ANNUAL REPORT 2024



GLOBAL ALLIANCE OF DISASTER RESEARCH INSTITUTES

Global Alliance of Disaster

The 2011 Global Summit paved the way to start the Global Summit series of GADRI.

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In November 2011, the Disaster Prevention Research Institute (DPRI), Kyoto University held the First Global Summit of Research Institutes for Disaster Risk Reduction which was held at DPRI, Kyoto University, Uji Campus, Kyoto, Japan in November 2011. At the conference, it was the proposed to establish a network of disaster research institutes to be fostered by DPRI, Kyoto University to bring together research institutes working on disaster risk prevention and mitigation in various disciplines.

GADRI Secretariat is hosted by: Disaster Prevention Research Institute (DPRI),

Research Institutes (GADRI

The Global Alliance of Disaster Research Institutes (GADRI) was established in March 2015 with a mandate to support the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 during Second Global Summit held at DPRI, Kyoto University, Uji Campus, Kyoto, Japan which was held soon after the UN World Conference on Disaster Risk Reduction (WCDRR, 2015) which took place in Sendai, Japan.

Currently, GADRI members work in close partnership with the initiatives of UNDRR. GADRI works closely with the science and technology community collaborating in science-based research and technology, endorsing policies related to disaster risk reduction, and disseminating and sharing cutting-edge knowledge and information supported by evidence-based research among research institutions, international organizations and the private sector in various nation states. GADRI community continue to evolve and strengthen research activities towards disaster risk reduction and management and find implementable solutions to achieve disaster resilience in the world.

Kyoto University, Uji Campus, Kyoto, Japan

We acknowledge with gratitude and thank all our members for their continued support to GADRI; and the inputs shared for the GADRI Annual Report 2024.

GADRI Secretariat

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Message from the Secretary-General, GADRI

Dear Members of GADRI,

Greetings!

Looking at the 2024 reports submitted by the GADRI Community, it is noteworthy to acknowledge the active and meaningful engagements by each institute to the goals and targets of the Science and Technology Roadmap for the implementation of the Sendai Framework Agenda.

The 7th Global Summit of GADRI to be held at the Colorado State University, Fort Collins Colorado, USA from 21 to 23 July 2025, will continue discussions on the contributions for the remaining five years of the Sendai Framework; and engage in dialogue to determine further commitments from GADRI community. In this regard, we will be conducting a regional survey among the members of the GADRI members to collect their view points on pathways to improve, and strengthen expected plans and outcomes for the remainder of the Sendai Framework Agenda. We count on your active participation in GADRI activities.

I would like to highlight a few activities of GADRI Secretariat:

- The Board of Directors of GADRI met four times this year.
- GADRI Secretariat successfully concluded the nominations and voting process to elect new members to fill the vacancies in the Board of Directors of GADRI.
- The following five GADRI Committees are moving forward - https://gadri.net/ resources/committee-of-gadri/
- Committee on Networking—Global Disaster Researcher Directory; and GADRI International Fellows (GIFs)

- Committee on Science and Technology Roadmap
- Committee on Institutional Capacity Development - Offered the international Training workshop 2024
- Committee on Data and Information
 Sharing
- Committee on Advocacy
- Proceedings of the 5th and 6th Global Summits of GADRI are expected to be published within 2025 under the Disaster and Risk Research: GADRI Book Series. https://www.springer.com/series/16177
- GADRI Annual Reports and GADRI Actions are published periodically - <u>https://</u> <u>gadri.net/resources/publications/</u>
- GADRI Regional Alliances continue to support GADRI and promote its objectives.

And much more. Visit the GADRI website and do not hesitate to share information with the GADRI Community.

We would like to take this opportunity to sincerely thank all our members for their inputs to the GADRI Annual Report 2024.

We look forward to seeing you at the 7th Global Summit of GADRI to be held at the Colorado State University, Fort Collins, Colorado, USA from 21 to 23 July 2025.

Hinkagn Jatano

Hirokazu Tatano Secretary-General, GADRI

GADRI Vision

To deepen the understanding of disasters and find implementable solutions to achieve disaster resilience, by integrating knowledge and technologies from around the world.

GADRI Objectives

GADRI seeks to contribute to enhancing disaster risk reduction and disaster resilience in close collaboration with organizations around the world through sharing of information, knowledge, experiences, ideas and initiatives on relevant research.

- To establish a global research network that promotes and engages disaster research.
- To provide a research roadmap, with plans that help facilitate the organization of disaster research groups.
- To promote capacity building and development of disaster research institutes and enhances researcher and student exchange.
- To promote exchange and sharing of data and information for scientific research across the globe.
- To serve as an advocacy organization presenting evidence-based approaches that influence decision-making processes.

GADRI Activities

- Planning and organization of regionally or globally collaborative disaster risk research initiatives
- Formation of international research groups to investigate current global disasters, and implement new research methodologies for disaster risk reduction and implementation
- Establishment of an international network for timely communication related to research on disasters
- Organization of conferences, workshops and meetings
- Dissemination and sharing of information, publications, reports, data and other research outputs
 - Facilitation of rapid reconnaissance field surveys following disasters
 - Preparation of GADRI news releases, policy recommendations, news bulletins, research reports, and other publications.

Disaster and Risk Research: GADRI Book Series



🔁 Springer

Disaster and Risk Research: GADRI Book Series is published under the auspices of the Global Alliance of Disaster Research Institutes (GADRI). The global status of disaster research reflects the major strides made in the disaster sciences. These volumes the forefront disaster present of research, including key scientific findinas. methodologies, policv recommendations and case studies. Whilst disaster risk needs to be managed in an integrated manner, persistently isolated applications of knowledge, practice and policy are falling short of ensuring disaster-resilient societies.

Responding to this deficit calls for measurement, tools, techniques and institutional structures that can realistically support comprehensive risk assessment and management across multiple hazard landscape. As such, disaster research is now faced with a multi-disciplinary, multistakeholder challenge. Contributions to this series therefore address many varied and critical opportunities to advance the subject area. A cross-cutting vision shared across the Disaster and Risk Research volumes is to improve the future of scientific and technological quidance with clearly identifiable roadmaps to ensure human safety and security.

https://www.springer.com/series/16177

Disaster and Risk Research: GADRI Book Series



GADRI work in close partnership with the UNDRR

The Global Alliance of Disaster Research Institutes (GADRI), established during the same year as the Sendai Framework for Disaster Risk Reduction was adopted in 2015, aims at stock taking of progress and achievements in DRR research from its members towards the targets of the Science and Technology Roadmap to implement the goals and priorities of the Sendai Framework Agenda. During the Global Summits of GADRI, members of GADRI are requested to report on their institute progress through a survey, voluntary progress reports and through the conference discussion sessions.

At the end of each conference, the Board of Directors of GADRI will share the achievements and recommendations received from the survey and the discussion sessions with the UNDRR Office.

The Fifth Open discussion Forum of GADRI was held at the Disaster Prevention Research Institute (DPRI), Kyoto University, Japan on 12 March 2024 focused on the deliberations of the previous discussion session; and recommendations shared by the members of the Board and audience. Particular focus was directed to share the ongoing support for the overall context of the Political Declaration of the high-level meeting on the midterm review of the SFDRR 2015-2030. GADRI member activities are closely interlinked with the objectives of the global political agendas—SFDRR, Paris Agreement, SDGs.

A task force committee was formed to build a draft resolution collating various recommendations by each presenter and the comments received by the audience.

It is expected to present the document at the next UNDRR Global Platform for Disaster Risk Reduction to be held in Geneva, Switzerland in June 2025.

SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION 2015-2030





5th Open Discussion Forum of GADRI



The Global Alliance of Disaster Research Institutes (GADRI) organized the 5th Open Discussion Forum under the theme of "Contributions to the Political Declaration of the SFDRR*: An Academic and Science Perspective" at the Disaster Prevention Research Institute (DPRI), Kyoto University on 12 March 2024.

Political Declaration of the high-level meeting on the midterm review of the SFDRR 2015-2030 adopted by the UN General Assembly on 18 May 2023

The Political Declaration adopted by the UN General Assembly on 18 May 2023 as the outcome of the Midterm Review of the Sendai Framework implementation meeting was held in May 2023, identified many areas of implementation for the Priority Areas of the SFDRR, which directly align with GADRI vision and objectives. For example, much emphasis is placed on enhancing public awareness, investing in academic and professional training, and wider dissemination of science-based methodologies and tools. It further proceeds, under the Follow-up and Review, to reiterate the importance of cross-cutting role of science, technology and innovation in strengthening their greater application accelerate support and the to

implementation of the Sendai Framework and its four priorities.

The discussions of the Forum focussed on the following:

- Introduction of GADRI activities, and members of GADRI Board of Directors
- Enhance support of the Sendai Framework and look into pathways to improve, strengthen and disseminate science-based knowledge, methodologies and tools for effective and efficient disaster risk resilience building through an academic and science perspective.
- Within the purview of GADRI Committees, discussed ways to turning GADRI vision to reality through implementation; and contribute to activities, and voluntary commitments along the lines of the Political Declaration of the Sendai Framework.
- Facilitate discussion between GADRI members and important stakeholders in matters related to academic and science-based disaster -resilience building.



Priority 1:

(f) Enhancing efforts to promote a culture of disaster prevention, resilience and responsible citizenship and to promote education on disaster risk, including through the use of traditional, Indigenous and local knowledge and practices and, inter alia, raising public awareness and investing in academic and professional training, advocacy campaigns, social media and community mobilization.

Priority 4:

(b) Ensuring the incorporation of disaster risk management into post-disaster recovery, rehabilitation and reconstruction processes, enhancing the development and dissemination of science-based and targeted methodologies and tools and facilitating cooperation among States for the sharing of experiences;

Follow-up and review:

41. We reiterate the instrumental and cross-cutting role of science, technology and innovation in strengthening the effectiveness and efficiency of disaster resilience-building and encourage their greater application to support and accelerate the implementation of the Sendai Framework and its four priorities.

In addition to discussing the main agenda items, "Contributions to the Political Declaration of the SFDRR: An Academic and Science Perspective", the occasion was used to acknowledge and thank the five outgoing Members of the Board of Directors of GADRI for their invaluable support and efforts during their term of office; and their continued contributions to science and technology and DRR initiatives. The members, through presentations, shared their views and expectation for GADRI moving forward.

The newly appointed Members of the Board too, were given a chance to briefly describe their respective institute activities, and to propose ways to improve GADRI visibility and its contributions in achieving academic and science-based methodologies and tools in the most needed research areas for disaster risk reduction and resilience.

During the final general discussion session, the participants had the opportunity to review the presentations and messages shared by each speaker in support of the Political Declaration of the SFDRR.

At the final discussions, it was concluded to form a committee to write a final resolution on how GADRI could support and commit to the Political Declaration of the high-level Meeting of the Midterm Review of the Sendai Framework. It is hoped, that the finalized resolution will be presented at the UNDRR Global Platform of DRR in June 2025.

1st Session: Greetings and Introduction – Learning from Global Stakeholders Chaired by: Prof. Norio Maki, DPRI, Kyoto University



A warm welcome was given to everyone by Norio Prof. Maki. Disaster Prevention Institute Research (DPRI), Kyoto University who chaired the Opening Session.

Prof. Hirokazu Tatano, Secretary-General, GADRI greeted all members and delivered a brief report on activities of GADRI and its current status.

Prof. Ryosuke Uzuoka, Deputy DPRI. Director, Kyoto University delivered the Opening Remarks. He reiterated that DPRI strive to deliver studies on



disaster prevention and cutting-edge science and technology and their commitment to support the SFDRR, Paris Agreement, SDGs, and other global agendas.

Prof. Paul Kovacs, Chair of the Board of Directors of GADRI, in his address stated that GADRI as a community is working together on the most pressing issues of disaster risk and reduction that is facing the

world today. The current circumstances surrounding the world with devastating disasters and hazards, are not acceptable with excessive,



preventable losses happening around the world and the scientific knowledge is available to do better. However, the challenge remains on how to bring that knowledge forward in a helpful way to allow decisionmakers to have the tools and the science to make the right decisions. This is in part why GADRI was formed right after Sendai Framework Agenda, to provide a forum to move forward science-based knowledge; to promote its implementation; and be part of the solution.



Keynote speakers:



Yuki Dr. Matsuoka, Head, UNDRR, Kobe Office who participated online, delivered keynote on а "Strengthening DRR through

Science: GADRI's Role in Advancing Sendai Implementation". Having arrived from the 11 March 2024 Memorial Day for the Great East Japan Earthquake and Tsunami which marked 13 years since it happened in 2011, Dr. Matsuoka reiterated on the significance of education to sustain and further enhance disaster risk reduction culture among young children and communities.

The second keynote speech was delivered by Dr. Lesley Jeanne Cordero, Senior Disaster Risk Management Specialist, The World Bank Office, Singapore focusing on "Harnessing Digital Innovations

Disaster for Resilience". She discussed The World Bank ASEAN

Experience, and how to bring various stakeholders to the Through

fold.



examples of various projects and initiatives, Dr. Cordero portrayed how the ASEAN, as one of the most disaster-prone regions in the world, looks in terms of vulnerability. The World Bank report has indicated that "Innovation resulting from the creative new uses of data could prove to be one of the most life-changing events of this era." Yet, the challenge is how fast can technology adapt and adjust and be able to support, respond, recover, and prepare for the type of disasters the world is facing today. The World Bank initiative "Harnessing digital innovations for climate and disaster resilience" covered the countries in Africa; and discussed on many other initiatives.

2nd Session: Challenges and Opportunities in disseminating disaster risk reduction and resilience awareness: An Academic and a Science Perspective

Chaired by: Prof. Yuichi Ono, and Ms. Ritsuko Yamazaki-Honda



The 2nd session was Chaired by Prof. Yuichi Ono, Member of the Board; and International Research Institute of Disaster Science (IRIDeS), Tohoku University; and Ms. Ritsuko Yamazaki-Honda, Co-Chair of the GADRI Committee on Networking; and Visiting Professor, National Research Institute for Earth Science and Disaster Resilience (NIED), Tsukuba, Japan.

