



Integrated Disaster Risk Reduction for Inclusive Sustainable Development :

Science, Policy and Practice Dialogues

28th - 30th
September
2023



IIT Roorkee, India



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www.idrim2023.com



IDRIM 2023

The 13th International Conference of the International Society for Integrated Disaster Risk Management

CENTRE OF EXCELLENCE IN DISASTER MITIGATION AND MANAGEMENT
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
INTEGRATED DISASTER RISK MANAGEMENT (IDRIM) SOCIETY

IDRiM 2023

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The South Asia region forms an emblematic interface of development and risks to disasters, with risks being further projected to increase. Exposure and vulnerability to hazards and their consequential impacts are being observed in the region. Frequent disasters are exacerbating existing impacts and creating new ones. Rapidly growing population, contemporary climate change, frequent hazards, and atmospheric warming are unprecedented in this region, thus compromising the well-being of hundreds of millions of people and generating systemic risks. Disasters result due to the intersection of three key elements: i) hazards, including climate-induced extremes, earthquakes, landslides, cyclones, tsunamis, etc.; ii) exposure of assets and population; and iii) vulnerability due to physical, social, economic, governance, and environmental factors. The South Asia region is experiencing concurrent hazards - occurring simultaneously in time; compound hazards involving multiple drivers, preconditions, physical interactions, and path dependence leading to different impacts and coping options; and cascading hazards trigger others, mostly unexpected, similar to toppling dominoes. Therefore, it is essential to deepen the understanding of how these disasters translate into impacts on the environment, society, and infrastructure through blending science, policy, and practice for disaster risk reduction towards inclusive and sustainable development.

Specific Objectives of IDRIM 2023

- To summarize, and synthesize the science of disasters risks incorporating concurrent, compounding, and cascading hazards.
- To build a knowledge exchange platform for facilitating dialogue among researchers, practitioners, policymakers, civil society, and local representatives of disaster risk response community.
- To suggest the best practices for risk-informed inclusive and sustainable development at multilevel and deliberate on frameworks for inclusive disaster risk policies.

Highlights of the Conference



Pre- Conference Events

Day 0 : 27 September 2023 (Wednesday)			
10:00-13:00	HIGH COMMITTEE MEETING - HIMALAYAN UNIVERSITY CONSORTIUM of Architecture (Dept.	DAAD Special Session - Early Career Scientists Networking Activities (@ Sakura Hall APJ-AKB-104)	
13:00-14:00	LUNCH (Dept. of Architecture)		
14:00-18:00	Special Event by SAADRI – AALAAP (@ Everest Hall APJ-AKB -103)	DAAD Special Session - Early Career Scientists Networking Activities (@ Sakura Hall APJ-AKB -104)	
Online Session Link*	https://us06web.zoom.us/j/84932022881?pwd=q5QL2cBq74otasIdYiuO5yfw74aOhF.1 Meeting ID: 849 3202 2881 Passcode: everest103		Offline Only
17:30-20:00	SAADRI – Annual General Assembly (CoEDMM)		
20:00 ~	Dinner (Nigam)		

*For Online Attendees only - If anyone cannot join using the link, use the Meeting ID and password to join the Zoom Meeting

Inaugural Session : 28th September 2023

9:00am - 10:00am | APJ- AKB- 103 Lecture Hall Complex



Prof. K K Pant
Director, IIT Roorkee



Prof. Sumit Sen
Head CoEDMM, IIT Roorkee



Prof. Mahua Mukherjee
Secretary General, SAADRI



Prof. Ana Maria Cruz
President, IDRIM



Dr. Mrutyunjay Mohapatra
DG, IMD &
Vice President, WMO



Shri. Rajendra Ratnoo
IAS
Executive Director, NIDM



Prof. Eiichi Nakakita
Kyoto University
Japan



Dr. Durgesh Pant
Director General
UCOST

Integrated Disaster Risk Reduction for Inclusive Sustainable Development
Science, Policy and Practice Dialogues

