

CENTRE FOR DISASTER MITIGATION AND MANAGEMENT

VELLORE INSTITUTE OF TECHNOLOGY (VIT), VELLORE



Vision:

To create disaster risk free India, through the confluence of the cultures of preparedness, quick response, strategic thinking, and prevention.

Mission:

Destination-Disaster Risk Free India

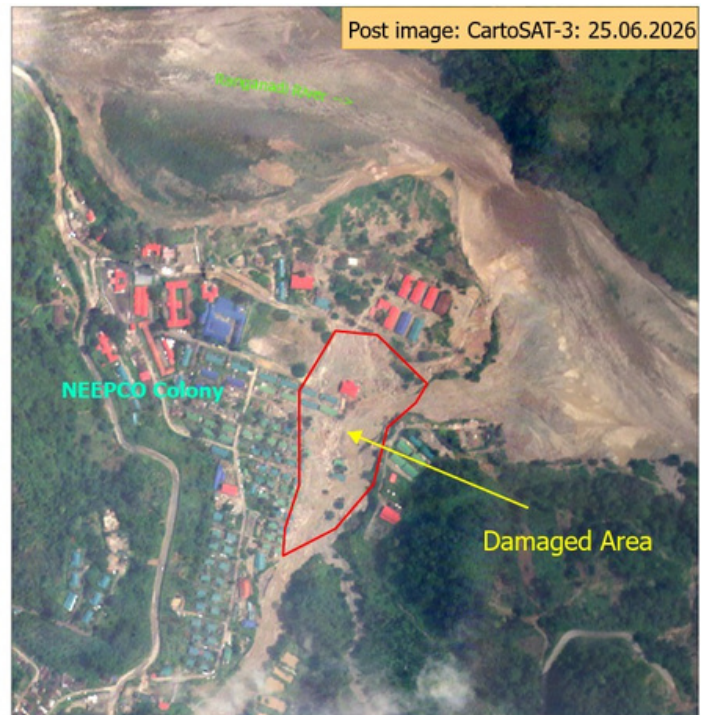
DIRECTOR'S MESSAGE

I am pleased to share the latest CDMM newsletter, highlighting our progress from January to June 2026. Over the past six months, our team has made remarkable strides in disaster mitigation and sustainable infrastructure management. By integrating cutting-edge technologies, such as artificial intelligence, remote sensing, and structural health monitoring into our research, we continue our forward-thinking approach toward a more resilient nation. I extend my deepest appreciation to our faculty and research scholars, whose dedication drives our centre's success. I encourage you to read through to celebrate our shared achievements and find inspiration for the work ahead.



Dr. Rama Mohan Rao P
Director, CDMM

EVENT HIGHLIGHTS



Heavy rainfall in the intervening night of 23-24 June 2026 triggered a flash flood in the Poosa / NEEPCO area of Keyi Panyor District, Arunachal Pradesh, India. The event caused significant damage to buildings and infrastructure, which is evident from the comparison of pre- and post-event satellite images

Source: National Remote Sensing Centre

Before Landslide (26 Aug 2025)



After Landslide (19 Mar 2026)



On 24 January 2026, a major landslide occurred on the flanks of Gunung Burangrang (Mount Burangrang) in West Bandung, Indonesia. The search operation was long and painstaking, but it is thought that 92 people were killed. A total of 23 survivors were reported.

Source: Data courtesy of the Copernicus Data Space Ecosystem / European Space Agency (ESA)

SANCTIONED SPONSORED RESEARCH AND CONSULTANCY PROJECTS

- Dr. Surendar M (PI), together with Dr. S. S. Chandrasekaran and Dr. Sudarshan Nandy (Co-PIs), has secured funding from the Department of Science and Technology (DST) under the Indo-Sri Lanka Bilateral Programme for the project "Landslide Monitoring and Mapping Using a Multi-modal Approach with Geospatial, Geophysical, and Machine Learning Techniques," with a total sanctioned amount of ₹23 Lakh.
- Dr. G. P. Ganapathy was involved in the preparation of a Comprehensive Disaster Management Plan for the Lawrence School. The project focused on disaster risk assessment, emergency preparedness, mitigation strategies, and institutional safety planning, with a sanctioned project value of ₹17.7 Lakh.
- Dr. Prasanth S executed the project titled "Condition Assessment of Civil Structures at the 100MLD Desalination Plant" for Mohan Associates, India. The project focused on evaluating the structural condition, integrity, and serviceability of civil infrastructure to support maintenance planning and ensure the safe and efficient operation of the desalination facility. The project was completed with a budget of ₹3 Lakh.