The session on Challenges and Opportunities in disseminating disaster risk reduction and resilience awareness: An Academic and a Science Perspective was discussed by prominent experts in the field:



The 3rd session was Chaired by Prof. Gretchen Kalonji, Dean, IMDR, Sichuan University,

China; and Prof. Paul Kovacs, Chair of the Board of Directors of GADRI; and Executive Director, ICLR, Western University, Canada.

This session on Challenges and Opportunities in disseminating disaster risk reduction and resilience awareness: An Academic and Science Perspective was discussed by the incoming members of the Board of Directors of GADRI:

- Dr. Guoyi Han, Stockholm Environment Institute (SEI), Sweden — Bridging science, policy, and practice: Towards implementation science?
- Prof. Andrew Collins, Disaster and Development Network, Northumbria University, Newcastle, UK
 Implications of co-evolved DRR learning for disaster resilience

- Prof. John van de Lindt, Co-Director, Center for Risk-Based Community Resilience Planning, Colorado State University, USA—Improving Resilience through Modelling and Community Engagement
- Prof. Gretchen Kalonji, Dean, Institute for Disaster Management and Reconstruction (IDMR), Sichuan University, China — How to better Integrate our efforts on research, educational innovation, and international collaboration to be more effective in serving our communities
- Prof. Toshio Koike, Executive Director, International Centre for Water Hazard and Risk Management (ICHARM), Japan — Establish cross-sectoral frameworks to link cutting-edge science with on-site decision-making and action
- Prof. Hiroyuki Goto DPRI, Kyoto University, Japan
 2024 Noto Peninsula Earthquake
- Mr. Luis Carlos Barreto, Deputy Director, UNGRD, Colombia (online) — GADRI Regional Alliance in Latin America - LACARDI
- Prof. Sumit Sen, Centre for Disaster Mitigation and Management, Indian Institute of Technology (IIT), Roorkee, India — Advancing disaster resilience through academic and research activities at CoEDMM IIT Roorkee with a special focus on Himalayan region
- Dr. Roger Cloud Baars, Graduate School of Global Environmental Studies, Kyoto University, Japan—Disaster in Context — An interdisciplinary approach to disaster resilience and environmental sustainability
- Prof. Irasema Alcántara Ayala, Institute of Geography, Universidad Nacional Autónoma de México (UNAM), Mexico — Disaster Risk Reduction and Resilience: A Contribution from Geography

Special Session on GADRI Committee on Networking

 Prof. Hiroyuki Goto, DPRI, Kyoto University, Japan — Draft structure for the proposed Collection of World Disaster Research Databases; and Global Disaster Researcher Directory Final Session: Panel Discussion Session – Towards a Collective Contribution by GADRI to the goals stipulated in the Political Declaration of the SFDRR



The final discussion session chaired by Prof. Charles Scawthorn, Chair, GADRI Committee on Networking; and Visiting Professor, University of California, Berkeley, USA; Prof. Paul Kovacs; and Prof. Hirokazu Tatano focused on the deliberations of the previous discussion session; and recommendations shared by the members of the Board and audience. Particular focus was directed to share ongoing support for the overall context of the Political Declaration of the high-level meeting on the midterm review of the SFDRR 2015-2030. A task force committee was formed to build a draft resolution collating various recommendations by each presenter and the comments received by the audience.

It is expected to present the document at the next UNDRR Global Platform for Disaster Risk Reduction to be held in Geneva, Switzerland in June 2025.

Resolution of the 5th Open Discussion Forum of GADRI 12th March 2024

As part of its ongoing series of discussion forums attended by incoming and outgoing board members, committee chairs and the DPRI secretariate, GADRI considered its commitments and contributions to the 2023 Political Declaration of the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR).

The forum included 15 academic and scientific presentations and accompanying discussions spanning perspectives drawn from its wide-ranging fields of expertise in disasters related research across 208 member institutions worldwide.

The Forum resolved to:

Emphasise the critical ongoing global challenges that provide the context and imperative for the UN General Assembly to assess the progress of SFDRR on "integrating disaster risk reduction into policies, programmes and investments";

Promote the implementation of the SFDRR through scientific knowledge and technologies in support of decision making, recognising the need to accelerate the path to achieving the outcome and goal of the SFDRR across all its seven targets, guiding principles and four priorities for action.

In line with the GADRI mission to share evidencebased research and to find implementable solutions to existing and emerging disaster risks, the Forum further resolves that:

- As stipulated in SFDRR and the Resolution of the General Assembly on 18 May 2023, global policy on disaster risk reduction must be evidence-based and development risk-informed.
- ii) Although the science and knowledge environment has significantly expanded to recognise the multicausality and consequent general complexity of disaster risk, that accelerated action is needed to effect disaster risk reduction.
- Science should be greater emphasized throughout the whole process or cycle of disaster risk reduction, from understanding risk to the postdisaster Build Back Better phase, and be linked to implementation.
- iv) Failure of nation states and their international alignments to invest in disaster risk reduction and to prevent the process of disaster risk creation in the context of much needed progress across all SGDs is a threat to global health and well-being.

Further, the Forum reaffirms GADRI's commitment to serve as a collaborative platform for engaging discussion, sharing knowledge and promoting research on disaster risk reduction and resilience. It maintains a purpose to deepen the understanding of disaster risks, promote evidence-based implementation of disaster risk reduction strategies, and transfer and disseminate scientific knowledge and technologies in close collaboration with organizations around the world.





















Keeping in touch with members

Americas



Americas



Americas—Members

Argentina	Environment and Natural Resources Research Program (PIRNA), Instituto de Geografía "Romualdo Ardissone", Facultad de Filosofía y Letras, Universidad de Buenos Aires
Brazil	Department of Civil Engineering, Centre for Technology and Natural Resources, Federal University of Campina Grande
Brazil	Instituto de Pesuisas Hidraulicas (IPH), Universidade Federal do Rio Grande do Sul (UFRGS)
Canada	The Institute for Catastrophic Loss Reduction (ICLR), Western University
Chile	Centro Nacional de Investigacion par la Gestion de Desastres Naturales (CIGIDEN)
Colombia	Department of Chemical Engineering, Universidad de los Andes
Colombia	National Unit for Disaster Risk Management in Colombia (NGRD) (Unidad Nacional para la Gestión del Riesgo de Desastres de Colombia-UNGRD)
Colombia	Seismological and Geophysical Observatory of the Southwest (Observatorio Sismológico y Geofísico del Suroccidente (OSSO)), Valle University (Universidad del Valle)
Ecuador	Pacific International Center for Disaster Risk Reduction (PIC-DRR), Escuela Superior Politechnica del Litoral
Mexico	Institute of Geography, National Autonomous University of Mexico (UNAM)
Mexico	Structures Laboratory, University of Michoacan
Mexico	Research Institute of Risk Management, University of Michoacan
USA	Center for Emergency Management and Homeland Security, Arizona State University (ASU)
USA	Pacific Earthquake Engineering Research Center (PEER), University of California, Berkeley
USA	Resilient Communities Research Institute (RCRI), College of Architecture and Environmental Design, California Polytechnic State University
USA	Natural Hazards Center (NHC), University of Colorado Boulder
USA	Center for Risk-Based Community Resilience Planning, Colorado State University
USA	Disaster Research Center, University of Delaware
USA	Wind and Hurricane Impact Research Laboratory (WHIRL), Florida Institute of Technology (FIT)
USA	Dept. of Business Information Technology, Virginia Tech
USA	Program on Population Impact, Recovery and Resilience (PiR2), College of Global Public Health, New York University
USA	Nevada Seismological Laboratory, University of Nevada
USA	Global Resilience Institute, Northeastern University
USA	Coastal Resilience Center (CRC), University of North Carolina at Chapel Hill (UNC)
USA	Advanced Radar Research Center, University of Oklahoma
USA	Center for Infrastructure, Transportation, and the Environment (CITE), Rensselaer Polytechnic Institute (RPI)
USA	Department of Industrial and Systems Engineering, Rensselaer Polytechnic Institute (RPI)
USA	Southern California Earthquake Center (SCEC)
USA	Center for Risk and Economic Analysis of Terrorism Events (CREATE), University of Southern California
USA	Hazard Reduction and Recovery Center (HRRC), Texas A&M University (TAMU)
USA	Wind Hazard and Infrastructure Performance (WHIP) Center, Texas Tech University
USA	Geologic Hazards Science Center, U.S. Geological Survey
USA	Department of Environmental Studies, Resilience Institute, Western Washington University



SOIL

ATER

Federal University of Campina Grande (UFCG), Brazil

https://portal.ufcg.edu.br/

UFCG took part in the PAB-Brazil through its Observatory of the Caatinga Biome and Desertification (OCA, https://oca.lsd.ufcg.edu.br/). OCA is a joint initiative of UFCG and the National Institute for the Semi-Arid Region of Brazil (INSA), a research and development institute under the Brazilian Ministry of Science, Technology and Innovation. OCA conducts continuous measurements of fluxes of water, carbon and energy in a forested site in the Caatinga Biome of the semi-arid region of Brazil, part of a monitoring network in Brazil. OCA also produces estimates of such fluxes at national scale through remote sensing and modelling techniques.

The construction of the PAB-Brazil followed a scienceinformed participatory process, under which the working group conducted 15 seminars in all regions of Brazil. In such seminars, representatives of several sectors of our society (i.e. government, education, research, civil society and private companies) identified the current status of land degradation and desertification and discussed action plans to combat such processes. The main role of OCA was to prepare maps presenting the status and dynamics of drought and land degradation and conservation indicators, as well as lead the discussions towards their validation by the seminars' Brazilian Plan participants. The to Combat Desertification was officially presented at the sixteenth session of the Conference of the Parties (COP16) of the United Nations Convention to Combat Desertification (UNCCD), which took place in Riyadh, Saudi Arabia, from 2 to 13 December 2024.

OCA is currently leading the working group for updating the Brazilian Early Warning System for Drought and Land Degradation of the Brazilian Ministry of Environment and Climate Change. This system is also being developed following a science-informed participatory process.

Prof. Carlos de Oliveira Galvao E-mail: carlos.galvao@ufcg.edu.br



LET'S TOGETHER PLANT MORE WATER IN BRAZIL.

NATIONAL MOVEMENT TO COMBAT DESERTIFICATION AND DROUGHTS

United Nations Convention to Combat Desertification



The Federal University of Campina Grande (UFCG) conducts studies, research, and intervention in environmental, technological and social disasters in a broad sense, spanning several other areas. This is partly motivated by the institution's location in the semi-arid region of Brazil, which is densely populated and socially and economically vulnerable to environmental hazards, such as droughts, desertification, land degradation, flash floods, and health risks, leading to social inequality. Our interests are in understanding local and regional needs and the social aspects of Disaster Risk Reduction (DRR). Among such activities, we highlight in 2024 the participation of UFCG in the preparation of the updated Brazilian National Action Plan to Combat Desertification (PAB-Brazil 2024). The Brazilian Ministry of Environment and Climate Change has built a working group of several institutions, UFCG among them, that led this process in 2024.



Participatory path for the development of the 2024 Brazilian National Plan to Combat Desertification. Source: Ministry of Environment and Climate Change (MMA). Department to Combat Desertification, National Secretariat for Traditional Peoples and Communities and Sustainable Rural Development. Brazilian Action Plan to Combat Desertification and Mitigate the Effects of Drought (PAB-Brasil 2024) - Preliminary summary version in English – 1st edition. Brasília: MMA, 2024. 22 p



Instituto de Pesquisas Hidraulicas (IPH), Federal University of Rio Grande do Sul (UFRGS), Brazil

https://www.ufrgs.br/iph/





L: Cover page of the final report of IV END; and R: Flooded area near the Central Bus Terminal in Porto Alegre in May 2024

From late April to May 2024, the southernmost state of Brazil, Rio Grande do Sul (RS), was hit by record-breaking rainfalls. Its capital is Porto Alegre city in which most of our university's undergraduate and graduate schools as well as research facilities, including the Institute of Hydraulic Research (Instituto de Pesquisas Hidráulicas - IPH) are located. In various regions, the most intensive rainfalls during 24 hours passed 200 mm. Several researchers of IPH have already investigated the rainfall characteristics, concluding that "the rainfall that occurred in Rio Grande do Sul largely exceeded the most intense large-scale precipitation events historically observed in Brazil, from 1961 to 2022, at least for areas from 2,000 to 100,000 km2 and rainfall durations of 3 to 14 (Collischonn et al., 2024: days" https:// doi.org/10.1590/2318-0331.292420240088).

According to statistics from the end of 2024, there are 183 deaths and 27 missing.

Our university (Universidade Federal do Rio Grande do Sul – UFRGS) canceled classes for two months, because many students, staff, and their families were affected. The Porto Alegre international airport was closed for about six months. The Porto Alegre metropolitan area train service returned to its previous state in late December 2024. The Central Bus Terminal is now functioning, but has not yet been back to normal. The recovery from this disaster will take a long time in RS, and the social, economic and environmental impacts are enormous.

This introduction is rather long because it is hard to explain our actions in 2024 without describing this disaster. During the disaster and posdisaster, the IPH has published dozens of technical notes which are all encountered in Portuguese at the IPH's site (https:// www.ufrgs.br/iph/noticias/). Local, national and international media (TV, radio, newspapers, magazines, etc.) sought out many IPH researchers for interesting and important information, and they were interviewed extensively, contributing to inform local and international audiences.



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Prof. Masato Kobiyama

Most of the local and national news coverage was focused on the flooding. Indeed, the economic damage, especially in the state capital, may have been due to flooding. However, considering the small population but large area of the region which is commonly rural, it can be thought that the most dramatic natural phenomena were not floods but mass movements (landslides and debris flows) and flash floods. Thus, in order to demonstrate the importance of paying attention to mass movements and also strengthening a kind of voluntary group of residents for the Protection and Civil Defense in the Disaster Risk Reduction (DRR), some members of members of the Research Group on Natural Disasters (GPDEN) of IPH/UFRGS gave lectures at the Legislative Assembly of the state government of RS (https://ww4.al.rs.gov.br/noticia/336764) and at the Municipal Ombudsman's Office of Porto Alegre at the end of June. It is noted that, based on these lectures, the GPDEN elaborated one chapter of a book which will be published in March, 2025.