Day1: 28 September 2023 (Thu)			
Registration			
8:00 - 9:00	Inaugural (@ Everest Hall APJ-AKB-103)		
	https://us06web.zoom.us/j/84932022881?pwd=q5QL2cBq74otasIdYiuO5vfw74aOhF.1		
Online Session Link	Meeting ID: 849 3202 2881 Passcode: everest103		
9:00-9:05	Welcome Address and Introduction by Chairperson IDRIM2023, Prof. Sumit Sen		
9:05-9:10	Prof. Mahua Mukherjee, Secretary-General SAADRI		
9:10-9:15	Prof. Ana Maria Cruz, President of IDRIM Society		
9:15-9:20	Shri Rajendra Ratnoo, IAS, Executive Director, NIDM		
9:20-9:25	Dr. Mrutyunjay Mohapatra, DG, IMD & Vice President WMO		
9:25 - 9:30	Prof. Durgesh Pant, Director, UCOST, India		
9:30 - 9:35	Prof. Kamal Kishore Pant Director, IIT Roorkee, India		
9:40 - 9:45	Prof. Eiichi Nakakita, Director of DPRI, Kyoto University (Online)		
9:45 - 9:50	Group Photo		
09:50-10:30	High Tea		
	Inaugural Lecture (@ Everest Hall APJ-AKB-103)		
10:30-11:00	Lecture by Distinguished Guest, Dr. Mrutyunjay Mohapatra, DG, IMD & Vice President WMO		
11:00-11:30	Keynote Lecture, Prof. Rajib Shaw, Keio University, Japan		
	Plenary Special Sessions		
11:30-12:30	Techno Vision 2047 for DRR: Dr. Rajendra Kumar Bhandari, Prof. Anil Kumar Gupta, Prof. P. K. Joshi, Prof. Madhumita Chatterji & Prof. Subir Sen		
12:30-12:45	Introduction to 6th World Congress on Disaster Management (WCDM)		
12:45-13:00	Department of Science and Technology's (DST) intervention in Water Technology and Water Disaster Management – Dr. Praveen Arora, Head, Water Technologies Cell (WTC), DST, India		
13:00-14:00	Lunch		
	Technical Session 1-1		Technical Session 2-1
	Climate Change Adaptation and Integration with DRR 1 (@Everest Hall APJ-AKB-103) Session Convenors: Prof. Mohit Mohanty, Prof. Piyush Srivastava		Hazard Mapping and Modeling, Spatial Vulnerability Assessment, and Disaster Risk 1 (@ Sakura Hall APJ-AKB-104) Session Convenors: Prof. Kamal Jain, Prof. Ajanta Goswami
Online Session Link	https://us06web.zoom.us/j/84932022881?pwd=q5QL2cBq74otasIdYiuO5vfw74aOhF.1 Meeting ID: 849 3202 2881 Passcode: everest103		https://us06web.zoom.us/j/89275353890?pwd=QIyeWtOkZyLlYyLlBkWEtNUPKCD0qx.1 Meeting ID: 892 7535 3890 Passcode: sakura104
14:00-14:10	Pragya Raj Jangde - Online (YSS) <i>Urban flood-carrying Capacity as a Measure of urban flooding resilience: A Bibliometric Analysis</i>	14:00-14:10	Ariyaningsih (YSS) <i>Assessment of Community Disaster Resilience in North Balikpapan Sub-District, Balikpapan City, Indonesia</i>
14:10-14:20	Alberto Fresolone - Online <i>Co-designing a climate risk service for drought risk management in Austria</i>	14:10-14:20	Mirinal Saikar (YSS) <i>Disaster risk and vulnerability assessment of char dwellers' in Assam, India</i>
14:20-14:30	Rama Pandey <i>Spatial Planning for Resilient Water Infrastructure in Rural India- An Approach from Village Panchayats Level</i>	14:20-14:30	Shanti Kumari (YSS) <i>Forest Fire Trends over Biogeographic Zone Covering Different Vegetation in India, Compared to Long-Term Trend</i>
14:30-14:40	Ravendiran E <i>Climate Change Impact on Agriculture in Maharashtra: An Evaluation of Policies Affecting Climate Change Vulnerability and Adaptive Capacity</i>	14:30-14:40	Madhusmita Murmu - Online <i>Spatiotemporal analysis of precipitation indices and its relation with forest fires in India</i>
14:40-14:50	Kensuke Takenouchi - Online <i>Analysis of Human Rain Perception Characteristics Using Rain Videos</i>	14:40-14:50	Ved Prakash <i>Development of a fully parallelized dynamically dimensioned search (FRDDP) auto-calibration scheme for efficient flood inundation mapping</i>
14:50-15:00	Bhaskara Rao Mulam <i>Adverse Impacts of Climate Change on Coastal and Marine Eco-Systems in India: Appropriate Adaptation Strategies and Mitigation Measures Needed for an effective Ecosystem Management and Ensuring Socio-Ecological Resilience in India</i>	14:50-15:00	Sudhir Dhamija / Raaj Ramsankaran <i>Automated Avalanche Detection and Susceptibility Mapping using time-series Medium Resolution Satellite Data</i>
15:00-15:15	Discussion	15:00-15:15	Discussion
15:15-15:45	Tea Break (30 min)		

15:15-15:45	Tea Break (30 min)			
	Technical Session 1-2		Technical Session 2-2	
	Climate Change Adaptation and Integration with DRR 2 (@ Everest Hall APJ-AKB-103) Session Convenors: Dr. Niti Mishra, Prof. Roopam Shukla		Hazard Mapping and Modeling, Spatial Vulnerability Assessment, and Disaster Risk 2 (@Sakura Hall APJ-AKB-104) Session Convenors: Prof. Alok Bharadwaj, Prof. Yunus Ali Pulpadan	
Online session Link	https://us06web.zoom.us/j/84932022881?pwd=q5QL2cBq74otasIdYiuO5vfW74aOhF.1 Meeting ID: 849 3202 2881 Passcode: everest103		https://us06web.zoom.us/j/89275353890?pwd=QlveWtOkZyLlYtLbKWwNUPKCD0gx.1 Meeting ID: 892 7535 3890 Passcode: sakura104	
15:45-15:55	Ravikumar Guntu (YSS) <i>A three-fold widespread rise in compound dry and hot extremes during the Indian summer monsoon from 1961 to 2020</i>		Jinu T P (YSS) - Online <i>Development of Multi-Hazard Risk Assessment Models: A comprehensive literature Review</i>	
15:55-16:05	Siddig Berama (YSS) <i>Impact of Climate Change and Land Use Land Cover Change on Hydrological Water Balance in Blue Nile basin, Sudan</i>		Peliy Jiang (YSS) - Online <i>Proposal of a Methodology for Earthquake Downtime Assessment of Natech Accidents in Chemical Industrial Parks</i>	
16:05-16:15	Usman Mohseni (YSS) <i>Addressing the Cascading Effects of Compound Extreme Events in India.</i>		Mohd Ahmad (YSS) - Online <i>Advances in Landslide Hazard Mapping and Modelling Techniques (A Comprehensive Review)</i>	
16:15-16:25	Deepti Kumari Dwivedi (YSS) <i>Detection of Early Signatures of Landslides in Western Himalayas, India</i>		Yukti Garg (YSS) - Online <i>Integration of Evidence Belief Function (EBF) with Frequency ratio (FR) for GIS-based Landslide prediction of Goa states, India</i>	
16:25-16:35	Pramod Kumar Singh <i>Strategising Climate Change Adaptation and Disaster Risk Reduction</i>		Urbi Mondal (YSS) - Online <i>Advances in Strategies for Coastal Risk Alleviation with special reference to Carrying Capacity Assessment</i>	
16:35 - 16:45	Breather		C Lallawmawma (YSS) <i>Assessing the Impact of the 2020 Earthquake in Tuipural, Mizoram: Implications for Seismic Safety Measures</i>	
16:45-16:55	Shikha Puri (YSS) - Online <i>Natural Based Solutions for Flood Control in Assam</i>		Breather	
16:55-17:05	Zannat Ara Ghani (YSS) - Online <i>Environmental Justice: Assessing the scope of small-scale Nature-based Solutions with the Capability Approach</i>		Haris Rahadiano (YSS) <i>Designating evacuation zones considering forecast uncertainty for anticipating massive ash fallout</i>	
17:05-17:15	Katsuya Yamori - Online <i>Bridging a gap between disaster information and actions</i>		Ryohei Nakatsu - Online <i>Art Signboard To Raise People's Awareness of Disaster Prevention</i>	
17:15-17:25	Niti Mishra - Online <i>Urban Risk Governance: Mumbai's Approach to Climate and Disaster Risk Governance</i>		Takahisa MINAMI - Online <i>Discussions of possible biases which arises in estimating evacuation intentions</i>	
17:25-17:35	Kaori Kitagawa - Online <i>Researcher positionality in participatory action research for climate justice in indigenous communities</i>		Ravindra Vitthal Kale <i>Applications of Google Earth Engine and RivMap Toolbox in Fluvial Geomorphology for Detecting River Planform Change: A Case Study of the Tawi</i>	
17:35 - 17:45	Ram Kumar Mishra <i>Climate Change and State-Owned Enterprises in India</i>		Binaya Kumar Mishra <i>Rainfall-runoff-Inundation modelling in Manohara</i>	
17:45 - 18:00	Discussion		Discussion	
18:00-20:00	IDRiM General Assembly (@ NIGAM Committee Room) Meeting ID - 86454325156 Passcode - idrim@ga		Hands-On Session on Mapping (@ Monsoon Hall APJ-AKB-102) Online Session Link: https://us06web.zoom.us/j/83373745407?pwd=GvCGVJ9xtbAl06qaI6SDTHDjy9do0m.1 Meeting ID: 833 7374 5407 Passcode: monsoon102	

