the understanding of disaster risk reduction (DRR) through the application of advanced scientific and technological methods, and the feedback received was overwhelmingly positive, with participants expressing a keen interest in future theme-based training programs on DRR.



The inaugural session of the training program was held on July 8, 2024, and commenced with a welcome address by Dr. Sameer Saran, Deputy General Manager, RRSC-North, NRSC, ISRO, who emphasized the importance of integrating science and technology into disaster management practices. Dr. Ajinder Walia, Associate Professor at NIDM, delivered the opening remarks, highlighting the critical need for such training in enhancing national disaster preparedness. Dr. S.K. Srivastav, Chief General Manager, Remote Sensing Centres, NRSC, ISRO, followed

with his remarks, stressing the pivotal role of remote sensing in disaster risk reduction.

The inaugural address was delivered by **Dr. Prakash Chauhan, Director, NRSC, ISRO and Chief Guest** of the inaugural programme through online mode. In his address, he emphasized ISRO's commitment in leveraging space technology for societal benefits, particularly in the domain of disaster management. The session concluded with a vote of thanks by Mr. Abhinav Shukla, and a group photo and high tea.

The first day of the training focused on providing a foundational understanding of disaster management, with sessions led by experts in the field. Dr. Ajinder Walia presented the basic conceptual framework of disaster and development, while Shri Hari Kumar from Geo-Hazards International discussed non-structural mitigation measures in disaster risk. The day's sessions aimed to give participants a comprehensive overview of the conceptual framework of disaster management and explore how science and technology contribute to understanding and mitigating disaster risks.

Day 2 delved into the application of Remote Sensing (RS) and Geographic Information Systems (GIS) in disaster risk reduction. Dr. Sameer Saran provided a detailed overview of RS and GIS applications and the utility of same in DRR, followed by Dr. Kiranmay Sarma from GGSIP University, who discussed the use of remote sensing and GIS in post-disaster needs assessments and conducted hands-on exercises on geospatial technologies for DRR. Dr. Neetu from RRSC North presented on the use of space technology for climate-resilient agriculture, and Shri Jayant Singhal from RRSC North discussed remote sensing and GIS for forest fire management.

The third day focused on early warning systems and their role in disaster response and management. Sessions included discussions on open-source climate datasets for disaster risk assessment by Shri Anurag Mishra from RRSC-North, spatial flood early warning systems by Shri Amanpreet Singh from NRSC, ISRO and Overview of Multi-Hazard Early Warning System & Impact Based Forecast: Progress in IMD by Dr. Jenamani from the India Meteorological Department (IMD). Col. Sanjay Srivastav

led a session on the Lightning Resilient India Campaign, emphasizing the importance of lightning resilience and action plans.

Day 4 explored the use of drones, Unmanned Aerial Vehicles (UAVs), satellite, and mobile applications in disaster response. Victor Saikhom from NESAC, ISRO, presented on the use of drones and UAVs for disaster response, while representatives from the National Disaster Response Force (NDRF) demonstrated the use of rescue equipment and tools. Shri Pankaj Bodani from SAC, ISRO, introduced the concepts of Artificial Intelligence (AI) and Machine Learning (ML) in disaster risk reduction.



On the last day of the training Dr. Pramod Kumar from IIRS, ISRO, presented on urban flood modeling, while Shri T D Dhariyal from the National Association for the Blind (NAB) discussed disability-inclusive technology in disaster management. Shri Vikram Gurjar, Deputy Commandant, Disaster Management Division, MHA, presented on the National Disaster Management Information System (NDMIS) highlighting their roles in enhancing data-driven decision-making, fund transfer and coordination among disaster management stakeholders. The day concluded with feedback from participants and the valedictory session.



The valedictory session was held on July 12, 2024, and began with a welcome address by Dr. Sameer Saran, DGM, RRSC-North, NRSC, ISRO. Dr. S.K. Srivastav provided remarks, and participants shared their feedback, emphasizing the value of the training program. Certificates were distributed, and the session concluded with an address by the Chief Guest, Shri Rajendra Ratnoo, IAS, Executive Director, NIDM, who commended the efforts of RRSC-North and NIDM in organizing the program. NRSC Coordinator delivered the vote of thanks, expressing gratitude to all participants and resource persons for their contributions to the successful completion of the training program.

In summary, the one-week training program on "Science & Technology for Disaster Risk Reduction" successfully provided a comprehensive understanding of disaster risk reduction through scientific and technological methods. The positive feedback from participants underscores the importance of such training programs in enhancing national disaster preparedness and resilience.



The collaborative efforts of RRSC-North, NRSC, ISRO, and NIDM in organizing this program have set a strong foundation for future theme-based training programs on disaster risk reduction, contributing significantly to the national agenda of disaster management and mitigation.