Some of main members of the Technical Committee of Disasters (CTD) of Brazilian Association of Water Resources (ABRHidro) belong to the GPDEN of IPH. During the period October 8th to 11th, the CTD organized and carried out the IV National Meeting of Disasters (in-person event) in Curitiba, Paraná State. On the final day of the special session, a session titled "Disasters in Rio Grande do Sul: Lessons Learned and Challenges" was held, with three IPH researchers giving presentations. This session attracted a great deal of interest from the conference participants. The IV END ended with great success. The final report of this meeting can be downloaded and read at the following link: https:// files.abrhidro.org.br/Hotsites/1368/IV%20END%20-%20RELATO%20FINAL.pdf

Thus, the "Rio Grande do Sul disaster" has attracted the interest of many researchers. Special sessions on this topic were held at the Pan-American Meteorological Conference (CPAM) which was carried out in São Paulo from August 19th to 23rd (https://cpam2024.com/apresentacao) and also at the August and at the IV Santa Catarina Seminar on Education in Risk and Disaster Reduction in Florianópolis, Santa Catarina State, from November 6th to 8th (https://www.even3.com.br/iv-seminariocatarinense-de-educacao-em-reducao-de-riscos-edesastres-ii-forum-internacional-de-universidades-

parceiras-na-prevencao-deriscos-e-desastres-

GPDEN members with participating as presenters.

During the disaster in Rio Grande do Sul in 2024, it was clearly demonstrated that knowledge on mass movement mechanism sediment-related and

471715/),

disasters is relevant and that such disasters should be more discussed in this state. Since state and local governments had a serious problem of lacking experts of mass movement disasters, GPDEN provided one short training course (8 hours) on "Mass movement monitoring" for local geoscientists and engineers in the city of Lajeado (https:// www.defesacivil.rs.gov.br/estado-ministerio-publicoufrgs-e-univates-promovem-capacitacao-paraidentificar-areas-com-risco-de-deslizamentos-no-rs).

To raise awareness of mass movement within UFRGS, GPDEN held an on-campus seminar (2,5 hours) intitled "Mass Movements in the 2024 tragedy in RS: A general prognosis based on local observations" in August.

In addition, from December 11th to 13th, GPDEN organized the 1st Training Course (in-person) on " Mass Movements Identification and Mapping" (24 hours) for about 20 participants, including civil defense officers, university lecturers, and researchers throughout Brazil (https://www.ufrgs.br/ gpden/wordpress/?page id=2809). course The addressed hydrogeomorphic modeling (SHALSTAB and MORPHO2DH) for the computational representation of mass movements and the processes associated with them. The course also included a one-day field visit to some of the locations that suffered from mass movements and flash floods this year. The objective of the course was to teach identification and mapping techniques as well as to build a network of disaster managers and researchers in Brazil.

This type of training course can be relevant for all professionals. So, participating in the VIII Brazilian Congress of Geographers (São Paulo, July 7th to 12th) that takes place every 10 years, GPDEN offered a mini-course "Applied geography for disaster risk reduction" (3 hours) to about 40 geographers participating in the event.



Training Course: Mass Movements Identification and Mapping: (a) Theory classroom

UFRGS



Poster promoting the 1st Training Course: Mass Movements Identification and Mapping.

l Curso de Capacitação: Identificação e Mapeamento de Movimentos de Massa

Data: 11 a 13 de dezembro Local: IPH - UFRGS Porto Alegre - RS

Training Course: Mass Movements Identification and Mapping: (b) Field trip





IPH members participants in the XXXI Latin American Congress of Hydraulics

During the period October 1st to 4th, the XXXI Latin American Congress of Hydraulics was held in Medellin (Colombia) (<u>https://</u> <u>xxxicongresolatinoamericanohidraulicamedellin.co</u> <u>m/</u>). Some members of the IPH participated in this event, presenting several researches related to risks and disasters. Prof. Masato Kobiyama (GPDEN/IPH/UFRGS) reported this event for IPH community. This Portuguese report can be wholly read at the following link: <u>https://www.ufrgs.br/iph/</u> <u>participacao-do-iph-no-xxxi-congresso-</u> latinoamericano-de-hidraulica-em-medellin-

colombia-2024/ At the Round-Table "Water professionals and resources researchers associations: Advantages, disadvantages and experiences" of this Conference (October 2nd, 2024), Prof. Kobiyama raised an academic question: Why has the Latin American community not yet thought of creating the Latin American Geosciences Union (LAGU)? Since Europeans and (North) Americans discuss geoscience (or geophysics) issues in the EGU and AGU, respectively, Latin Americans should discuss their problems in the LAGU. Environmental and social problems are becoming increasingly complex, which requires increasingly interdisciplinary and holistic approaches. In this sense, including hydrology, meteorology, geology, geomorphology,

oceanography, seismology, among others, the Latin American community of geoscientists should create an entity such as LAGU, which could contribute even more to society. For example, it is very hard to see much reason to discuss the social problems of the Amazon River basin in the EGU and AGU. Therefore, this Congress activity could be extended to build the LAGU in the future.

Dr. Gean Paulo Michel, leader of the GPDEN, has coordinated the project "Development of the Early Warning System for Landslides (Desenvolvimento Sistema de Alerta Antecipado para do Deslizamentos – SALAD) since 2023. This project financed by the Brazilian government, via the Public Calling CNPq/MCTI Nº 15/2023, is on-going and actually consists in 6 universities, 2 research institutes and 1 management institute. Some of members of the SALAD investigated landslides occurrences in Rio Grande do Sul 2024 disaster and published case study report (EGAS, H.M.; STABILE, R.A.; ANDRADE, M.R.M.; MICHEL, G.P.; ARAÚJO, J.P.C.; MICHEL, R.D.L.; MENDES, T.S.G.; NERY, T.D.; PAULA, D.S.; RECKZIEGEL, E.W. Comprehensive inventory and initial assessment of landslides triggered by autumn 2024 rainfall in Rio Grande do Sul, Brazil. Landslides, 2024. DOI 10.1007/s10346-024-02410-w).



Delimitation of flood areas on <u>https://files.abrhidro.org.br/Eventos/</u>

different days during the disaster in Porto Alegre (Zambrano et al., 2024: <u>Trabalhos/241/IV-END0131-1-20240712-121713.pdf</u>)



Institute for Catastrophic Loss Reduction

Building resilient communities

Institute for Catastrophic Loss Reduction (ICLR), Canada https://www.iclr.org



ICLR's new Climate Resilience Centre in Winnipeg, Manitoba, Canada

In 2024, ICLR:

- Launched a collaboration with the Canadian Home Builders' Association which included creation of a Resilient Homes Task Force, Piloting Working Group, and Communication Working Group with the aim of adding resilience into the construction of new homes in Canada.
- Secured funding from the Standards Council of Canada and the National Research Council to develop resilience guidelines for homes and small buildings.
- Completed two major projects funded by the Canadian federal government to update ICLR's climate vulnerability assessment protocol for new infrastructure (i.e. the PIEVC Protocol).
- Published benefit-cost analyses for high-wind design of new wood frame houses.
- Increased by ten-times the attendance at *ICLR's Climate Resilience Centre*, a facility to demonstrate climate resilience best practices to insurers, home builders, home inspectors, building code officials and others. Centre displays are built to travel and Institute staff conducted Climate Resilience Centre travelling roadshows in four Canadian cities.
- Opened a second Climate Resilience Centre in Winnipeg, Manitoba with funding from Wawanesa Insurance Co.
- Through its Climate Resilience Solutions program, provided new tiered (Good/Better/Best) risk reduction advice to homeowners and risk reduction solutions tools (brochures, videos, and

displays) to showcase best practices to reduce damage to homes and small businesses.

- Was invited to advise the build back better program in Jasper, Alberta, which was heavily damaged in a wildfire in July 2024.
- Established a partnership with the Ontario Ministry of Natural Resources and Forestry (MNRF) to support Ontario communities in their wildfire risk reduction efforts.
- Developed Phase 1 of ICLR's Pre-Disaster Recovery Planning framework.
- Published four major reports and a number of other publications including seven guidance documents to make commercial enterprises more resilient to natural hazards.
- Hosted 14 webinars, including our annual wildfire and hurricane forecasts.
- Ended the year with a total of 422 YouTube videos with themes related to Disaster Risk Reduction and climate change adaptation.



Prof. Paul Kovacs Executive Director E-mail: pkovacs@iclr.org



Centro de Investigación para la Gestión Integrada del Riesgo de Desastres (CIGIDEN), Chile https://www.cigiden.cl/

CIGIDEN Outreach and Engagement Activities 2024



Participation at "Paseo por la Ciencia" 2024

During 2024, CIGIDEN carried out a series of activities and events as part of its commitment to scientific outreach, making the latest advancements in its research accessible to diverse audiences. These initiatives were also aligned with influencing public policy, contributing to the design of key guidelines for disaster risk management in Chile. Through these actions, greater understanding of scientific developments was fostered, strengthening the connection between academia, the public, and decision-makers. This highlighted the importance of adopting a scientific and collaborative approach to addressing the challenges posed by socio-natural disasters in the country.

One of the key pillars was the dissemination of scientific knowledge conferences, and digital instance, the seminar "Coastal Law for Chile: Opportunities for Coastal Governance in the Los Lagos Region" and Dr. Carolina Martínez's talk at Congreso Futuro emphasized the need for robust legislation to regulate and protect Chile's coasts in the face of climate change and other natural phenomena. Through these platforms, CIGIDEN aimed not only to inform but also to influence political and social decision-making.

> Dr. Rodrigo Cienfuegos Director E-mail: director@cigiden.cl





Launch of the book "Science with Impact." March 2024

In line with its commitment to public policy impact, CIGIDEN also launched the book *Science with Impact: Contributions to Public Policy in Disaster Risk Management* in March 2024. This publication compiles contributions from prominent researchers, providing essential tools and knowledge to support informed decision-making and enhanced public policies in disaster risk management, thereby bridging the gap between science and decision-makers.

Similarly, the seminar "Recent and Future Tsunamis in Chile: What Have We Learned, Where Are We, What's Missing?" and the international seminar "Trans-Pacific Resilience" brought together experts to share insights on tsunami preparedness, aiming to improve the resilience of coastal communities. Additionally, the "Platform for Evaluating Socio-natural Disaster Risk in Greater Valparaíso" and the launch of the "Disaster Repository" are examples of how CIGIDEN has made scientific tools available to facilitate informed decisionmaking in disaster risk management.



Scientific Meeting "Waves of Prevention: Together Against the Tsunami." November 2024

The closing seminar of the Fondef project, with the presentation of the SIMPLANER platform (Simulation Platform for Network Resilience), marked a significant milestone by showcasing specific advancements in disaster risk planning and management. Meanwhile, the XVII Hydraulic Engineering Conference provided a platform to discuss threats related to surface water processes and their impact on hydraulic engineering. These events highlighted progress in specific projects that contribute to the strengthening of public policies and the improvement of disaster risk management strategies.

One of the standout initiatives was the "Risk Explorers" project, developed within the framework of the Ministry of Science's Travesías CTCI platform through the Explora Sur Oriente Network. This project, aimed at educational institutions, sought to engage students in actively understanding natural risks and strategies to address them. Similarly, the scientific-educational event "Waves of Prevention: Together Against Tsunamis" promoted a culture of prevention from an early age, involving both students and teachers. As a complement, the Collective Mapping Manual for School Education was presented during the closing of the Explora project, serving as an educational tool that fosters participatory learning about disaster risk management in classrooms, emphasizing the role of education as a driver of change and resilience in communities.

Events such as the "Post-Resilience" art exhibition and the "Memory Gathering" explored the relationship between culture, art, and disaster management, promoting interdisciplinary reflection on how communities can address and learn from disasters through collective memory.

Finally, CIGIDEN has continued to play a key role in promoting international collaboration for risk management. The seminar "Reducing Wildfire Risk: Chile and Australia" and participation in the LASA 2024 Congress are examples of how the exchange of experiences and knowledge between countries can contribute to creating effective disaster risk reduction strategies.



Art Exhibition "Post-Resilience" at SENAPRED. August 2024

In sum, all these activities reflect CIGIDEN's commitment to scientific outreach, forming alliances, and generating concrete measures aimed at reducing disaster risk in Chile. Below is a list of the main events carried out during the year, showcasing CIGIDEN's ongoing efforts to promote science, education, and action in disaster risk management:

- Seminar: "Coastal Law for Chile: Opportunities for Coastal Governance in the Los Lagos Region": This seminar, held on December 5, 2023, at the Serena 77 Auditorium of the University of Los Lagos, Puerto Montt Campus, featured researcher Carolina Martínez. The event addressed the opportunities presented by Coastal Law to improve coastal governance in the Los Lagos Region.
- Seminar: "Lessons for Wildfire Prevention and <u>Recovery in Chile"</u>: Held on December 13, 2023, this seminar focused on discussing experiences and lessons learned in wildfire prevention and recovery in the country.
- Congreso Futuro: Carolina Martínez | Talk: "Why Does Chile Need a Coastal Law?": Geographer Carolina Martínez participated in Congreso Futuro, where she highlighted the importance of having a 21st-century Coastal Law for Chile, emphasizing the need to protect coastal areas and properly manage their use.
- Science with Impact: Contributions to Public Policy in Disaster Risk Management: This book, launched in March 2024, compiles contributions from researchers that connect science with decision -makers in the field of disaster risk, offering tools

and knowledge to improve public policies.