Special Session 1

Implementation gaps are persistent phenomena in disaster risk management
 (@Fuji Hall APJ-AKB-101)
 Prof. Norio Okada, Kyoto University
 Prof. Robert Goble, Clark University
 Prof. Hirokazu Tatano, Kyoto University

Online Session Link:
<https://us06web.zoom.us/j/83944200067?pwd=Qm1nkrutNiaFZlag6pJ6KQvDs7Fgo.1>

Session objectives

Our objective is to continue and expand the discussion from last year on how a careful look at implementation gaps can be a pathway toward developing an implementation science. The discussion this year should benefit from a look at case studies of implementation gaps and from a year of reflections on the initial discussion made at IDRiM 2022.

Session format

Assuming the session is hybrid, we propose a 90-minute, moderated round table discussion session consisting of three parts:
 •Part I (40 minutes): Setting the scene: a brief review followed by brief descriptions of case studies with implementation gaps
 •Part II (30 minutes): A round table discussion of how the examples offer insights toward development of an implementation science
 •Part III (20 min): Open discussion with the audience

Session participants

Conveners: Norio Okada, Emeritus Professor, Kyoto University, Japan and Robert Goble, Clark University, USA
 Discussants and speakers : Kami Seo, Aoyama Gakuin University, Japan; Guoyi Han, Stockholm Environment Institute, Sweden, Yoko Matsuda, Nagaoka University of Technology, Japan, Masamitsu Onishi, Kyoto University, Japan, and Miranda Dandoulaki, I.S.I. - Industrial Systems Institute, Greece