PATENTS PUBLISHED

- Dr. Priyadharshini B, Dr. G. P. Ganapathy and Mr. Sabari Nathan C. "Elevation-integrated tokenized water allocation system with remote sensing and IoT monitoring".
- Dr. Priyadharshini B, Mr. Hemang Dubey and Ms. Megha Gautam. "Pattern-aware computational framework for lossless DNA sequence compression" (HelixVault)
- Dr. Priyadharshini B and Mr. Hemang Dubey. "A domain-agnostic gesture recognition and control system and method of method for recognizing gestures and controlling devices" (GestureSense)
- Dr. Prasanth S, Mr. Pranav Ganesh A, Mr. Yuvanesh J, Mr. Siddharth Mahindrakar and Mr. Santos Benser J. "Multi-Sensor Fusion System for Urban Drain Blockage Detection".

RESEARCH PAPERS PUBLISHED

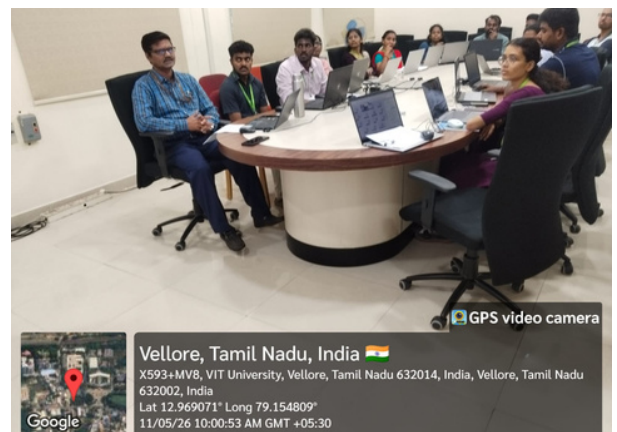
- Ashok, R., & Singh, K. S. (2026). Role of Air-Sea Flux Parameterization Schemes and Sea Surface Temperature on the Prediction of Arabian Sea Cyclonic Storms using the ARW-WRF Model. *Pure and Applied Geophysics*, 183(5), 2653–2679. <https://doi.org/10.1007/s00024-026-03951-y>.
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- Doddamani, V. C., & Ray, A. (2026). Seismic slope stability: a detailed review of recent advances in fundamental science, modelling and mitigation strategies. *Geomatics, Natural Hazards and Risk*, 17(1). <https://doi.org/10.1080/19475705.2026.2649638>.
- Manoharan, S. G., & Ganapathy, G. P. (2026). Integrated seismic hazard and liquefaction susceptibility mapping of a coastal megacity: a GIS-based first-level assessment. *Journal of Seismology*, 30(3), 45. <https://doi.org/10.1007/s10950-026-10396-2>.
- Manoharan, S. G., & Ganapathy, G. P. (2026). Mapping social vulnerability in Greater Chennai: A geospatial approach to census data disaggregation for urban resilience. *Urban Transitions*, 6, 100038. <https://doi.org/10.1016/j.ubtr.2026.100038>
- Raheem, A. N., & Pannem, R. M. R. (2026). Synergistic effect of carbon fiber, fly ash, and M-sand on the performance of Engineered Cementitious Composites (ECC). *Ain Shams Engineering Journal*, 17(3), 104023. <https://doi.org/10.1016/j.asej.2026.104023>.
- Reshma, M. S., Singh, K. S., Behera, S. K., & Bhaskaran, P. K. (2026). Prediction of Rapid Intensification, Eyewall Replacement Cycle, and Inner-Core Structure of ESCS Phailin. *Weather and Forecasting*, 41(1), 245–264. <https://doi.org/10.1175/WAF-D-25-0023.1>.
- Sowmya, S., & Pannem, R. M. R. (2026). Experimental analysis, microstructural and predictive regression modelling of mechanical, durability properties of polypropylene fibre concrete. *Ain Shams Engineering Journal*, 17(7), 104228. <https://doi.org/10.1016/j.asej.2026.104228>.
- Gargi, V. S., & Manickam, S. (2026). Extensive review of evapotranspiration estimation methodologies over a semi-arid region. *Frontiers in Remote Sensing*, 7. <https://doi.org/10.3389/frsen.2026.1770598>.
- Kartheek, T., & Pannem, R. M. R. (2026). Mechanical performance and crack-control behavior of PVA fiber-reinforced engineered cementitious composites: a review. *Composite Interfaces*, 1–17. <https://doi.org/10.1080/09276440.2026.2687279>.
- Gayathridevi, K., Ray, A., Madhu, R., Sapkota, S. C., Ahamed, S., Saha, P., Onifade, M., & Khandelwal, M. (2026). Permeability Prediction of Soil–Rock Mixtures Using Hybrid Machine Learning Considering Matrix Composition and Rock Content. *Advances in Civil Engineering*, 2026(1). <https://doi.org/10.1155/adce/5527440>.