- Seminar: "Recent and Future Tsunamis in Chile: What Have We Learned, Where Are We, What's Missing?": Held on March 26, 2024, at the Central House Auditorium T, this seminar, led by researcher Jorge León, analyzed lessons learned from recent tsunamis in Chile, the current state of preparedness, and areas requiring greater attention for future events.
- International Seminar: "Trans-Pacific <u>Resilience":</u> Organized in collaboration with QuakeCore, this international seminar, held in April 2024, was aimed at the general public. The event addressed resilience to natural disasters in the trans -Pacific region, sharing experiences and knowledge between countries facing similar threats.
- 7. Participation in "Paseo por la Ciencia" 2024: In May 2024, CIGIDEN researchers and professionals participated in "Paseo por la Ciencia" in Antofagasta, an initiative aimed at bringing science closer to the community. During the event, children learned about the contributions of structural engineering to earthquake mitigation, fostering interest in science and disaster prevention from an early age.
- Platform for Evaluating Socio-natural Disaster <u>Risk in Greater Valparaíso</u>: In June 2024, CIGIDEN launched a platform designed to assess socio-natural disaster risks in Greater Valparaíso. This tool integrates scientific knowledge to estimate natural threats and is available to the community and local authorities to improve risk management in the area.
- "Post-Resilience" Art Exhibition: Inaugurated in August 2024, this exhibition by CIGIDEN's Arts and Disasters Unit (DESARTES), in collaboration with SENAPRED (National Disaster Prevention and Response Service), showcased works by artists Fernanda López Quilodrán and Sebastián Riffo. The exhibition invited reflection on Chile's disaster culture, highlighting elements of SENAPRED's history and material culture.
- Participation in LASA 2024 (Latin American Studies Association) Congress: "Reaction and Resistance: Imagining Possible Futures in the <u>Americas":</u> CIGIDEN professionals participated in LASA 2024, where interdisciplinary projects on disaster risk were presented, sharing experiences and knowledge with academics from across Latin America.
- 11. **FONDEF SIMPLANER Project Closing Seminar**: This seminar marked the culmination of the FONDEF SIMPLANER project, presenting the results and advancements achieved in disaster risk planning and management.

- 12. <u>XVII Francisco Javier Domínguez Hydraulic</u> <u>Engineering Conference:</u> Held on October 22, 2024, at the UC Extension Center, these conferences, organized by the Chilean Hydraulic Engineering Society (SOCHID), featured researchers such as Rodrigo Cienfuegos, Jorge Gironás, Patricio Catalán, and Patricio Winckler. The event addressed topics related to surface water threats and their impact on hydraulic engineering.
- 13. I Symposium on Active Faults and Geological <u>Risks in Chile</u>: Held on September 27, 2024, at the Andronico Luksic Complex Auditorium, UC San Joaquín Campus, this symposium, led by researcher Marcos Moreno, focused on tectonic faults and the associated geological risks in Chile, promoting discussion and knowledge exchange among experts in the field.
- 14. **Colloquium: "Art, Nature, and Catastrophe":** This event was held on October 16, 2024, at 6:00 PM and brought together three distinguished professionals to explore the intersection between art, nature, and catastrophes, fostering interdisciplinary reflection on how art can contribute to the understanding and representation of natural disasters.
- 15. Launch of the Disaster Repository: CIGIDEN presented the "Disaster Repository," a digital platform that compiles key information on socionatural events in Chile. This repository aims to be a resource for researchers, decision-makers, and the public, facilitating access to relevant data and analyses for risk management.
- 16. <u>Closing of the CTCI Travesía "Risk Explorers":</u> This event marked the closing of the educational project "Risk Explorers," developed under the Explora Sur Oriente RM Project of the Ministry of Science. During the event, the "Collective Mapping Manual for School Education" was presented—a guide promoting active learning about risks and disasters through participatory mapping in educational institutions.
- 17. <u>Towards Social Volcanology:</u> This interdisciplinary event explored how to integrate social and scientific perspectives in the study of volcanoes. Methods to incorporate community perceptions and needs into volcanic monitoring and risk management processes were discussed.
- 18. <u>Scientific-Educational Event: "Waves of</u> <u>Prevention: Together Against Tsunamis":</u> This initiative, developed in collaboration with the National Maritime Museum in Valparaíso, brought together students, teachers, and experts to raise awareness about tsunami prevention and

preparedness. It included educational workshops and interactive activities designed to foster a culture of prevention in coastal communities.

- <u>II CIGIDEN Educational Fair in Cartagena</u>: The educational fair in Cartagena provided a space for the community to learn about scientific advancements in disaster risk management. It featured exhibitions, workshops, and interactive activities designed for the entire family.
- Seminar: "Reducing Wildfire Risk: Chile and <u>Australia":</u> This seminar analyzed shared strategies and lessons between Chile and Australia to address wildfires, highlighting the importance of international collaboration in risk management.
- 21. <u>Colloquium: "Challenges of Wildfire Reduction</u> <u>and Prevention in Built Environments":</u> The colloquium addressed how wildfire affects built environments and explored innovative solutions to mitigate risks, combining approaches from architecture, urban planning, and landscape management.
- 22. <u>Memory Gathering:</u> This commemorative event, held on Chiloé Island, promoted dialogue on memory and disasters in Chile, bringing together communities and experts to reflect on past lessons and how they can be applied to build a more resilient future.
- 23. <u>Cartographies of Heat Exposure in Santiago</u>: During this event, innovative maps showing the distribution of heat exposure in Santiago during the summer were presented. This work combines climatic and population data to identify vulnerable areas and propose mitigation strategies.



II CIGIDEN Educational Fair in Cartagena



Institute of Geography, National Autonomous University of Mexico (UNAM), Mexico

https://www.geografia.unam.mx/geoigg/



The Institute of Geography at the National Autonomous University of Mexico (UNAM) has institution remained an outstanding academic dedicated to advancing research, policy development, and community engagement in various areas of disaster risk. During 2024, the Institute has undertaken a wide array of activities, contributing significantly to both local and global challenges. These examples of its ongoing work highlight the Institute's commitment to addressing key issues such as urban heat islands, disaster risk reduction, sustainable development, and the integration of gender perspectives into disaster management.

Among the key areas of focus, the Institute has continued its research on Urban Heat Islands (UHIs), which represent one of the most significant humaninduced changes to the Earth's climate. The impact of UHIs on the health, comfort, and energy consumption of urban residents—affecting over half of the global population—has been a critical area of concern for the Institute. Its work involves not

only in-depth analysis of phenomena but nt of policy

also the development of policy frameworks aimed at mitigating these effects through sustainable urban planning practices. This research has contributed to broader discussions on

UHI

climate adaptation and resilience in cities worldwide, offering insights into the challenges and opportunities associated with urban environmental management.

Another area of considerable engagement has been the monitoring and analysis of fire events through the Institute's Geo-Spatial Analysis Laboratory. The lab's work is vital for assessing the geographical spread and environmental consequences of fires, particularly in regions vulnerable to such hazards. By utilising remote sensing technologies and satellite imagery, the Institute has enhanced fire prediction models and developed strategies to improve local and national disaster preparedness. This work is a part of the Institute's broader commitment to the application of geospatial technologies in real-world scenarios, contributing to better-informed disaster response strategies.



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Prof. Irasema Alcántara-Ayala

GAR Special Report 2024 Forensic Insights for Future Resilience: Learning from Past Disasters

The Institute has also been deeply involved in the development and promotion of the Mixteca Alta Global Geopark, which celebrated its seventh anniversary as a UNESCO Global Geopark in 2025. The geopark, located in the Oaxaca region, spans 415 square kilometres and includes nine municipalities. It serves as an exemplary model of integrating scientific research, education, sustainable development, and local community involvement. Through its role in supporting the geopark's establishment and ongoing activities, the Institute has demonstrated the importance of fostering collaboration between academia and local communities, ensuring that scientific knowledge is applied in ways that contribute to the long-term well-being of the region.

The Institute has also been actively engaged in international research collaborations, most notably through the Science and Technology Research Partnership for Sustainable Development (SATREPS) project, with DPRI. This initiative, involving partners from El Salvador, Japan, and other academic institutions, focuses on reducing disaster risks associated with earthquakes and tsunamis. Through this project, the Institute contributes to the development of technologies and methodologies that aim to minimise the impact of natural disasters on vulnerable populations. SATREPS exemplifies the Institute's commitment to global scientific cooperation, especially in areas of disaster risk reduction and environmental resilience.

The integration of gender perspectives into disaster planning has emerged as another important area of focus for the Institute. Research has shown that women, girls, and gender-diverse individuals are disproportionately vulnerable in disaster situations, not only due to their exposure to hazards but also because of structural inequalities that exacerbate their risks. The Institute has, therefore, worked to integrate gender-sensitive approaches into disaster preparedness and response strategies, ensuring that the specific needs of these groups are addressed in the face of emergencies. This work is part of a broader effort to promote social equity in environmental management and disaster risk reduction.





In addition to these core research activities, the Institute has also been actively involved in a range of outreach and educational initiatives. It has hosted various seminars and courses, including diploma courses on geomatics, aimed at enhancing the skills and knowledge of students and professionals in the field. The Institute has also contributed to the dissemination of knowledge through digital platforms, including podcasts and social media channels, which have served as valuable tools for engaging a broader geography, audience in discussions about sustainability, and climate change. These platforms have provided an opportunity to share research findings, promote dialogue, and encourage public engagement with geographical issues, furthering the Institute's mission to be a leading source of knowledge and expertise in the field.

These activities represent just a portion of the Institute's ongoing contributions to the fields of geography and environmental science. The breadth and diversity of the Institute's work reflect its commitment not only to advancing academic knowledge but also to addressing some of the most pressing global challenges of our time. Through research, education, and outreach, the Institute of Geography at UNAM continues to make a meaningful impact on both the scientific community and society at large, advancing solutions that contribute to a more sustainable, resilient, and equitable world.





Natural Hazards Center University of Colorado, Boulder, USA <u>https://hazards.colorado.edu/</u> <u>https://converge.colorado.edu/</u>



The Natural Hazards Center at the University of Colorado Boulder serves as the U.S. National Science Foundation-designated information clearinghouse for the societal dimensions of hazards and disasters. The mission of the Center is to:

- Translate and share hazards and disaster research and information;
- Build connections between researchers, nonprofit and private sector professionals, the media, policymakers, and local, state, and federal officials;
- Advance social science and interdisciplinary knowledge, with a special emphasis on the most socially vulnerable populations and places; and
- Train and mentor, a diverse next generation of hazards and disaster professionals.

The team at the Natural Hazards Center led several initiatives during the reporting period including:

- Served as the Secretariat for the North American Alliance of Hazards and Disaster Research Institutes (NAAHDRI). <u>https://naahdri.org/</u>
- Maintained a global map and list of university-

based hazards and disaster research centers and published the data associated with the map and list. See: <u>https://hazards.colorado.edu/resources/</u> research-centers

 Hosted the 49th annual Natural Hazards Research and Applications Workshop, which involved more than 750 researchers, local/state/ federal practitioners, policymakers, private and non-profit sector representatives, journalists, and students. The theme of the 2024 Workshop was "The Stories We Tell: Creative Strategies for Understanding and Communicating Disaster Risk." <u>https://hazards.colorado.edu/</u> workshop/2024



- Co-facilitated the annual Researchers Meeting, which involved more than 350 hazards and disaster researchers from across the U.S. and around the world. <u>https://hazards.colorado.edu/workshop/2024/</u> researchers-meeting
- Hosted the monthly Making Mitigation Work webinar series. <u>https://hazards.colorado.edu/</u> <u>training/webinars/making-mitigation-work</u>
- Published the *Research Counts* series <u>https://</u> <u>hazards.colorado.edu/news/research-counts</u>,

During this reporting period, the CONVERGE facility completed the following activities:

- Released the 12th CONVERGE Training Module in our series, this one focused on Indigenous Sovereignty in Disasters. <u>https://</u> <u>converge.colorado.edu/resources/training-</u> modules/.
- Continued to add to the CONVERGE Training Modules Assignment Bank, which now also includes an introductory webinar as well as undergraduate and graduate level assignments. <u>https://converge.colorado.edu/resources/training-modules/assignment-bank/</u>
- Released additional Annotated Bibliographies through CONVERGE. <u>https://</u>

Researchers affiliated with the Natural Hazards Center and the CONVERGE facility produced the following publications in 2024:

Adams, Rachel M., Holly Davies, Lori Peek, Meghan Mordy, Jennifer Tobin, Jolie Breeden, Sara K. McBride, and Robert de Groot. 2024. "ShakeAlert® and Schools: Incorporating Earthquake Early Warning in School Districts in Alaska, California, Oregon, and Washington" International Journal of Disaster Risk Reduction 112. <u>https://doi.org/10.1016/</u> j.ijdrr.2024.104735

Austin, Jessica, Candace Evans, Jocelyn West, Heather Champeau, Lori Peek, and Rachel Adams. 2024. "Defining and Practicing Reciprocity in Disaster Research." *International Journal of Qualitative Research* 23. <u>https://</u> doi.org/10.1177/16094069241309279

Dixon, Cinnamon A., Richard Kwok, Lorah Ludwig, Lori Peek, Christopher Newton, Jeffrey Upperman, Jonathan White, and Debra Weiner. 2024. "Pediatric Disaster Science: Understanding Needs, Highlighting Imperatives, and Leveraging Opportunities." *NAM Perspectives.* Washington, DC: National Academy of Medicine. <u>https://doi.org/10.31478/202409a</u>

Gibb, Christine, Gabriella Meltzer, Nnenia Campbell, and Alice Fothergill. 2024.

including a new special collection focused on Equity and Inclusion <u>https://hazards.colorado.edu/</u> <u>news/research-counts/special-collection/equity-and</u> <u>-inclusion</u>

- Published Disaster Research—News You Can Use. <u>https://hazards.colorado.edu/disaster-</u> research/current
- Hosted the Disaster Grads listserve for undergraduate and graduate students in the hazards and disaster field. <u>https://</u> hazards.colorado.edu/signup

<u>converge.colorado.edu/resources/training-modules/</u> <u>annotated-bibliographies/</u>

- Published additional Extreme Events Research Check Sheets <u>https://converge.colorado.edu/</u> resources/check-sheets/.
- Hosted Webinars <u>https://converge.colorado.edu/</u> <u>category/webinars/</u>, Virtual Forums <u>https://</u> <u>converge.colorado.edu/category/virtual-forums/</u>, and Social Science Fridays sessions <u>https://</u> <u>converge.colorado.edu/category/social-science-</u> <u>fridays/</u> through CONVERGE.
- Funded researchers through the CONVERGE Data
 Ambassadors program <u>https://</u>
 <u>converge.colorado.edu/data/data-ambassadors/</u>.