Day2: 29 September 2023 (Fri)						
Keynote Lecture (@ Everest Hall APJ-AKB-103) Sanny Ramos Jegillos (Online)						
Special session on the IDRIM Journal						
Technical Session 3-1		Technical Session 4-1		Technical Session 5-1	HUC (Dept. of Archtecture)	
Progress in achieving priorities under Sendai Framework for DRR for inclusive sustainable development in South Asia (@Everest Hall APJ-AKB-103) Session Convenors: Prof. D. S. Arya; Prof . Anil K Gupta; Prof. James Goltz		Disaster-induced displacement, migration and community response for DRR merged with DRM (@ Sakura APJ-AKB-104) Session Convenors: Prof. Harshit Lakra, Dr. Surajith Ghosh		Monitoring and early warning and natural and biological hazards (@Fuji Hall APJ-AKB-101) Session Convenors: Prof. NK Goel, Prof. Perumal, Prof. Amod Dixit		
Online Session Link	https://us06web.zoom.us/j/84932022881?pwd=QjZlYUxkVWwucDQ0aXo1 Meeting ID: 849 3202 2881 Passcode: everest103	https://us06web.zoom.us/j/89275353890?pwd=QjZlYUxkVWwucDQ0aXo1 Meeting ID: 892 7535 3890 Passcode: sakura104	https://us06web.zoom.us/j/83944200006?pwd=Qm1kdmludnNlaTlkeGp6KkQyOzFqOzI Meeting ID: 839 4420 0006 Passcode: fuji101		This session aims to bring together different stakeholders, young researchers, academicians, policymakers, practitioners working in or interested to work in the field of DRR initiatives, especially in the context of Hill Heritage at Risk. The session intends to develop a roadmap on how and in what ways we can strengthen the HUC Network that can enable the partnering institutions and associated partners and stakeholders to come together and work for safeguarding hill heritage.	
9:40-9:50	Ajay A P (YSS) Inclusiveness of Risk Informed Planning in Inia context: A review of flood affected metropolitan regions in India	9:40-9:50	Ryo Nakabayashi (YSS) Issue of municipalities workers related to disaster response	9:40-9:55		Invited Talk : Prof. Muthiah Perumal, Former Professor, Department of Hydrology, IIT Roorkee, India
9:50-10:00	Tomo Kawane (YSS) Women Entrepreneurs and Social Capital in India: A Case Study from Gujarat	9:50-10:00	Nombulelo Kitsephe Ngulube (YSS) How we would like to be involved! Towards Effective Participatory Post Disaster Relocation and Housing Reconstruction: A Community Perspective.	9:55-10:05		Erickson Bisetia (YSS) Monitoring and Early Warning of Disasters in Ulang County, South Sudan
10:00-10:10	Debkalpa Basudas (YSS) Exploring the Role of Theatre in influencing Eco-feminist Awareness: A study in village Bishnubati, Birhum, West Bengal, India	10:00-10:10	Kartik Sharma (YSS) Civil defence Machinery in India: A neglected apparatus in DRR and Community capacity building	10:05-10:15		Sudhanshu Dixit (YSS) Understanding the Catchment Characteristic for developing an early warning system in Lesser Himalayas
10:10-10:20	Debaleena Roy (YSS) Challenges and Opportunities for Women in Disaster Risk Management: A Comprehensive Review	10:10-10:20	Naveen Prashar (YSS) Identification of resilience assessment indicators in the flood prone communities - a case of inland areas	10:15-10:25		Anamika Sekar (YSS) Early warning systems for Rainfall Induced landslides in India- A Status Update
10:20-10:30	Shyni Anilkumar Disaster Response in Kerala: Assessing The Community's Capacity To Respond To Floods And Related Disasters	10:20-10:30	Soude Dadras (YSS) - Online Art Education via Interactive Art Installations for Communicating Disaster Risk	10:25-10:35		Raju Attada Investigating the Characteristics and Mechanism of Summer Monsoon Extreme Precipitation Events Over the Himalayas
10:30-10:40	Mukta, Ram Deka Localisation of global commitments on Disaster Risk Reduction: investment towards a risk informed and resilient Assam	10:30-10:40	Subhajyoti Samaddar Sense of Community under/in the Disaster Risk: A catalyst for participation	10:35-10:45		James Goltz Operational Earthquake Forecasting in Japan: A Study of Municipal Government Planning for an Earthquake Advisory or Warning in the Nankai Region
10:40-10:50	Nidhi Yadav Two parallel roads impacting the functional preparedness of accredited hospitals; The Indian healthcare quality standards and disaster management Act 2005	10:40-10:50	Nebuhito Ohtsu Causes and Tendencies of firefighter's injuries While on Duty Fire Despatchments	10:45-10:55		Rhythm Naswa Thunderstorms-the single largest killer among natural disasters: Its Meteorological Prediction and Mitigation measures
10:50-11:00	Kanu Kumar Das Importance of policies and guidelines to meet the Sendai Framework 2015-2030 for Flood-affected Rural Housing of Bangladesh as resilient Critical Infrastructure (CI)	10:50-11:00	Tomo Takasugi Welfare evacuation centres for people requiring special care and consideration: a qualitative study in Japan	10:55-11:05		Prabhu C N Atmospheric River: The Cause of Flash Flood in Bihar in 2019
11:00-11:10	Subhajyoti Samaddar What needs to be integrated, how, and whose reality counts in IDRIM? Narratives from Asia and Africa	11:00-11:10	Tirtha Ghosh Conceptual framing of Environmental Migration: A study in the context of the Sundarban, India	11:05-11:15		Lohit Jain - Online Enhancing Flood Management and Early Warning Systems in Mountain Rivers: An ANN-Based Approach
11:10-11:20	Discussion	11:10-11:20	Discussion	11:15-11:20	Discussion	
Tea Break (30 min)						
Technical Session 6		Technical Session 7-1		Technical Session 7	HUC (Dept. of Archtecture)	
Building resilience from the ground up: innovative approaches to disaster management (@ Everest Hall APJ-AKB-103) Chair: Dr. Muneta Yokomatsu; Prof. Roopam Shukla		Education and community empowerment (@ Sakura APJ-AKB-104) Chair: Prof. Subhajyoti Samaddar, Prof. Mahua Mukherjee		Monitoring and management of human-made risk (including Na-Tech and industrial hazards) (@Fuji Hall APJ-AKB-101) Session Conveners: Prof. Ravi Kumar, Dr. Komali Kantamaneni, Prof. Ana Maria Cruz	This session aims to bring together different stakeholders, young researchers, academicians, policymakers, practitioners working in or interested to work in the field of DRR initiatives, especially in the context of Hill Heritage at Risk. The session intends to develop a roadmap on how and in what ways we can strengthen the HUC Network that can enable the partnering institutions and associated partners and stakeholders to come together and work for safeguarding hill heritage.	
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11:50-12:00	Atul Anand Jha (YSS) Disaster resilience potential of an integrated Indigenous water management system: The pokhars of North Bihar	11:50-12:00	Dennis Ushina (YSS) - Online The Effect of Land Tenure on Access to Assistance for the Long-term Recovery of Flood Damage	11:50-12:00		Lina Parra (YSS) - Online Nattech events on oil and gas facilities in Colombia: Analysis of past events
12:00-12:10	Vivekanand Tiwari (YSS) GWRP2 as a Thematic Urban Infrastructure in Physical Planning Process – A Case of Ajmer City, India	12:00-12:10	Rameez Ahmad Sudden (YSS) Disaster risk management in the Himalayan region: The study of Whole School safety Program aiming at reducing the risk of disasters to build resilience in school education ecosystem in Kashmir	12:00-12:10		Namulim Borjigin (YSS) - Online Investigating Supply Chain Managers' Protective Behavior for Flood-Related Nattech Accidents: Based on an Enriched Protection Motivation Theory Framework
12:10-12:20	Maciej Pawlik (YSS) - Online Machine Learning Modelling for Integrated Risk Communication: A study of British & Japanese perspectives in flood-prone communities	12:10-12:20	Kshitij Kacker (YSS) Heat Stress Indices in Urban Area of Delhi	12:10-12:20		Alexandra-Gabriela Corlea (YSS) - Online (Registration yet to be confirmed) Intercomparison of BLEVE scenario modeling for risk assessment of NoTech events: Cosmo Oil Refinery case study
12:20-12:30	Amarnath Sharma (YSS) Study on Anthropogenic Sources of Air Pollution and Vegetation's Efficiency as Mitigation Strategies	12:20-12:30	Bushra Shahriar (YSS) Practical Indicators to Improve Urban Flood Resilience of A Community: A Case of Urban Flood Mitigation in Dhaka Bangladesh	12:20-12:30		Fengyi Sun (YSS) - Online Development of a Nattech Social Vulnerability Index: A Comprehensive Multi-Hazard Risk Assessment for a Case Study in Colombia
12:30-12:40	Sofia Kalogeromitrou (YSS) - Online Dwelling After Disaster: Design and Spatial Improvisation in Transitional Shelter	12:30-12:40	Rebecca Richardson (YSS) - Online Child-centred Disaster Risk Reduction; the use of creative methods to understand hazard scenarios and risk communication pathways for children living in informal settlements in Nairobi, Kenya	12:30-12:40		Mahima Verma (YSS) 3rd December 1984 Bhopal Gas Tragedy: Lessons learned and Additional Measures
12:40-12:50	Chanda Kumari (YSS) Building resilience in agriculture through agroecological practices to foster climate change adaptation and disaster risk reduction in Uttarakhand, India	12:40-12:50	Lata Shakya Lessons Learned from the Post-Disaster Response of the 2015 Gorkha Earthquake: case studies of three different communities in Nepal	12:40-12:50		Mohammad Reza Hamedani - Online Introducing a hybrid simulation approach to evaluate Process plant resilience under Na-Tech events: from modeling to application
12:50-13:00	Yuto Shiozaki - Online A Literature Survey: Towards Validating Resilience Indicators	12:50-13:00	Katarina Holla - Online Innovative Training and Education in Disaster Management	12:50-13:00		Dimitrios Tzioutzios - Online Status of Nattech risk management regulation in Norway
13:00-13:10	Stefan Hochrainer-Stigler - online A Climate Storyline Approach for P ublic and Private Finance Instruments to build Resilience against Natural Disasters	13:00-13:10	Genta Nakano - Online Top-down, horizontal and inter-local development of disaster risk reduction education	13:00-13:10		Sudip Mitra Agro-Eco-technology and Climate Smart Agriculture: Paths Toward Sustainable Rural Development
13:10-13:20	Ms Abedin Assessment of Cyclonic Disaster Resilience of Coastal Healthcare Infrastructure in Bangladesh: A special comparison with Japan	13:10-13:20	Takashi Sugiyama - Online International Comparative Study of Community Disaster Management Plans	13:10-13:20	Xinyu Jiang - Online (Not yet registered) An Agent-Based Model for the assessment of the ripple effects of economic losses caused by disaster considering industry post-disaster responses	
13:20-13:30	Discussion	13:20-13:30	Discussion	13:20-13:30	Zoltan Torok Comparative study on land-use planning methodologies based on physical effects, consequence and risk analysis for ammonium nitrate fertilizer productin facilities	