EVENTS ORGANIZED

WORKSHOPS

- Dr. Prasanth S and Dr. Priyadharshini B organized a one-day workshop on “3D Concrete Printing - Redefining Concrete Construction” on 13 February 2026.
- Dr. Arunava Ray and Dr. Suganya OM organized a one-day workshop on “Advanced NDT- based Integrity Assessment of RCC structures and foundation systems” on 27 March 2026.
- Dr. Surendar M and Dr. Kuvar Satya Singh organized a one-day workshop on “Nonparametric estimation of entropy variants: Methodology and Applications,” was delivered by Dr. Alejandro C. Frery, Professor of Statistics and Data Science, School of Mathematics and Statistics, Victoria University of Wellington, New Zealand. on 30 March 2026.
- Dr. Priyadharshini B and Dr. Kavitha M. S organized a one-day hands-on workshop on “Strategic Literature Searching and AI-Assisted Research Gap Identification” on 11 May 2026.
- Dr. G. P. Ganapathy conducted Fire Safety Sensitization and Hands-on Training Sessions on 7 January 2026 at the Ladies' Hostel and on 7 April 2026, focusing on fire safety awareness, emergency response procedures, and the practical use of fire safety equipment.



- Dr. Surendar M, Centre for Disaster Mitigation and Management, and Dr. Biji C. L., School of Computer Science and Engineering, jointly organized the 3-Day National Capacity Building Workshop on "Climate–Health Data Analysis Using Artificial Intelligence, Time Series Techniques, and Predictive Modelling in Python" under the ICMR Centre for Advanced Research (CAR) – CLIMB-INDIA (Climate Change & Brain Infections) Project, held from 25–27 June 2026 at Vellore Institute of Technology (VIT), Vellore.



GUEST LECTURES

ORGANIZED

- Dr. Surendar M organized “Geospatial applications powered by Esri,” delivered by **Sridhar M**, an industrial expert from Esri, on 22 January 2026.
- Dr. Rama Mohan Rao P organized “Fundamentals of Finite Element Analysis and its application,” delivered by **Dr. A Ramachandra Murthy**, Chief Scientist & Head (Fatigue & Fracture Laboratory), CSIR- SERC, Chennai, on 23 January 2026.
- Dr. Arunava Ray and Dr. Kuvar Satya Singh organized “Building a Sustainable Future: Climate Change Focus,” delivered by **Dr. Krushna Chandra Gouda**, Scientist from CSIR 4P Institute on 5 March 2026.
- Dr. Arunava Ray and Dr. Rama Mohan Rao P organized “From Risk to Resilience: The Role of Urban Green Space and Citizen Engagement Towards SDG 11,” delivered by **Dr. Swatilekha Sen**, a Scientist from the Public Policy Research Institute, Kerala, on 6 March 2026.
- Dr. G. P. Ganapathy organized “Safety Saves Lives,” delivered by **Mr. J. Karthik Rajkumar** from Vellore Institute of Technology (VIT), Vellore, Tamil Nadu, on 26 March 2026.

- Dr. G. P. Ganapathy organized “Hands-on Exercise: Act Before It Burns – Fire Safety Drill,” delivered by the Fire Safety Team, Vellore Institute of Technology (VIT), Vellore, Tamil Nadu, on 7 April 2026.
- Dr. Arunava Ray, Dr. Prasanth S, and Dr. Priyadharshini B organized “Industrial Safety at Construction Sites,” delivered by **Er. Ravichandran R** from B and B Builders Pvt Ltd., on 15 April 2026.