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Mathews, Mason Clay, Jamie Vickery, and Lori Peek. 2024. "Resource Exchange Patterns Between Voluntary Organizations Active in Disaster (VOADs): A Multi-Level Network Assessment to Improve Disaster Response Capacity." International Journal of Disaster Risk Reduction 108. <u>https://doi.org/10.1016/</u> j.ijdrr.2024.104455

Meltzer, Gabriella Y., Alexis A. Merdjanoff, Robyn R. M. Gershon, Alice Fothergill, Lori Peek, and David M. Abramson. 2024. "Adverse Effects of the Deepwater Horizon Oil Spill Amid Cumulative Disasters: A Qualitative Analysis of the Experiences of Children and Families." *Journal of Child and Family Studies* 33: 1995 -2011. <u>https://doi.org/10.1007/s10826-024-02815-0</u>

Nygren, Katarina Giritli, Anna Olofsson, Lisa Bowleg, Dean Curran, Kelly Hannah Moffat, Claudia Mitchell, Lori Peek, Ignacio Rubio Carriquiriborde, and Jens O. Zinn. 2024. "Thoughts About Intersectionality and Risk: Interviews with Key Scholars." *Journal of Risk Research.* <u>https://</u>

doi.org/10.1080/13669877.2024.2340027

Painter, Mary Angelica, Sameer H. Shah, Gwendolyn C. Damestoit, Fariha Khalid, Wendy Prudencio, Musabber Ali Chisty, Fernando Tormos-Aponte, and Olga Wilhelmi. 2024. "A Systematic Scoping Review of the Social Vulnerability Index as Applied to Natural Hazards." *Natural Hazards.* <u>https://doi.org/10.1007/s11069-023-06378-z</u>

Sutton, Jeannette, Hamilton Bean, Lori Peek, Erica Kuligowski, and Michele Wood. 2024. "An Introduction to the Special Collection on the Legacy of Dennis S. Mileti and the Future of Public Alert and Warning Research." *Natural Hazards Review* 25 (3). <u>https://doi.org/10.1061/NHREFO.NHENG-2113</u>

Gill, Duane A., Ritchie, Liesel, and Nnenia Campbell, eds. 2024. <u>Encyclopedia of Technological Hazards</u> <u>and Disasters in the Social Sciences</u>. Northampton, MA: Edward Elgar Publishing.

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Major active grants and contracts at the Natural Hazards Center include:

- 2024-29 Lori Peek, Subaward Principal Investigator, "Cooperative Agreement for the Joint Disaster Medicine and Public Health Ecosystem." Jeffrey Freeman, Principal Investigator. Sponsored by the Uniformed Services University of the Health Sciences and the Henry M. Jackson Foundation.
- 2024-26 Lori Peek, Principal Investigator, "Risk Communication Practitioner Trainings." Funded by the U.S. Army Corps of Engineers. (\$150,000)
- 2024-25 Lori Peek, Principal Investigator, "Making Research Count: Training and Mentoring Programs to Cultivate Wildfire Communities of Practice." Funded by the U.S. Forest Service. (\$100,607)
- 2024-25 Lori Peek, Principal Investigator, "The National Flood Insurance Program: Retrospective and Prospective." Funded by the Association of State Floodplain Managers and the Federal Emergency Management Agency. (\$33,525)
- 2024-25 Lori Peek, Principal Investigator, "Principal Investigator, "National Science Foundation Non-Academic Research Internships for Graduate Students (NSF-INTERN): Brigid Mark." Funded by the National Science Foundation, Supplement to Award #1635583. (\$44,740)
- 2023-26 Lori Peek, Principal Investigator, "Research Counts: Strengthening Diversity to

Reduce Disproportionate Disaster Harm." Funded by the Margaret A. Cargill Philanthropies. (\$800,000)

- 2018-25 Lori Peek, Principal Investigator, "CONVERGE: Coordinated Social Science, Engineering, and Interdisciplinary Extreme Events Reconnaissance Research." Funded by the National Science Foundation, Award #1841338, with supplemental funding from the Centers for Disease Control and Prevention (CDC) and U.S. Geological Survey (USGS). (\$5,041,204)
- 2017-25 Lori Peek, Principal Investigator, "A Clearinghouse Natural Hazards on Applications." Funded by the National Science Foundation, Award #1635593. with supplemental funding from the Centers for Disease Control and Prevention (CDC), Federal Emergency Management Agency (FEMA), National Institutes of Health (NIH), National Oceanic and Atmospheric Administration-National Integrated Drought Information System (NOAA-NIDIS), National Oceanic and Atmospheric Administration-National Severe Storms Laboratory and Weather Program Office (NOAA-NSSL and WPO), U.S. Army Corps of Engineers (USACE), U.S. Department of Health and Human Services (HHS), and U.S. Geological Survey (USGS). (\$9,357,625)



Center for Risk-Based Community Resilience Planning Colorado State University, USA

http://resilience.colostate.edu

2024 has been a year of growth and innovation for the Center for Risk-Based Community Resilience Planning at Colorado State University. The Center continues to push the boundaries of resilience research, policy, and education, making significant contributions to global disaster resilience. With new tools, stronger global partnerships, and a deepening focus on community-driven solutions, the Center remains at the forefront of efforts to build a more resilient world.

Project IN-CORE is a sponsored project through Community Initiatives, Oakland, California. Project IN -CORE and its partners provide support and services based on the IN-CORE platform (The Interdependent Networked Community Resilience Modeling Environment), which is a state-of-thescience cloud platform that models the interconnected impacts of natural hazards to help communities make science-informed planning and policy decisions to lessen the impacts of hazards and enhance community resilience.

IN-CORE is open-source computational an environment that enables users to model the effects of natural hazards to critical infrastructure such as power, networks, emergency services, water networks, shelters and more. A major development in 2024 has been the formalization of Memoranda of Understanding (MOUs) with Community Disaster Resilience Zones (CDRZ) in several high-risk communities across the United States. These agreements represent a significant milestone in the Center's mission to engage directly with local governments, community leaders, and resiliencefocused organizations to enhance disaster preparedness, risk management, and recovery. While the Center continues to collaborate with the CDRZ communities in 2024, detailed reports to specific counties under the CDRZ initiative are scheduled for release in 2025. These reports will provide an in-depth analysis of community resilience strategies, pilot project outcomes, and resilience assessments conducted in each county. These findings will inform future planning and policy recommendations at the local and regional levels.

This year, team members traveled to three testbed communities, that included Galveston, TX; Joplin, MO; and Salt Lake City, UT, to present findings and methodologies to city planners, local stakeholders, and resilience practitioners. These collaborative engagements focused on enhancing community resilience by leveraging data-driven models to assess risk and implement adaptive strategies.

In each location, the team led workshops and presentations to demonstrate how the Center's including innovative tools. the Interdependent Networked Community Resilience Modeling Environment (IN-CORE), can be used to assess vulnerabilities and plan for climate-related and other hazards. These workshops trained participants on how to effectively use IN-CORE to model and understand community resilience. The goal was to equip local governments and community stakeholders with actionable insights that would help strengthen urban infrastructure, improve emergency preparedness, and promote long-term sustainability. These sessions also served as an important opportunity to gather real-world feedback, helping to refine and test the resilience frameworks and shape future planning efforts at both the local and national levels.

> Prof. John W. van de Lindt Co-Director E-mail: jwv@coloctate.edu



Project IN-CORE in collaboration with the University of Alabama, successfully submitted a joint proposal focused on enhancing resilience in the Gulf Coast region. The proposal will leverage the Interdependent Community Resilience Networked Modelina Environment (IN-CORE) to address the region's unique vulnerabilities to hurricanes, flooding, and coastal erosion. The proposal aims to provide datadriven, community-specific resilience strategies for Gulf Coast communities, with a strong emphasis on socioeconomic resilience, infrastructure robustness, and ecosystem-based solutions. The Gulf Proposal, together with the advanced capabilities of Project IN-



<u>7th Annual GADRI Summit</u> – to be held at Colorado State University in July 2025

In July 2024, the Center for Risk-Based Community Resilience Planning co-director hosted a planning meeting with collaborators from Japan to prepare for the upcoming 7th Global Alliance of Disaster Research Institutes (GADRI) Summit, which will be held at Colorado State University. The meeting participants discussed the summit's goals and organization of its key themes and sessions. Among the topics covered were how to strengthen global disaster resilience through international research partnerships, share successful community resilience strategies, and connect the latest scientific findings with on-the-ground policy and practice. This productive exchange of ideas and expertise is a critical step toward ensuring the summit's success.

Looking ahead to 2025, the Center for Risk-Based Community Resilience Planning at Colorado University State (CSU) is excited to 7th host the Annual GADRI (Global Alliance of Disaster Research Institutes) Summit in July 2025. This prestigious event will bring together leading experts, researchers, policymakers, and

CORE, offers a proactive approach to strengthening resilience in one of the most disaster-prone areas of the United States. By using sophisticated modeling techniques to tackle real-world challenges and working closely with local communities to create tailored solutions, the Center is helping to build a Gulf Coast that is better prepared for the future.

Project IN-CORE and the NIST-funded Center of Excellence for Risk-Based Community Resilience Planning continue to work with pilot communities to enhance their resilience. To read more about the pilot communities and how they are using IN-CORE, please visit www.in-core.org.

practitioners from around the world to discuss the latest advancements in **disaster risk reduction, community resilience**, and **sustainable recovery.**

Additionally, a major focus of the GADRI Global Summit is equity and inclusion and a special session focused on equity in disaster research is planned and will include a keynote. The Summit includes experts from many different disciplines working across historical disciplinary boundaries to ensure solutions to vexing problems through convergent research. The theme is: **Converging Disaster**

Research and Stakeholder-Engagement for Resilience with the following subthemes each making up a track:

Subtheme 1 focuses on convergence approaches in research and implementation including methodological convergence such as combining field studies with experimental tests or numerical analysis and extending to disciplinary convergence which brings together key disciplines to collaborate to solve a problem that cannot be solved by one discipline alone. Essentially, beginning with the motivation for such novel approaches to solve disaster risk reduction challenges and solve real problems. Subtheme 2 focuses on engagement, partnerships, communication, and resulting policy; underscoring the fact that stakeholder engagement is critical to implementing research and turning it into policy to ensure communities don't just survive but thrive. Subtheme 3 underscores the need for fundamental research and focuses on advances in disciplinary and transdisciplinary research for natural hazards, cascading hazards, the resulting disasters, and models to reduce adverse impacts.

Funding efforts are currently underway to ensure the summit's success, with a focus on securing resources to support the event's diverse programming, including keynote speakers, panel discussions, and collaborative breakout sessions.



Advanced Radar Research Center, University of Oklahoma (OU, ARRC), USA

https://www.arrc.ou.edu

The state-of-the-art all-digital polarimetric phased array weather radar, aka Horus, developed by the University of Oklahoma continued several field campaigns in 2024. The photo shows the deployment of Horus during a thunderstorm on April 27, 2024.



- Several atmospheric scientists and engineers from across the U.S. gathered in Norman to attend a workshop on mmWave Phased Array Radar Technologies for Atmospheric Science, held February 29 at the Sam Noble Museum.
- 2. ARRC students have received university, national and international recognition and awards.
- The PhD student, Aimee Matland-Dixon, in the School of Meteorology and the ARRC has been awarded the 2024 Weathernews Scholarship. Aimee's work was highlighted during the 13th Workshop on WNI/OU Collaboration held October 30 in the Radar Innovations Lab.
- The PhD student, Aimee Matland-Dixon, was awarded an FY2024 Future Investigators in NASA Earth and Space Science and Technology (FINESST) research grant! The FINESST program provides research grants to graduate students who are designing and performing research projects relevant to interests of the NASA Science Mission Directorate.
- A team of ARRC/ECE graduate students, Min-Duan Tzeng, Hsiu-Wei Hsu, Shin Yi Low, and Wei-Chun Hwang, were awarded 2nd place in the Radar Teams Challenge held during the 2024 IEEE Radar Conference in Denver. A limited number of teams from the United States, Europe, and industry engineers, were selected to compete in the event.
- ARRC/ECE graduate student Rosalind Agasti was awarded the Graduate Dean's Distinguished Thesis Prize in Science and Engineering for her outstanding master's thesis titled "Frequency-agile filtering antennas for S-band and X-band applications".
- ARRC/ECE PhD student, Precious Jatau, was named recipient of the 2023-2024 Provost's Doctoral

Dissertation Award. The award is given annually to recognize outstanding performance by a doctoral student in the areas of Science and Engineering, Social Science, Education and the Professions, and Humanities and Fine Arts.

- ARRC/SoM PhD student, Gus Azevedo, receive the Best Student Paper and Presenter Award at the 24th Conference on Aviation, Range and Aerospace Meteorology 2024 in Baltimore. The title of the paper is "UAS-based Low-altitude Freezing Precipitation Observation System: Development Updates and Initial Field Deployment Results".
- ARRC/ECE graduate student Rosalind Agasti has been selected to receive the IEEE Microwave Theory and Technology Society (MTT-S) Graduate Fellowship for 2024.
- Rosalind Agasti (ARRC/ECE) has been awarded a 2023 IEEE Antennas and Propagation Society (APS) Doctoral Research Grant for her proposed project on the Development of a System-on-Aperture (SoA) Front-End using Spatio-Temporal Modulation.
- Syed Jehangir has been awarded the Fall 2023 OU Engineering Dissertation Excellence Award.
- 3. Weathernews, Inc. (WNI) was the recipient of an Oklahoma State Regents Business Partnership Excellence Award, presented at a ceremony on March 7 at the University of Central Oklahoma campus in Edmond. WNI has been a long-time partner of the University of Oklahoma, focusing on radar, weather, and climate applications. They established an endowed chair and an endowed scholarship at OU in 2017. The scholarship is presented annually to an outstanding ARRC student studying weather radar, observations of the atmosphere, data analysis, and implementation.



Prof. Tian-You Yu Director of Operations E-mail: tyu@ou.edu

Wind Hazard and Infrastructure Performance (WHIP) Center, Texas Tech University, USA

https://www.whipc.org

The WHIP Center's mission is to pursue research of interest to industry and government agencies to enhance the resilience of buildings and infrastructure to extreme windstorms such as hurricanes and tornadoes.