13:30-14:15	Lunch (45 mins)	
	Technical Session 2-3	Special Session 3
14:15-15:45	Hazard mapping and modelling, spatial vulnerability assessment, and disaster risk 3 (@ Everest Hall APJ-AKB-103) Chair: Prof. Zoltan Torok; Prof. Srikrishnan	Gender Inclusive Disaster Risk Management/ Resilience –Differential Needs, Equal Opportunity (@ Sakura Hall APJ-AKB-104) Prof. Niti Mishra, TISS Prof. Anugya Shukla, IITH Ms.Lavanya Shanbhogue Arvind, TISS
Online Session Link	https://us06web.zoom.us/j/84932022881?pwd=q5QlZC8qZ4otasklYU05YVw74aOhf.1 Meeting ID: 849 3202 2881 Passcode: everest103	https://us06web.zoom.us/j/89275353890?pwd=QyZlYy1kLWwUcUJlK0pKCC0q.1 Meeting ID: 892 7535 3890 Passcode: sakura104
14:15-14:25	Tanu Gupta (YSS) Framework for Quick Mapping of Sentiments using Social Media Data for Disaster Response	Objectives of the session The panel to contribute to insightful deliberation along the following broad themes to generate deliberation and document on role of women in DRR and CCA lead policy, programme and action: • SFDRR contribution/link to gender inclusion- strength and challenges • Gender inclusive/gender sensitive risk management Agency, resilience and negotiation The proposed session will deliberate on availability of disaggregated data, and application of gender analysis in developing policies and plans necessary for effective CCA and DRR. The panel discussion will draw insights from field and praxis to inform analysis and evaluation of gender mainstreaming in CCA and DRR where women leaders have become change agents to provide solution to mainstreaming of DRR and CCA approaches. The Sessions will deliberate on the achievements of international frameworks and agreements that have contributed to Gender inclusive DRR and is shaping future discourse of DRR (such as SDGs, SFDRR and Paris Agreement). One of key point of deliberation is how gender informed policies can be addressed in socio-technical gaps in disaster studies. The session explores a kind of amalgamation of social sciences and technical sciences within disaster and climate studies. Its objective is understanding the use of technology as social and public good with positive solution for gender and other marginalised population. The use and deployment of technology in ways in which marginalised communities, gender minorities, socially excluded groups and vulnerable groups are recognised and empowered in the face of disasters. Here the role of technology in preparedness, mitigation, prevention and overall resilience becomes the focus of deliberations. Technical solution for preventive and protective ways contributing to overall risk management will be the outcome of the session.
14:25-14:35	Arnab Chowdhury (YSS) Monitoring of Himalayan Landslides using Geospatial Technologies	
14:35-14:45	Sandeep Kumar Mishra (YSS) Hazard Mapping and Modeling, Spatial Vulnerability Assessment and Disaster Risk- A Case of Bundelkhand Region, India	
14:45-15:55	Ahmad Rashid (YSS) Advances in Landslide Hazard Mapping and Modelling Techniques (A Comprehensive Review)	
15:05-15:15	Shalu Mathuria (YSS) Understanding the Effects of Floods on Vulnerable School Infrastructure in the Himalayan Region for Flood Resilient School Design	
15:15-15:25	Sneha Bhatta (YSS) Debris Flow Susceptibility Mapping of Nakhu River, Nepal	
15:25-15:35	Khin Myat Kyaw Satellite-based Structural Health Monitoring for Resilient Transport Infrastructure in Myanmar	
15:35-15:45	Jiyeon Kim - Online Study on the construction of virtual cities for the evaluation of regional disaster preparedness, focusing on the reorganization of urban structure and public facilities	
15:45-17:00	Poster Session (with refreshments)	
17:00-18:30	Technical Session 8 Advanced techniques - use of AI & ML in DRR (@ Everest Hall APJ-AKB-103) Session Conveners: Prof. Rajat Agrawal, Prof. Binaya Kumar Mishra	Special Session 2 Participatory Research in Humanities and Social Sciences- an initiative to open up IDRIM transdisciplinary and transboundary dialogues : Round 2: design of communicative spaces - Conceners: Profs. Yoshiyuki Yama and Norio Okada (@Fuji Hall APJ-AKB-101)
Online Session Link	https://us06web.zoom.us/j/84932022881?pwd=q5QlZC8qZ4otasklYU05YVw74aOhf.1 Meeting ID: 849 3202 2881 Passcode: everest103	https://us06web.zoom.us/j/83944200006?pwd=Qm1nkrutNiaF2lag6p9KQyDz7Fqo.1 Meeting ID: 839 4420 0006 Passcode: fuji101
17:00-17:10	Shono Fujita (YSS) Damaged Building Detection Using Multiple Object Tracking and Decision Tree from Aerial Videos for Disaster Response	Session format Assuming the session is hybrid, we propose a 90-minute, moderated round table discussion session consisting of three parts: Part I (40 minutes): Setting the scene: a brief review followed by brief descriptions of case studies with adaptive efforts to design communicative spaces for open and transboundary dialogues. (by Yama and Okada) Part II (30 minutes): A round table discussion of how the examples offer insights toward development of open and transboundary dialogues. (by invited discussants) Part III (20 min): Open discussion with the audience, and a short wrap-up
17:10-17:20	Nikunj K. Mangukiya (YSS) Machine Learning-based Flood Risk Mapping Framework for the Lower Narmada Basin in India	
17:20-17:30	Sounak Kabasi (YSS) - online (Opted Out) A systematic review of application of artificial intelligence in critical infrastructure network resilience	
17:30-17:40	Nadia Mubarak (YSS) Dynamic Stability Analyses of Railway Embankment, Considering Multi-Hazard Scenario	
17:40-17:50	Maiko Abe Development of Simplified Method for the Extraction of Bovine Infectious Lymphoma Super Resistance in Japan	
17:50-18:00	Pankaj Kumar Identification of Earthquake Record from Seismic Data Based on Deep Learning Technique	
18:00-18:10	Michinori Hatayama Proposal for Competitive Evaluation System on Evacuation Behavior Prediction Models for Heavy Rainfall Disaster	
18:10-18:20	Harshith Prince (YSS) Rapid Flooded Region Delineation using Entropy Based Machine Learning Method	
18:20-18:30	Discussion	
20:00	Gala Dinner	