LECTURE DELIVERED

- Dr. G. P. Ganapathy, "Upcoming Technologies for Disaster Research" during the GEO Rift Hackathon, jointly organized by the School of Biosciences and Technology (SBST), Vellore Institute of Technology (VIT), Vellore, on 8 January 2026.
- Dr. Priyadharshini B, “Next-Generation Technologies for Engineering and Interdisciplinary Education”, FDP organized by E&ICT Academy, IIT Guwahati, held from 16 - 20 February 2026.
- Dr. G. P. Ganapathy, "Role of Technologies in Disaster Management" at the 5th International Conference on Building a Sustainable Future with Recent Trends in Science and Technology (ICOST-2026), organized by Annapoorna Engineering College, Salem, Tamil Nadu, on 20 March 2026.
- Dr. Kuvar Satya Singh, “Fundamentals of Mathematical modelling and data assimilation: Concepts and applications”, FDP organized by , Vellore Institute of Technology, Vellore, held on 18 March 2026.
- Dr. Surendar M, “Advanced Surveying using GNSS, UAV (Drone) and GIS technologies”, Short-term training program (STTP) organized by Department of Civil Engineering, MIT Academy of Engineering, Alandi, Pune, held on 27 April 2026.
- Dr. Surendar M, “Remote Sensing and GIS Applications”, FDP organized by School of Computer Science Engineering and Information Systems, Vellore Institute of Technology, Vellore, held on 06 May 2026.
- Dr. Surendar M, "Climate Data Retrieval using ERA5 and Copernicus Climate Data Store (CDS)" and "Climate Data Ecosystem and Reanalysis Models" at the CLIMB-INDIA National Capacity Building Programme, organized by the School of Biosciences and Technology, VIT Vellore, during 25–27 May 2026.

CONFERENCE, WORKSHOPS, AND TRAINING PROGRAMMES ATTENDED

- Dr. Kuvar Satya Singh presented a paper titled "Observational and Numerical Aspects of Compound Events" at the National Conference ONCE-2026, organized by the National Institute of Technology Rourkela and the Indian Meteorological Society (IMS), Rourkela Chapter, held during 28–30 January 2026 at NIT Rourkela.
- Dr. Kuvar Satya Singh presented a paper titled "Mathematical Modeling and Data Assimilation and Its Application in Simulation of Tropical Cyclones over the Indian Subcontinent" at the International Conference on Artificial Intelligence, Mathematical Sciences and Statistical Data Science, held during 4–6 February 2026 at the Central University of South Bihar, Gaya.
- Dr. Surendar M participated in a One-Day Conference on “Research, Innovation, Enterprise,” held in Coimbatore on 6 March 2026, organized by Tamil Nadu Research Park Foundation, at Coimbatore.
- Dr. M. Chellapandian presented a paper titled "Study on the Impact Resistance of Bio-Composite Laminate Panels" and acted as a Session Chair at the International Conference on Recent Advances in Construction Materials and Structures (RCMS 2026), held during 19–20 June 2026 at PSG College of Technology, Coimbatore.
- Sowmya S attended a Workshop Program on “Engineering of Special Concretes with focus on Sustainability, Rheology and Microstructural characterisation (ESCOSURM)”, organized by CSIR-Structural Engineering Research Centre on 7-9 January 2026 at Training and Development Complex, CSIR-SERC, Chennai.
- Lomina R attended a Workshop Program on “Recent Advances in Concrete Technology & Durability of Concrete Structures 2026 (RACT &DCS 2026)”, organized by CSIR-Structural Engineering Research Centre on 21-23 January 2026 at Training and Development Complex, CSIR-SERC, Chennai.



- Artha M A attended a Two-Day Workshop Program on “Machine Learning Techniques in Satellite Image Processing for Engineering Applications”, organized by the Department of Civil Engineering on 13-14 February 2026, SRM Institute of Science and Technology, Kattankulathur.
- Manikandan V and Naveeta Kumari Jangir attended a National Capacity Building Workshop on “Time Series Analysis and Prediction Modelling with R” organized by the Department of Neurological Science and Biostatistics on 17-19 February 2026 at Christian Medical College, Vellore.
- Rohini Ashok presented a paper titled “An Assessment of Analysis and Forecasting of Severe Tropical Cyclones over the Arabian Sea using the Weather Research and Forecasting Model” at the JpGU-AGU Joint meeting held from 24-29 May 2026, at Chiba, Japan.
- Sabari Nathan presented a paper titled “A geophysical perspective on subsurface characterization and slope response to traffic-induced vibrations in the Nilgiris under a changing environment” at the JpGU-AGU Joint meeting held from 24-29 May 2026, at Chiba, Japan.
- Mr. Manikandan V, Research Scholar, served as a Resource Person at the Technical Workshop on "Air Quality Challenges and Emerging Health Risks in Urban Environment," organized by the Department of Civil Engineering, E.G.S. Pillay Engineering College, Nagapattinam, on 13 March 2026.
- Ms. Reshma M.S. is currently undertaking collaborative research at the Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan, under the prestigious India-Japan LOTUS Programme. She is conducting research under the guidance of Dr. Kuvar Satya Singh (India) and Dr. Swadhin Behara (Japan). The programme is fully funded by the Japan Science and Technology Agency (JST) and promotes collaborative research between talented researchers from India and Japan.