HAZARD AND INFRASTRUCTURE PERFORMANCE CENTER

Between the three universities, listed below, faculty and students represent the following disciplines:

- Civil engineering
- Mechanical engineering
- Aerospace engineering
- Computer science
- Atmospheric science
- Economics
- Social science

The collaborating universities are Texas Tech University (Texas), Florida international University

TEXAS TECH UNIVERSITY

- One of the two largest tornado simulators in the world; VorTECH support studies of tornadoes and tornadic loading on structures.
- A 200 m instrumented meteorology data measurement tower
- Sticknet instrumentation platform to measure windspeed, direction, etc. in land-falling hurricanes and in-land tornadoes.
- Ka-Band Doppler Radars to measure speed and direction in windstorms.
- VorTECH Tornado Simulator

FLORIDA INSTITUTE OF TECHNOLOGY

leading

WHIP Center has effectively involved multiple students in its functions and research activities. These students not only carried out research in the broader area of Natural Hazards Engineering, but also had a unique opportunity to interact and

directly communicate industry experts:

• Year 1: 7 graduate

with

- students
- Year 2: 6 graduate students

(Florida) and Florida Institute of Technology (Florida)

All three universities have laboratory and field facilities to test the impact of wind on building and other infrastructure components. These facilities have been developed over the years and are well equipped with necessary instrumentation.

FACILITIES

FLORIDA INTERNATIONAL UNIVERSITY

- Wall of Wind (WOW) Experimental Facility (EF) under FIU International Hurricane Research Center (IHRC) is a legacy of Hurricane Andrew
- Wind Engineering Program since 2005; 12-Fan WOW since 2012; 4 Faculty members; >70 refereed journal publications on wind engineering; 2 patent; 16 PhDs in the area of wind engineering (plus current Ph.D. candidates); 2 post-Docs.
- EF Team has conducted >\$12M in research and industry projects since 2012.



Portable Zephir300 Lidar system for nearsurface wind profiler

- Year 3: 11 graduate students
- Year 4: 10 graduate students
- Year 5: 12 graduate students
- Number of students recruited by member companies: 2.

Prof. Delong Zuo Center Director E-mail: delong.zuo@ttu.edu



WHIP Center Research Webinars

The WHIP Center successfully organized a series of six webinars during 2023. These were attended by a broad audience, including academics, industry representatives and state and federal agency officials. The attendees included from many countries including Australia, Brazil, Canada, Czech Republic, China, Egypt, France, Germany, Ghana, Iceland, India, Iraq, Italy, Japan, Kuwait, Nepal, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Puerto Rico, Romania, Singapore, Spain, Switzerland, Taiwan, Trinidad and Tobago, United Kingdom, and United States.

Workshop

A 2.5 -hour workshop was offered on October 27, 2023 at the corporate offices of VERISK in Boston, MA. The workshop was open to individuals from close to 120 companies in WHIP mailing list. It was available inperson as well as online.

The purpose of the workshop was to present value of the WHIP Center and why it should continue through Phase 2 (another five years) and beyond. The most important component of the workshop was to illustrate the benefits of the Center through examples of research results useful to member companies. This illustration logically led to discussion on the growth of the Center with expanded research portfolio and membership. Items covered in the workshop were:

- Brief history of the Center
- Partnership of industry, academia, and the government
- Operation of the Center

- Examples of translating research into practice (five project results with comments by IAB members on how they have used the results)
- Benefits to member companies, universities, the government, and society
- Returns on the investment of fees

The workshop was attended by close to 20 guests (inperson and online) in addition to IAB members, faculty and students. It was a very successful endeavor with 4 companies indicating strong interest in joining the WHIP Center in Phase 2.

Use of research projects conducted in WHIP Center during Phase 1

A few examples illustrate the benefits of the WHIP Center to its members.

Dr. Arindam Chowdhury and Dr. Ioannis Zisis, both on the faculty of the Civil Engineering Department at Florida International University (FIU), conducted tests performance of installation and on anchor requirements of roof systems under high wind conditions at the Wall of Wind facility. The objective of this project was the holistic assessment of wind resistance of perimeter flashings for various installations that use fascia, metal hook strips, and fasteners. GAF roofing, one of the WHIP-C industry members, presented the results of this project at a number of roofing-industry meetings (IIBEC, IRE, SPRI) to manufacturers, designers, and installers of edge metal components. These presentations are influencing the specification and design of edge metal, and are expected to also influence an industrydeveloped, code-required test method (ANSI/SPRI ES -1) used to determine the wind-resistance capacity of edge metal used for roofing.



Dr. Doug Smith, Research Professor at Texas Tech University (TTU) pursued a research project on wind and surge damage to coastal buildings in hurricanes. The Texas Department of Insurance model was upgraded using engineering mechanics principles. The upgrades include the use of wind tunnel data. terrain exposure for each structure, and mechanicsbased surge loading. A time step algorithm allows determination of damage due to wind and due to surge. The algorithm is validated using field data provided by the Texas Windstorm Insurance Association. VERISK, a risk modeling company and WHIP-C member used this project to improve their internal predictive analytics and derive performance functions for various building components as well as provide alternative scenarios for loading conditions to various architype structures. Berkshire Hathaway Specialty Insurance (BHSI) company and State Farm, also WHIP-C members, have used component level damage of the project to improve their prediction of expected losses.

Dr Jean-Paul Pinelli at Florida Institute of Technology (FIT) developed a new model for building interior and content damage due to wind-driven rain. The new risk model captures the physics of water ingress and propagation through envelope defects and breaches to estimate interior and contents damage in mid/highrise buildings. The model includes both a deterministic as well as a probabilistic option. BHSI has benefited from the insights regarding wind driven rain intrusion and the impact it can have on storm damage. For VERISK this project provides alternative methodologies to derive interior damage and content damage within a loss modeling framework which has helped to fill in knowledge gaps.

Dr. Delong Zuo at TTU is conducting tests at the TTU VorTECH facility to derive fragility curves for low-rise buildings for tornadic loading. The VorTECH tornado simulator is used to assess pressures on surfaces of a model of a low-rise building. The size and intensity of vortex is controlled by vanes and fan speed of the tornado simulator. The longitudinal speed of the vortex is simulated by moving the building at prescribed speed through the vortex. More than two hundred pressure points on the building model are integrated to assess wind loads on building surface. The building has an opening to assess the influence of it on the surface pressures. Thanks to this project,

Institute of

VERISK shall get a better understanding of tornadic pressure distribution National on structures, and the Standards and Technology

(NIST) is currently analyzing this data and foresees using the test results to support updates to the tornado load requirements in the ASCE 7-28 national standard for loads on buildings and other structures.

Dr. Amal Elawady at FIU and Dr. Jean-Paul Pinelli at FIT are developing fragility models to assess the impact of tree failure and windborne tree debris on low-rise construction. The objective of this project is to develop a model for the impact of tree failures on buildings in different windstorm intensities. Land cover data is used to assess the proximity of trees to buildings. The tree fragility model will be incorporated in a hurricane building risk model to evaluate the combined impact of wind and tree damage. VERISK, State Farm, and BHSI see high potential use of this project research results for modeling risk potential from falling trees, or even the mitigative effects of vegetation around a structure.

WHIP Center Members

The WHIP Center is supported by the National Science Foundation under award Numbers 1841523 and 1841503. Research at the Center is funded by membership fees from the industry members of the Center, including:



Asia Japan and Oceania



Asia — Members

Abu Dhabi	Rabdan Academy
Bangladesh	Institute of Water and Flood Management (IWFM) Bangladesh University of Engineering and Technology (BUET)
Bangladesh	Department of Meteorology Faculty of Earth and Environmental Sciences, University of Dhaka
China	Center for Energy and Environmental Policy Research (CEEP), Beijing Institute of Technology (BIT)
China	Integrated Risk Governance Project (IRG-Project), State Key Lab of Earth Surface Processes and Resource Ecology (ESPRE), Beijing Normal University
China	School of Environmental Science and Engineering, Chang'an University
China	Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences
China	Disaster Risk Reduction Knowledge Service of International Knowledge Centre for Engineering Sciences and Technology under the auspices of UNESCO (IKCEST-DRR), Chinese Academy of Sciences
China	Institute of Tibetan Plateau Research, Chinese Academy of Sciences (ITPCAS)
China	Beijing National Earth Observatory, Institute of Geophysics, China Earthquake Administration (CEA)
China	State Key Laboratory of Geo-hazards Prevention and Geo-environment Protection (SKLGP), Chengdu University of Technology
China	Key Laboratory of Coastal Disaster and Defence (KLCDD), Hohai University
China	Natural Disaster Research Institute, Northeast Normal University
China	College of Engineering, Ocean University of China
China	Institute for Disaster Management and Reconstruction (IDMR), Sichuan University
China	College of Architecture and Environment, Sichuan University (SCU)
China	State Key Laboratory of Hydraulics and Mountain River Engineering (SKLH), Sichuan University
China	Shanghai Institute of Disaster Prevention and Relief, Tongji University
China	China Research Center for Emergency Management (CCEM), Wuhan University of Technology
Hong Kong	Hong Kong Jockey Club, Disaster Preparedness and Response Institute (HKJCDPRI)
India	Centurion University of Technology and Management (CUTM)
India	Department of Geography, Delhi School of Economics, University of Delhi
India	Disaster Mitigation and Management Centre (DMMC), Uttarakhand Secretariat
India	Humanities and Social Sciences Department, Indian Institute of Technology Bombay (IITB)
India	Research & Development, Indian Institute of Technology Gandhinagar (IITG)
India	Center of Excellence in Disaster Mitigation & Management, Indian Institute of Technology Roorkee (IITR)
India	South Asia Alliance of Disaster Research Institutes (SAADRI), IITR
India	Jindal School of Liberal Arts and Humanities, O.P. Jindal Global University
India	School of Ecology and Environment Studies. Nalanda University

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GADRI Annual Report — Asia

India	School of Planning and Architecture (SPA), Delhi
Indonesia	Research Centre for Geosciences and Disaster, Brawijaya University
Indonesia	Gadjah Mada University, Faculty of Engineering, Center for Disaster Mitigation and Technological Innovation
Indonesia	JASA TIRTA I Public Corporation
Indonesia	Research Center for Disaster Mitigation, Institut Teknologi Bandung (ITB)
Iran	Soil Conservation and Watershed Management Research Institute (SCWMRI)
Iran	International Institute of Earthquake Engineering and Seismology (IIEES)
Iran	College of Agriculture and Natural Resources, University of Tehran
Iran	Natural Disasters Research Institute (NDRI)
Israel	Institute of Earth Sciences, The Hebrew University of Jerusalem (HUJ)
Israel	National Knowledge and Research Center for Emergency Readiness, University of Haifa
Korea	National Crisisonomy Institute, Chungbuk National University
Korea	International Water Resources Research Institute, Chungnam National University
Korea	Department of Disaster Prevention & Safety Engineering, Kangwon National University
Korea	Seoul National University
Korea	School of Urban & Environmental Engineering, Ulsan National Institute of Science and Technology
Lao PDR	Asia Research Center, National University of Laos (ARC-NUOL)
Lao PDR	Disaster Risk Reduction Division, Department of Climate Change (DCC), Ministry of Natural Resource and Environment
Malaysia	Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia (UKM)
Malaysia	Southeast Asia Disaster Prevention Research Initiative (SEADPRI-UKM), University of Kebangsaan Malaysia (UKM)
Malaysia	Universiti Sains Malaysia (USM)
Malaysia	Universiti Tenaga National (UNITEN)
Malaysia	Centre for Coastal and Ocean Engineering (COEI), Universiti Technologi Malaysia (UTM)
Malaysia	Centre for Environmental Sustainability and Water Security (IPASA), Research Institute for Systainable Environment, Universiti Technologi Malaysia (UTM)
Malaysia	Institute of Noise and Vibration, Universiti Teknologi Malaysia (UTM)
Malaysia	Malaysia Japan International Institute of Technology (MJIIT), Universiti Te bnologi Malaysia (UTM)
Malaysia	Disaster Management Institute (DMI), Universiti Utara Malaysia (UUM)
Myanmar	Department of Disaster Management, Min. of Social Welfare, Relief and Settlement, Republic of the Union of Myanmar

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GADRI Annual Report — Asia

Nepal	International Centre for Integrated Mountain Development (ICIMOD)
Nepal	Central Department of Geology, Tribhuvan University
Oman	German University of Technology in Oman (GUTech)
Pakistan	University of Peshawar
Pakistan	Center for Disaster Management (CDM), University of Management and Technology
Philippines	Partnerships in Environmental Management for Seas of East Asia (PEMSEA)
Philippines	Disaster Risk Management Unit, Graduate School of Business, Philippine School of Business Administration (PSBA)
Philippines	National Hydraulic Research Center, National Engineering Center, University of the Philippines, Diliman Campus
Philippines	Planning and Development Research Foundation Inc. (PLANADES)
Philippines	University of the Philippines Resilience Institute (UPRI)
Philippines	Philippine Society of Emergency Medical Technicians (PSEMT)
Singapore	Institute of Catastrophe Risk Management, Nanyang Technological University (NTU)
Sri Lanka	Natural Resource Management & Laboratory Services, Central Engineering Consultancy Bureau (CECB)
Sri Lanka	National Building Research Organisation (NBRO)
Sri Lanka	Center for Transdisciplinary Research
Sri Lanka	Sri Lanka Institute of Information Technology (SLIIT)
Sri Lanka	Faculty of Engineering, University of Moratuwa
T-Chinese Taipei	National Center for Research on Earthquake Engineering (NCREE), National Applied Research Laboratories
T-Chinese Taipei	Disaster Prevention Research Center (DPRC), National Cheng-Kung University (NCKU)
T-Chinese Taipei	Tainan Hydraulics Laboratory (THL), National Cheng Kung University (NCKU)
T-Chinese Taipei	National Science and Technology Center for Disaster Reduction (NCDR)
T-Chinese Taipei	Center for Weather Climate and Disaster Research (WCDR), National Taiwan University
Tajikistan	Mountain Societies Research Institute (MSRI), University of Central Asia
Thailand	Asian Disaster Preparedness Center (ADPC)
The"	⁻ Preparedness, Mitigation and Management (DPMM), Asian Institute of Technology (AIT)
mailand	Disaster and the Management Information Systems Research Group (DRMIS), Chulalongkorn University
Turkey	Kandilli Observatory and Earthquake Research Institute, Bogazici University
Vietnam	Department of Geo-Environment, Vietnam National University (VNU), Hanoi



Rabdan Academy Abu Dhabi

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Research Themes











Source: https://ra.ac.ae/en/research

During 2024, Rabdan Academy expanded its leadership in disaster risk reduction (DRR) through a concerted focus on program innovation, community engagement, rigorous research, and strategic collaboration. By integrating its Business Continuity Management (BCM) and Integrated Emergency Management (IEM) degrees into a new Disaster Management curriculum, the Academy underscored its commitment to aligning with both local and international accreditation standards. Student-led clubs and industry collaborations further enriched practical learning, ensuring graduates are prepared for evolving global challenges in emergency preparedness.