Day 3: 30 September 2023 (Sat)

9:00 - 9:30	Keynote plenary: Dr. Igor Linkov, US Army Engineer Research and Development Center (ERDC), United States (Online) (@ Everest Hall APJ-AKB-103)		
9:30 - 10:00	Keynote plenary: Dr. Giriraj Amarnath, Disaster Risk Management and Climate Resilience, IWMI, Sri Lanka (Online) (@ Everest Hall APJ-AKB-103)		
	Technical Session 9		Special Session
10:00-11:30	Bridging science and resilience: insights into emerging disaster management (@ Sakura Hall APJ-AKB-104) Session Convenors: Prof. Hirokazu Tatano, Dr. David Green	10:00-11:30	Special Session by UNDP (@ Everest Hall APJ-AKB-103)
Online Session Link	https://us06web.zoom.us/j/89275353890?pwd=Q1yeWtOkZyLWYyLLBkWEhNUPKCD0ax.1 Meeting ID: 892 7535 3890 Passcode: sakura104		https://us06web.zoom.us/j/84932022881?pwd=q5QL2cBq74otasldYU05vfw74aOhF.1 Meeting ID: 849 3202 2881 Passcode: everest103
10:00-10:10	Anandu Prabhakaran (YSS) General overview of Global forest fires, possible causes, outcome, and existing warning and mitigation methods in India		At IDRIM 2023, UNDP is leading a pivotal session, titled 'Digital Maturity for Disaster Risk Reduction'. With the backbone of the Digital Disaster Risk Reduction Maturity Model (DDRRMM) developed by UNDP, the session will delve deep into the critical intersection of digital technology and disaster risk reduction. Spotlighting the DX4Resilience initiative—a partnership endeavour with the Government of Japan, operational in nations like Indonesia, Nepal, Philippines, and Sri Lanka—the discourse will unravel how digitalization can mould vulnerable communities to become more resilient. By inviting key stakeholders including personnel from the State Disaster Management Authorities (SDMAs) of India, the session will ensure a two-way dialogue and solicit valuable feedback on its implementation and potential enhancements from participants. Speakers: Rajesh Sharma (UNDP) Roy (IITR) Anne Singla (Avua International) Kripaljyoti Mazumdar (ASDMA)
10:10-10:20	Saurabh Singh (YSS) Review of Literature on Suitability of WRF-Hydro for Operational Flood Forecasting		
10:20-10:30	Suchitra Kumud (YSS) Flood risk assessment using BIM and GIS integration at neighbourhood scale		
10:30-10:40	Zannat Ara Ghani (YSS) - Online Environmental Justice: Assessing the scope of small-scale Nature-based Solutions with the Capability Approach		
10:40-10:50	Rika Ohtsuka - Online A Mechanism of Disaster-related Deaths: Implications of a torrential rain disaster for long-term care management of vulnerable older adults		
10:50-11:00	Hideyuki Shiroshita - Online Snakebites: Causes of Avoidable Indirect Disaster Deaths		
11:00-11:10	Mark Ashley Parry - Online Trust, Truth, The Nihilistic State and Disaster Risk Reduction in the 21st Century		
11:10-11:20	Shingo Nagamatsu Cash for Work programs under COVID-19 in Japan: A tool for a resilient society		
11:20-11:30	Lijiao Yang - Online (Not yet registered) Assessing the economic ripple effect of flood disasters in light of the recovery process: Insights from an agent-based model		
11:30-12:00	Tea Break (30 min)		