AWARDS AND RECOGNITION

Dr. G. P. Ganapathy, has been awarded the prestigious Geoethics Medal 2025 by the International Association for Promoting Geoethics (IAPG). The award recognizes his outstanding contributions to promoting ethical practices in geoscience research and its interdisciplinary applications. This prestigious international honour acknowledges his lifelong commitment to integrating geoscience with social responsibility.



Dr. G. P. Ganapathy has been honoured by Mr. Shankar Jiwal, IPS, Chairman, Tamil Nadu Fire Commission, during the Expert Committee Presentation held on 9 June 2026.



Dr. Priyadharshini B has been awarded the prestigious India RISE Fellowship (Research & Innovation STEMM Empowerment) for Cohort 1 (2026–2027). This highly competitive 12-month fellowship, offered through the Gupta-Klinsky India Institute at Johns Hopkins University, recognizes outstanding women scholars for their excellence and leadership in advancing research and innovation across STEMM disciplines.



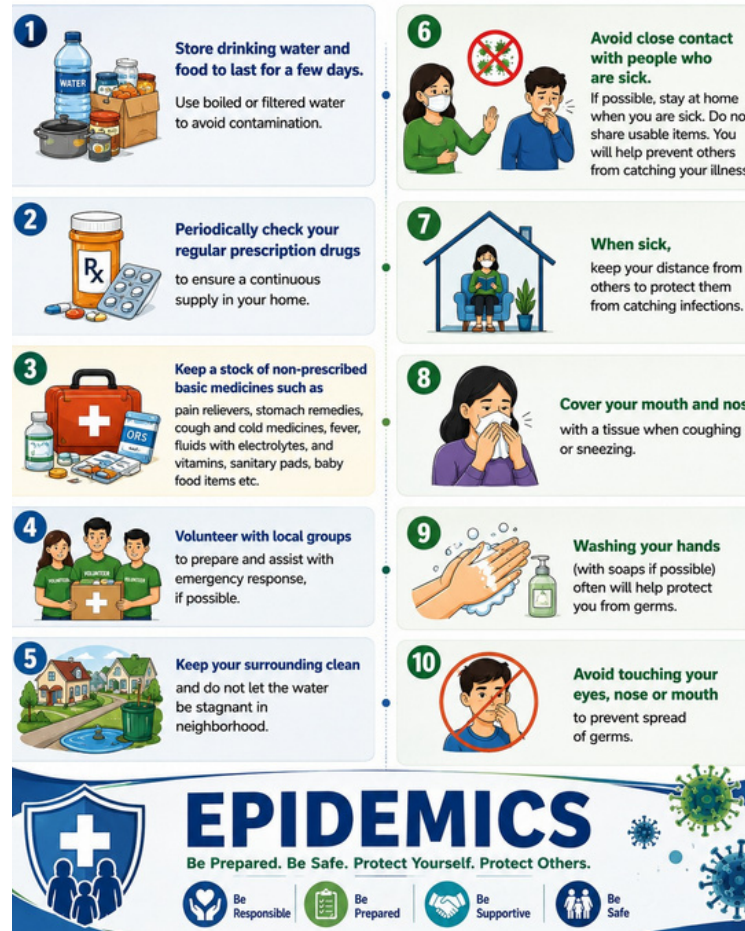
EPIDEMICS-Do's and Don'ts

✓ Do's

- Wash Hands: Clean your hands regularly with soap or sanitizer.
- Cover Coughs: Use a tissue or your elbow when coughing or sneezing.
- Eat & Drink Safely: Consume boiled/filtered water and hygienic food.
- Keep Medicines Ready: Maintain essential medicines and a first-aid kit.
- Keep Surroundings Clean: Prevent stagnant water and maintain hygiene.

✗ Don'ts

- Avoid Close Contact: Stay away from sick individuals.
- Don't Share Personal Items: Avoid sharing utensils, towels, or bottles.
- Don't Touch Your Face: Keep unwashed hands away from your eyes, nose, and mouth.
- Don't Self-Medicate: Take medicines only as prescribed by a doctor.
- Don't Ignore Symptoms: Seek medical care if symptoms persist or worsen.



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Editorial Team

Dr. Rama Mohan Rao P (Professor)
Dr. Surendar M (Associate Professor)
Mr. Abishek T (Project Associate - I)
Ms. Purneemaa R S (Research Scholar)



Stay Connected

Dr. Rama Mohan Rao P
Director – CDMM
Vellore Institute of Technology, Vellore,
Tamil Nadu, India
Mail: director.cdmm@vit.ac.in
Phone: 0416-2202290 (office),
0416-2202281 (direct), 0416-4207035 (direct)
For more details: <https://vit.ac.in/centers/cdmm>