Participation in key events-including a high-profile launch at a national security exhibition and a forum dedicated to first-responder readiness-amplified the Academy's visibility and influence. These engagements, coupled with eleven new peerreviewed publications, illustrate Rabdan Academy's dedication to evidence-based approaches and knowledge dissemination. Strengthening ties with organizations such as the Business Continuity Institute (BCI), alongside active faculty exchanges, further exemplifies the Academy's mission: to combine academic excellence with real-world practice, producing resilient and forward-thinking professionals equipped to better manage disaster risks.

1. Program Developments

Building on its prior success, Rabdan Academy accelerated the merger of its Business Continuity Management (BCM) and Integrated Emergency

Management (IEM) degrees into single, а comprehensive Disaster Management curriculum. Guided by international accreditation standards (SACSCOC) and national requirements (CAA), the new curriculum incorporates cutting-edge research and feedback from industry partners to better reflect evolving global DRR needs. This transition underscores the Academy's strategy of bridging theoretical grounding and vocational skill, ensuring graduates emerge equipped to handle crises in various contexts and is expected to be launched in 2026.

Additionally, two student-led initiatives—the Student Chapter for Emergency Management and the Business Continuity Club— have been developed to strengthened practical engagement by offering immersive field simulations, professional workshops, and mentorship from external experts.

Dr. Matthew Ellis

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2. Conferences, Workshops, and Collaborations

Rabdan Academy participated in or hosted 15 major events in 2024, reflecting its commitment to bridging academic scholarship with practical engagement in emergency management and business continuity. Of these events, 3 were fully or partly online, 9 were held locally in the UAE, and 3 took place internationally. Collectively, they demonstrated the Academy's dedication to continuous improvement, multistakeholder collaboration, and effective disaster risk reduction strategies. Each engagement further strengthened local and global partnerships, enriched academic offerings, and advanced the professional development of both faculty and students.

 International Exhibition for National Security and Resilience (ISNR) – May 21, ADNEC

During ISNR, Rabdan Academy launched the Rabdan Security & Defence Institute (RSDI), dedicated to promoting peace, stability, and security in the Middle East through rigorous analysis, strategic policy recommendations, and effective advocacy.

 Centers of Excellence – Agility and Resilience of First Responders – October 30–31, Abu Dhabi

Rabdan Academy hosted this forum focusing on first responder readiness, bringing together international experts to discuss agility, scenariobased training, and multi-agency coordination in crisis situations.

Through these activities, Rabdan Academy has enhanced its profile as a regional leader in DRR, engaging with government agencies, local industries, and global networks to translate academic findings into practical, resilience-focused solutions.

3. Research and Publications

Rabdan Academy's faculty and collaborators produced 11 peer-reviewed publications in 2024, underscoring the institution's commitment to evidencebased approaches in emergency management, disaster preparedness, and resilience. Topics ranged from hazmat response and wildlife considerations in disaster management to offshore versus onshore emergency perspectives and nature-based hazard preparedness. These studies highlight the Academy's emphasis on practical applicability while contributing to the global body of disaster risk research.

4. Industry and Academic Partnerships

Throughout 2024, Rabdan Academy deepened strategic partnerships with governmental agencies, local industries, and international organizations:

- Collaboration with the Business Continuity Institute (BCI) to align curricular frameworks with industry-recognized standards. All core program faculty now have CBCP status.
- Regular guest speakers from industry and academia to promote different perspectives and global activities.
- Faculty exchanges and country tours with global universities, offering cross-cultural insights and fostering joint research projects for knowledge dissemination and DRR collaboration.

These initiatives underscore the Academy's practical, hands-on philosophy, ensuring that academic and industry perspectives converge to drive innovative strategies for crisis management.

5. Looking Forward

In 2025, Rabdan Academy will continue refining its merged Disaster Management degree, reinforcing its commitment to advancing disaster risk reduction, with the official launch targeted for 2026. The updated curriculum will emphasize global perspectives and current industry practices, integrating key future skills such as critical thinking, artificial intelligence, virtual reality, and machine learning and expanding risk management. The Academy also plans to enhance its research-active faculty exchanges to maintain evidence-based, cutting-edge instruction. Additionally, Rabdan Academy aims to expand both its Student Chapter for Emergency Management and its Business Continuity Club, fostering reflective practice and peer learning to cultivate resilient professionals with a global mindset.



Institute of Water and Flood Management (IWFM),

পানি ও বন্যা ব্যবস্থাপনা ইন্সটিটিউট

Institute of Water and Flood Management Bangladesh University of Engineering and Technology Bangladesh

https://iwfm.buet.ac.bd



Special issue in PDS titled

Climate Extremes and Resilient Development

Published on July 2024 (<u>https://</u> www.sciencedirect.com/special-

issue/1007PWPTCBW) consisting the six peered reviewed articles out of a number of articles presented in the 9th ICWFM 2023 held during Oct 2023 in Dhaka.

Additionally, the following articles related to disaster resilience have also been published during the stated period:

 <u>An integrated risk-based early warning system to increase community resilience against</u> <u>disaster</u>, A Haque, M Akter, MM Hussain, MR Rahman, M Salehin, M Rahman • Progress in Disaster Science 21, 100310

Establishing morpho-dynamic baseline
 for flow-sediment management of a tidal
 river in the Ganges–Brahmaputra–Meghna
 Delta system through field measurement, MK Islam,
 MM Rahman, Environmental Fluid Mechanics, 1-22

- <u>The Impact of Sandbars on Bank Protection</u> <u>Structures in Low-Land Reaches: Case of Ganges</u> <u>and Brahmaputra-Jamuna</u>, Shampa, HM Muktadir, IJ Nejhum, AKMS Islam, MM Rahman, GMT Islam, Water 16 (17), 2523
- <u>Sedimentation enhancement and its retention</u> <u>through integration of vegetation with permeable</u> <u>groin-like structure in tidal river</u>, MK Islam, MM Rahman, Progress in Disaster Science 24, 100374

Presented the CDRI Fellowship work in the APSTCDRR during 11-13 July in Delhi (both the presentation and documentary is attached in the email for your reference.

Some photos of this conference.



Prof. Mansur Rahman E-mail: mmrahman@iwfm.buet.ac.bd DRR Knowledge Service of International Knowledge Centre for Engineering Sciences and Technology under the auspices of UNESCO (IKCEST), China

https://www.ikcest-drr.data.ac.cn/



Fig. 1. DRR Knowledge Service has been selected for inclusion in the Collection of Cases on "Jointly Building a Community with a Shared Future in Cyberspace " at the World Internet Conference 2024

The overall progress in 2024 is as follows:

- IKCEST Disaster Risk Reduction Knowledge Service (IKCEST-DRR) has been selected for inclusion in the Collection of Cases on "Jointly Building a Community with a Shared Future in Cyberspace " at the World Internet Conference 2024. IKCEST-DRR won the Second Prize of the Geographic Information Science and Technology Progress Award.
- IKCEST-DRR provides platform, technology, data, education and other knowledge services for current global disaster risk reduction (https://ikcest-drr.data.ac.cn/). By the end of 2024, the data volume of the Platform had reached more than 5.48 million records, with a data volume of more than 847GB. The platform's web page visits totaled 2,328,000 times, and the number of users totaled 923,400, users cover 184 countries and regions, and international users accounting for 69.73%.
- 3. Establish an disaster risk reduction column for China-Pakistan Economic Corridor to

provide proactive disaster response. On March 21, 2024, a snow avalanche in Naran, northern Pakistan buried homes and hotels. Through comprehensive multi-case studies and the knowledge-driven flood intelligent monitoring (KDFIM) algorithm combined with remote sensing imagery, the portal analyzed avalanche conditions near Naran town, assessed potential avalanche risks, and rapidly disseminated the findings via the platform.



Prof. Juanle Wang E-mail: wnagjl@igsnrr.ac.cn 4. International training. The International Training Workshop on Resource & Environment Scientific Data Sharing along the "Belt and Road" successfully held at the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences (IGSNRR, CAS) from July 28th to August 11th, 2024. The training workshop attracted 70 applicants from 15 countries along the Belt and Road. Ultimately, 20 participants from seven countries: Pakistan, Mongolia, Russia, Egypt, Iran, Uzbekistan, and Kyrgyzstan, were admitted. A total of 26 lectures and 5 technical visits were organized.

Following is the group photo of the training workshop.



5. International Workshop on Disaster **Risk Reduction Knowledge Service.** The 8th International Workshop on Disaster Risk Reduction Knowledge The & 2nd International Service Symposium on Geo-Hazards Perception, Cognition And Prediction-International cooperation for disaster risk reduction and best practices Session was held in Changsha, Hunan Province on October 26, 2024. This workshop was hosted by the Disaster Risk Reduction Unit, Natural Sciences Sector, UNESCO, and the International Knowledge Centre for

Engineering Sciences and Technology (IKCEST) under the Auspices of UNESCO, organized by the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences (IGSNRR, CAS) and the Disaster Risk Reduction Knowledge Service of IKCEST (IKCEST-DRR). The workshop attracted scientists. educators, and representatives from international organizations, as well as relevant universities, research institutions, from both "Belt and Road" countries and China, to participate.

GADRI Annual Report — Asia



Institute of Tibetan Plateau Research Chinese Academy of Sciences (ITPCAS), China

https://www.itpcas.ac.cn



Fig. 1. The dataset includes the location distribution and surface conditions of 12 field observation stations on the Tibetan Plateau.



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In 2024, there is a very important and scientific research achievement, Prof. Yaoming Ma's group and others have published a research paper titled "Dataset of spatially extensive long-term quality-assured land-atmosphere interactions over the Tibetan Plateau" in the journal Earth System Science Data. This paper introduces a comprehensive hourly dataset of land-atmosphere interactions over the Tibetan Plateau spanning 17 years (2005-2021).

The dataset has 12 observation stations distributed across various regions of the Tibetan Plateau, representing diverse land cover types such as alpine meadows, alpine grasslands, deserts, desert grasslands, alpine forests, and plateau lakes. This spatial coverage provides a comprehensive observational foundation for studying landatmosphere interactions across different ecosystems on the plateau.

The dataset includes multi-layer meteorological data (wind speed, wind direction, air temperature, humidity. air pressure. and four-component radiation), multi-layer soil data (soil temperature and soil moisture), and turbulent data (sensible heat flux and latent heat flux). This comprehensive information facilitates systematic research on landatmosphere interactions on the Tibetan Plateau. The release of this dataset represents a major achievement in Earth system science research. It fills a critical gap in long-term observational data for the Tibetan Plateau, offering a valuable resource for understanding the complex interactions between the land-atmosphere in this unique region. This dataset will serve as a foundation for further research and contribute to addressing critical challenges related to climate change and environmental sustainability in the region and beyond.

Another scientific research achievement: the Mw 7.6 Noto Peninsula earthquake of January 1, 2024, presents a unique case where a major seismic event followed a prolonged earthquake swarm, challenging conventional understanding of swarm dynamics and large earthquake occurrence. The study reveals the crucial role of fluid intrusion from depth in driving both swarms and large earthquakes, with the surrounding stress field playing a key role in determining the behavior of fluids and the resulting seismic activity.

This research highlights the need for a nuanced understanding of stress field characteristics and fluid dynamics in earthquake prediction and mitigation efforts, particularly in regions with complex tectonic settings and active fluid systems.

Projects:

 The President's International Fellowship Initiative (PIFI) program of the Chinese Academy of Sciences (No. 2024PVA0024), Primary investigators: Prof. Ling Bai, Prof. MM Rahman, 2023-2024

Papers:

- Ma,Yaoming, Z. Xie*, Y. Chen*, S. Liu, T. Che, Z. Xu, L. Shang, X. He, X. Meng, W. Ma, B. Xu, H. Zhao, J. Wang, G. Wu, X. Li*, 2024, Dataset of spatially extensive long-term quality-assured land-atmosphere interactions over the Tibetan Plateau, Earth System Science Data, 16, 3017–3043,doi: 10.5194/essd-16-3017-2024
- Ishikawa, Y. and L. Bai, 2024, The 2024 Mj 7.6 Noto Peninsula, Japan earthquake caused by the fluid flow in the crust. Earthquake Research Advances 4(3): 100292.





Fig. 2. The 2024 Mj 7.6 Noto Peninsula mainshock and aftershocks in the Noto region from January 1 to 5. (a) is the map view and (b)-(e) are 4 cross sections along AA', BB', CC', and DD', respectively. The black square in the inset of (a) is the study area and the black circle in the (a) is the mainshock.



GADRI Annual Report — Asia

Natural Disaster Research Institute, Northeast Normal University





http://www.ndri.nenu.edu.cn/

China



The academic monograph "Urban disaster and safety management".

- The National Key Research and Development Program of China: Research on multi-temporal and spatial scale fine risk assessment and zoning of crop drought, high and low temperature disasters. 2022.11-2025.12.
- The National Key Research and Development Program of China: High-intensity forest fire risk factor monitoring and assessment technology. 2022.11-2025.10.
- The National Natural Science Foundation of China: Research on multi-hazards meteorological disasters risk early warning, prediction and adaptation strategy system in Songliao maize belt. 2022.01-2025.12.
- The Major Science and Technology Program of Jilin Province: Optimize the distribution of regional ecological industries and intelligent decision support platform. 2023.01-2025.12.
- The Major Science and Technology Program of Jilin Province: Multi-hazards comprehensive risk early warning based on Space-air-ground Integrated and "scenario-response" type emergency intelligent decision-making technology and product development. 2023.01-2024.12.
- Chinese Academy of Engineering Consulting Project: Research on Meteorological Disaster Risk Prevention and Intelligent Climate Safeguard Countermeasure System for Grain Production Safety in Jilin Province. 2024.03-2025.03.
- National "14th Five-Year Plan" Key R&D Program of

China Topics: Refined Zoning Model and Mapping of Planting Suitability for High-Quality, Special-Purpose, Dense and High-Yielding Corn Varieties Suitable for Grain Harvesting. 2023.11-2027.12.