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	Technical Session 10		Technical Session 11
	Economic perspectives, assessment of direct and indirect damages, techniques, and policy (@ Everest Hall APJ-AKB-103) Session Conveners: Prof. Subir Sen, Prof. Bharat		Role of critical infrastructure in disaster risk management (@ Sakura Hall APJ-AKB-104) Session Convevers: Prof. ML Sharma, Prof. Michinori Hatayama
Online Session Link	https://us06web.zoom.us/j/84932022881?pwd=q5QL2cBq74otasldYiu05vfw74aOhF.1 Meeting ID: 849 3202 2881 Passcode: everest103		https://us06web.zoom.us/j/89275353890?pwd=QjveWtOkZyLlYyLlBkWeNUPKCD0gx.1 Meeting ID: 892 7535 3890 Passcode: sakura104
12:00-12:10	Hudha Abdul Salam (YSS) <i>Learning from cases: Brisbane & Chennai: Mitigation Measures and Post-Disaster Research focus</i>	12:00-12:10	R S Vishnu (YSS) - Online <i>Disaster Risk Assessment and Analysis of Physical Infrastructure: A Comprehensive Review of Scientific Methods and Techniques</i>
12:10-12:20	Sakshi Goyal (YSS) <i>Flood Loss and Damage Estimation Models: A state-of-the-art Review</i>	12:10-12:20	Kosuke Wada (YSS) <i>10 Role of critical infrastructure (CI) in disaster risk management, and vulnerability of CI</i>
12:20-12:30	Abhishek Choudhury (YSS) <i>Evolution of MSME Policy in India: An Analysis of 30+ Years</i>	12:20-12:30	Shruti Raypa (YSS) <i>Critical Infrastructure Resilience: A Case Study on Char Dham Road Network</i>
12:30-12:40	Puja Verma (YSS) <i>Urban resilience in multi disaster zones lessons learnt through case studies (A Comprehensive review)</i>	12:30-12:40	Basanta Raj Adhikari <i>Investigation for infrastructure resilience in the Nepal Himalaya</i> Importance of geohazard
12:40-12:50	Ma. Flordeliza Del Castillo (YSS) - Online <i>Power and light in the dark: Estimating economic activity losses due to COVID-19 lockdown using nighttime light and electricity consumption in the Philippines</i>	12:40-12:50	Takuma Otaki <i>The Contribution of Hydrogen to Improving Social Resilience in Communities Independent of the National Grid</i>
12:50-13:00	Chenyi Liu - Online <i>Agent-Based Modeling for Medical System Capacity Estimation After Disasters</i>	12:50-13:00	Neha Bansal <i>Critical Infrastructures in Disaster Risk Management: Examining Vulnerabilities in the Context of Multi-Disasters</i>
13:00-13:10	Muneta Yokomatsu <i>Developing a model of disaster policies and the sovereign debt sustainability</i>	13:00-13:10	Yasmin O. Izadkhah - Online <i>Earthquake Emergency Response Planning for Evacuation of Insecure Subway Stations - Case Study: Tehran Megacity Subway</i>
13:10-13:20	Adam Rose - Online (Not yet registered) <i>Economic Impacts of Agriculture Disruptions on the Mississippi River Due to Climate Change</i>	13:10-13:20	Dukhi Sah - Online <i>Safe, Resilient, Sustainable Critical Infrastructures and their Rehabilitation are pillars for mitigation of disasters</i>
13:20-13:30	Discussion	13:20-13:30	Discussion
13:30-14:30	Lunch Break		
Online Link post Lunch Sessions	https://us06web.zoom.us/j/84932022881?pwd=q5QL2cBq74otasldYiu05vfw74aOhF.1 Meeting ID: 849 3202 2881 Passcode: everest103		
14:30-15:00	Keynote Lecture by Dr. David Green		
15:00-15:30	Plenary Lecture by Prof. Bijayanand Misra (Online)		
15:30-16:30	Closing Ceremony IDRiM Award & YSS Award ceremony / IDRIM2024 announcement / Closing address by Prof. Sumit Sen & Prof. Ana Maria Cruz		
16:30-17:00	High Tea		
17:00-18:00	Cultural Event		

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Poster Session 29 September 2023 15:45-17:00

Climate Change Adaptation and Integration with DRR	Hazard Mapping and Modeling, Spatial Vulnerability Assessment, and Disaster Risk	Progress in achieving Priorities under Sendai Framework for Disaster Risk Reduction (DRR) for Inclusive Sustainable development in South Asia	Monitoring and early warning and natural and biological hazards	Disaster-induced displacement, migration and community response for DRR merged with DRM in the Himalayan region	Monitoring and Management of man-made risk (including Na-Tech and industrial hazards)	Advanced techniques - use of AI & ML in DRR	Economic perspectives, assessment of direct and indirect economic damages, estimation, techniques, and policy (financing, insurance, etc)	Role of critical infrastructure (CI) in disaster risk management, and vulnerability and CI
Ms. Manisha Mallick (YSS) <i>(Not yet registered)</i> From Traditions to Resilience: Indigenous Practices as Catalysts for Climate Disaster Risk Reduction in Biosphere Reserves	Mr. C Lallawmawma Assessing the Impact of the 2020 Earthquake in Tuiptual, Mizoram: Implications for Seismic Safety Measures	Ms. Debaleena Roy (YSS) Challenges and Opportunities for Women in Disaster Risk Management: A Comprehensive Review	Ms. Deepti Dwivedi (YSS) Detection of Early Signatures of Landslides in Western Himalayas, India	Ms. Puja Verma (YSS) <i>(no oral)</i> Urban resilience in multi disaster zones lessons learnt through case studies (A Comprehensive review)	Mr. Amarnath Sharma Study on Anthropogenic Sources of Air Pollution and Vegetation's Efficiency as Mitigation Strategies	Mr. Nikunj Mangukhiya (YSS) Machine Learning-based Flood Risk Mapping Framework for the Lower Narmada Basin in India	Ms. Sakshi Goyal (YSS) Flood Loss and Damage Estimation Models: A State-of-the-art Review	Mr. Atul Anand Jha (YSS) Disaster Resilience potential of an integrated indigenous water management system: The pokhars of North Bihar
Ms. Bushra Shahriar (YSS) Practical Indicators to Improve Urban Flood Resilience of A Community: A Case of Urban Flood Mitigation in Dhaka Bangladesh	Ms. Nadia Mubarak Dynamic Stability Analyses of Railway Embankment, Considering Multi-Hazard Scenario	Ms. Suchitra Kumud (YSS) Flood risk assessment using BIM and GIS integration at neighbourhood scale	Ms. Anamika Sekar (YSS) Early Warning Systems for Rainfall-Induced Landslides in India - A Status Update	Mr. Kartic Sharma (YSS) Civil Defence Machinery in India: A Neglected Apparatus in Disaster Risk Reduction (DRR) and Community Capacity Building	Ms. Mahima Verma (YSS) 3rd December 1984 Bhopal Gas Tragedy: Lessons learned and Additional Measures			Ms. Shruti Raypa (YSS) Critical Infrastructure Resilience: A Case Study on Char Dham Road Network
Ms. Chanda Kumari (YSS) Building resilience in agriculture through agroecological practices to foster Climate Change Adaptation and Disaster Risk Reduction in Uttarakhand, India	Mr. Ahmad Rashid <i>(Not yet registered)</i> Quantifying the impacts of Land Use Changes on Surface Runoff: A case study using the InVEST model			Mr. Naveen Prashar (YSS) Identification of Resilience assessment indicators in the flood-prone communities - a case of inland areas				Mr. Vivekanand Tiwari <i>(Not yet registered)</i> GWRP2 as a Thematic Urban Infrastructure in Physical Planning Process - A Case of Ajmer City, India
Mr. Siddig Berama (YSS) <i>(no oral)</i> Impact of Climate Change and Land Use Land Cover Change on Hydrological Water Balance in Blue Nile basin, Sudan	Mr. Arnab Chowdhury <i>(Not yet registered)</i> Monitoring of Himalayan Landslides using Geospatial Technologies			Mr. Rameez Ahmad Sudden (YSS) <i>(no oral)</i> Disaster risk management in the Himalayan region: The study of Whole School safety Program aiming at reducing the risk of disasters to build resilience in school education ecosystem in Kashmir				Mr. Akhil Singh Charak Protection of structure failure & loss of life post explosions near important buildings
Ms. Noksenkolia Jamir (YSS) <i>(no oral)</i> <i>(Not yet registered)</i> Mitigation through design: an approach to address disaster risk in Flood	Mr. Usman Mohseni Addressing the Cascading Effects of Compound Extreme Events in India							
	Mr. Sandeep Kumar Mishra Hazard Mapping and Modeling, Spatial Vulnerability Assessment and Disaster Risk							
	Ms. Shalu Mathuria Understanding the Effects of Floods on Vulnerable School Infrastructure in Himalayan Region for Flood Resilient School Design							
	Ms. Hudha Abdul Salam <i>(no oral)</i> Learning from cases; Brisbane & Chennai: Mitigation Measures and Post-Disaster Research focus							
	Dr. Shakti P.C. <i>(Not yet registered)</i> Can ambient noise data provide reliable estimates of river flow in real-time during flooding event?							

Centre of Excellence in Disaster Mitigation and Management

Conforming to the National vision on Disaster Management promulgated by National Disaster Management Authority (NDMA), "To build a safer and disaster resilient India by a holistic, proactive, technology driven and sustainable development strategy that involves all stakeholders and fosters a culture of prevention, preparedness and mitigation". The Centre of Excellence in Disaster Mitigation and Management (CoEDMM) in IIT Roorkee has been established in 2005 as a response to Government of India's mandate to accomplish a risk resilient society through prioritizing techno-managerial capacity building.

The Centre is facilitating cutting edge, cross-sectoral research and conducts training on disaster risk, hazard and vulnerability mapping, and their mitigation and pre and post disaster management. Since 2015, the Centre is accommodating SDG and CCA concepts with SFDRR into regular chores/activities through projects, trainings, expert lectures, conferences, workshops. Now it is acknowledged as a knowledge, science and technology dissemination platform even beyond the national boundary. Research conducted in the CoEDMM broadly covers all hazards and scope of the research extends beyond hazard science; vulnerability and risk assessment and management are pursued by researchers. In addition to laboratory facilities available with different core departments and instrumentation Centre of IIT Roorkee, Centre has also developed its own research laboratories catering to specific requirements of researchers.

Some of the notable sponsored/research projects are earthquake early warning systems, vulnerability and risk analysis of geo-hazards in Himalayan regions, rehabilitation and retrofitting of heritage buildings, seismic strengthening technologies and comparative assessment of various retrofit techniques for unreinforced masonry (URM) school buildings in India, documentation of traditional earthquake resistant building technologies from SAARC countries, wind tunnel studies for various real-life projects across India, bioremediation of accumulated pesticides, mitigation techniques of contaminated environments etc. The courses offered in the Centre are a two-year post-graduate specialization course in Disaster Mitigation and Management and the doctoral programme focussing on Earthquake, Landslide, Cyclones, Floods, tsunamis, Cyber Crime, Avalanche, Fire, Industrial disaster, CBRN (chemical, biological, radiological, and nuclear), and Geomatics Technology. The Centre has 17 joint faculty members and three core faculty members specializing in disaster-related domains. The interdisciplinary nature of the Centre supports various research and consultancy projects through sponsored funding from Govt. of India and other National and International funding agencies.



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Science, Policy and Practice Dialogues