- Published the academic monograph "Urban disaster and safety management".2024.06.
- Over 19 academic papers related to disasters were published in high-level international academic journals..

Prof. Jiquan Zhang Director E-mail: zhangjq022@nenu.edu.cn



- Guided students in the 12th "A·Dream Cup" National Disaster Reduction and Emergency Management Academic Competition (ADREM) organized by the Ministry of Emergency Management and the Ministry of Education's Institute of Disaster Reduction and Emergency Management, where they won the second prize in the competition. 2024.05.
- Guided students paper "Rice Cold Damage Risk Assessment Considering Water Temperature in Paddy Field - A Case Study of Northeast China" was awarded the second prize of high quality paper after consideration by experts at the 2024 Annual • Conference of Agricultural Disaster Prevention and Specialized Mitigation Committee of China Agricultural Green Development Research Association. 2024.12.20.
- Guided students presented an academic report titled "Vulnerability Assessment of Rice Composite Cold Stress Based on Paddy Field Energy Balance Model and Copula," which was recognized as an Outstanding Presentation at the 2024 Annual Conference of the Natural Disaster Risk and Comprehensive Disaster Reduction Professional Committee of the Chinese Geographical Society.
 2024.10.
- Guided students Participated in the 2024 CFEWS-100K CLIMA, Institute of Agriculture, the University

of Tennessee. Report title: Study on fine risk assessment and early warning of maize high wind lodging disaster in Jilin Province. 2024.04.09.

- Guided students to participate in the China International Student Innovation Competition in Jilin Province to win the bronze medal in the main track of high education. 2024.10.08.
- Guiding students to participate in the 11th Jilin Innovation and Entrepreneurship Competition and winning the excellent project award. 2024.07.
- Northeast Normal University 2024 College of the Environment "Toda Cup" Environment Award: Emerging Entrepreneurship Award. 2024.12.116.
- Participated in the academic annual meeting of natural disaster risk and comprehensive disaster reduction committee of Geographical Society of China in 2024.09.27.
- Participated in the 2024 Annual Meeting of Agricultural Disaster Prevention and Mitigation Committee of China Agricultural Green Development Research Association.2024.12.14.
- Participated in the eleventh annual conference of the Risk Analysis Professional Committee of the China Disaster Prevention Association. 2024.11.16.



Second Prize in the 12th "A·Dream Cup" National Graduate Academic Competition on Disaster



Outstanding Presentation at the 2024 Annual Conference of the Natural Disaster Risk and Comprehensive Disaster Reduction Professional Committee of the Chinese Geographical Society



Institute for Disaster Management and Reconstruction, Sichuan University (SCU) China

http://www.idmr.scu.edu.cn/index.htm



IDMR Students field trip at Tangkuban Perahu Volcano, Indonesia, July, 2024

The Institute for Disaster Management and Reconstruction (IDMR) made considerable progress in 2024, in terms of innovations in education programs, research development, infrastructure development, social service, and our continued commitment to activities promoting international collaboration as enumerated below:

IDMR carries on innovations in education programs from interdisciplinary and international perspective. As such, a new undergraduate micro major was launched, and it is entitled International Disaster Reduction and Smart Emergency Response, a pioneering program at Sichuan University (SCU). The inaugural cohort of this program comprises 26 students hailing from 14 different schools of Sichuan University schools. The program entails six courses, including International Organizations' Strategies for Disaster Reduction and Smart Emergency Response, taught over a two-year. Upon completing successfully the program, students will be awarded a certificate by Sichuan University. During the SCU University Immersion Program (UIP), IDMR invited professors from University College London, Kyoto University, Indian Institutes of Technology University and Bandung Institute of Technology to offer five different courses in English on disaster prevention, mitigation and management. A total of 154

undergraduate students attended these courses. In addition, two graduate student groups visited Nepal and Indonesia under the umbrella of our regular SCU summer program, entitled the "Belt and Road" Disaster Prevention and Mitigation Camp Site. Through this program, students had field trips, visited labs, and conducted community surveys, on top of learning the history, culture, and disaster relief experiences of different countries. As a result, the program was awarded a university level distinguished group award in 2024.

> Prof. Di Baofen Director E-mail: dibaofenc



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- For research, IDMR is actively engaged in undertaking quality and impactful research projects. Among others, we are glad to highlight our intergovernmental research project with the University of California, Davis that focuses on intelligent prevention and mitigation strategies for earthquake-induced colluvial materials transportation and lake siltation at Jiuzhaigou World Heritage Site. This research project will study the characteristics and instability of mechanisms earthquake-damaged provenances, develop new methods for dynamic assessment of provenance transport, and clarify the impact of provenance transport on lake sedimentation in typical areas. Furthermore, project advances countermeasures of green siltation reduction of lake water, to guide the evaluation of material source transport, environmental landscape protection and green sustainable development of heritage or tourism sites.
- As for international collaborations, **IDMR** continues to expand its international engagements in related to the field of disaster risk reduction (DRR). In this case, IDMR signed the MoU with the National Unit for Disaster Risk Management of Colombia (UNGRD) and Yokohama National University. In addition, IDMR has been instrumental in hosting international including the "Environmentconferences, Archaeology-Disaster" academic seminar in November 2024. This seminar focused on the theme of exploring the relationship between Geoscience Archaeology, human settlement environment and natural disasters, especially amidst the evolution of the human-land relationships from the perspective of multidimensional understanding of disasters by using interdisciplinary theories and methods.



Field survey of the Hanyuan Landslides, Sichuan Province, July 2024



Field survey of the Kangding Landslides, Sichuan Province, August 2024



IMDR Students at ICIMOD Mountain Life Laboratory, Nepal, July 2024.

- Regarding research infrastructure, IDMR always endeavors to provide its faculties and students with a conducive environment, in particular, to engage in teaching, conducting research and learning. For example, a new building (Block B) was donated to IDMR by the Hong Kong Jockey Club. It was officially opened by its CEO in November 2024 following his visit whereby he commended IDMR highly as "an example that can be shared globally," has greatly improved the institute's research activities, especially in providing first-class hardware used by teachers and students in undertaking their research.
- Also, IDMR is dedicated to providing different social services across Sichuan Province on DRR. Worth noting, the IDMR faculty team was part of the responders to major disasters such as

the Hanyuan Landslides in July 20th, 2024 and Kangding Landslides in 3rd Aug, 2024. IDMR provided professional advice for post-disaster reconstruction and prevention of future similar disasters. In addition, on several occasions, IDMR faculties have been invited to participate in the investigation of the application of risk census results organized by the Sichuan Emergency Management Department. The findings were commissioned by the Ya'an Emergency Management Bureau, which is responsible for updating and verifying Ya'an's natural census data. disaster risk

Last but not least, various academic conferences have been organized mainly to promote the exchange of knowledge, skills, views and experience among different participants related to DRR. For example, on May 12th 2024 IDMR hosted the Expert Conference on Integrated Disaster Risk Reduction Management. The conference that attracted over 100 scholars and officials from different universities and all emergency management departments within the Sichuan Province. The purpose of the conference was to summarize the achievements, as well as the existing problems about the first national comprehensive natural disaster risk census data and how to apply and use their results in practice. During the conference, various speakers shared their views on the national natural disaster comprehensive risk census technology systems, natural disaster data mining and applications, and climate change and effect of human settlement. Moreover, this year (2025) IDMR was successfully awarded the right to host the 2025 Annual Meeting of Natural Disaster Risk and Comprehensive Disaster Reduction Committee of The Geographical Society of China, and will significantly enhance the school's recognition and visibility in the industry.



SCU undergraduate Students participating in the Technology and Disasters course with international professor Ana Maria Cruz during the University Immersion Program

Participants of the Environment-Archaeology-Disaster academic seminar held in Nov 2024



The Expert Conference on Integrated Disaster Risk Reduction Management held in May 2024

South Asia Alliance of Disaster Research Institutes (SAADRI (SAADRI), India

https://www.saadri.net/

1. CURATE Workshop

The workshop titled CURATE (Climate Understanding Rebooting for ArchitecTure Education) was conceived by the Climatology Lab of Department of Architecture and Planning (DAP) at IIT Roorkee in collaboration with the South Asian Alliance of Disaster Research Institutes (SAADRI). The workshop is essentially an opportunity designed to refresh and curate knowledge on the role of climatology in architectural spaces and potentially reshape the syllabus for Climatology-related subjects in undergraduate architecture classes. CURATE intended to explore the pivotal role of climatology in shaping the careers of budding architects, with a focus on the South Asia Region (SAR). Through a series of discussions planned as Sessions, CURATE delve into the applicability of Climatology in architectural practice, evaluate current pedagogical approaches, and identify strategic gap areas for enhancing its impact through deliberations.

The CURATE I: IGNITE was held online on 23rd March, 2024. The discussion was moderated by Prof. (Dr) Mahua Mukherjee, of Department of Architecture and Planning, IIT Roorkee with the panelists (1) Ar. (Dr) Benny Kuriakose - Renowned architect from Chennai specializing in architectural conservation and sustainable designs; (2) Ar. Poonam Shah - Director of Shah Consult International (Nepal) with expertise in engineering, architecture, planning, and management. (3) Prof. (Dr) Gaurav Raheja - Professor and head of the Department of Architecture and Planning, IIT Roorkee, with research interests in human inclusion and environmental studies and (4) Prof. (Dr) Zainab Faruqui Ali - Distinguished architect and academician with expertise in environmental performance and comfort conditions from BRAC University, Dhaka. Prof. Zainab is a SAADRI BoD Member.

CURATE 1 set the stage for collaborative efforts in reshaping architectural education to address the pressing challenges of climate change and sustainability. The Panelists mandated the CURATE to explore further the paths of Sustainability, and Energy Conservation, Building to Urban Science, Responsive to Responsible Architecture, modern construction technology vs traditional one. The CURATE II: Unveiling - Sustainability and architecture was held online on 20th April, 2024. The discussion was moderated by Prof. (Dr) Avlokita Agrawal, of Department of Architecture and Planning, IIT Roorkee with the panelists (1) Dr. Upendra Rajapaksha: Former Head and current Professor at the Department of Architecture, University of Moratuwa, Sri Lanka (2) Dr. Kasthurba A. K: Professor and former head at the National Institute of Technology Calicut. (3) Dr. Ifte Ahmed: Associate Professor at the School of Architecture and Built Environment, University of Newcastle, Australia. (4) Ar. Prabal S Thapa: Principal Architect at Prabal Thapa Architects in Kathmandu, Nepal. And (5) Ar. Ankit Bhalla: Manager-Technical at GRIHA Council, TERI, with expertise in energy efficient design and sustainability. Professor Ifte Ahmed from Australia is a SAADRI Mermber.

CURATE II gained valuable insights into the conceptual foundations of sustainability, the integration of sustainable principles into architectural practice, and the challenges and opportunities in driving the transition towards a more sustainable built environment. The session underscored the critical role of education, research, and policy in promoting sustainability, highlighting the need for holistic approaches that consider environmental, social, and economic factors.

Prof. Mahua Mukherjee Secretary-General



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2. Article Publication

The article titled "The status and prospect on naturebased solution in South Asia: A policy-based analysis" authored by Shobha Poudel, Deepthi Wickramasinghe, Mahua Mukherjee, Imon Chowdhooree, Chimi Chimi, Bhogendra Mishra, Kumar Abhinay, Sudip Mitra, and Rajib Shaw was Published in PLOS Climate on March 4, 2024 (https://doi.org/10.1371/journal.pclm.0000289). This was a combined effort of the SAADRI members from 5 South Asian countries. The published article explores the potential of nature-based solutions (NbS) as a means of addressing these challenges through the integration of green, blue, and grey infrastructure. The analysis evaluates the significance of NbS and examines policies and regional cooperation in Bangladesh, Bhutan, India, Nepal, and Sri Lanka, highlighting the importance of incorporating NbS into national policies and promoting collaboration among these countries.

3. School Safety Program, 11 May, 2024

School safety Program was organized on 11 May, 2024, where around 70 students from class 6-9 participated. The main focus of the program was to make the students aware about hazard, vulnerability and risk. They were also made aware of the targets and priorities of SFDRR. Special lectures cum interactive sessions on relevant topics like heat wave, water management and fire safety were delivered. The students were also

trained for the rescue methods by the fire safety department of IIT Roorkee. The event also included hands-on fire training, where students were made aware and given a chance to use different types of fire extinguishers and other fire-fighting tools.

4. Participation of SAADRI at ICASECW24 Conference, 11 -13 June

The International Conference on Applied Science and Engineering in Changing World (ICASECW-24) was held at Pokhara Grande, organized by the School of Engineering, Pokhara University, under the leadership of Prof. Binay K Mishra, Pokhara University (SAADRI Member). The SADRRI in collaboration with the International Center for Applied Science (ICAS), the National Society for Earthquake Technology (NSET), Earthquake Safety Solutions (ESS), the Universal Engineering and Science College (UESC) played a pivotal role in the conference by participating as session chairs and co-chairs across multiple sessions. By steering critical discussions on sustainability, disaster risk management, and climate resilience, among other key topics the Members could initiate a lot of interactive connections. Two special technical sessions were introduced with facilitation of papers from SAADRI Members under the leadership of Prof Amod Dixit, along with facilitation of papers from APN project members.





School Safety Program

4.1 Special Meeting of SAADRI Board Members and Specialists on SAADRI: A special meeting was set up on the last day of the conference. The discussion highlighted SAADRI's ongoing projects, including the implementation of advanced early warning systems, the promotion of resilient urban infrastructure, and the integration of climate adaptation into disaster risk frameworks. Moreover, the session highlighted the importance of SAADRI's membership framework, which allows institutions and individuals engaged in disaster research to join the alliance. Professor Amod Dixit took leadership and facilitated the discussions.

SAADRI Young Professionals Platform 4.2 meeting: The formation of Nepal Chapter of the SAADRI Young Professionals Platform was announced, marking a significant step toward engaging emerging talents in the field of disaster risk reduction and climate resilience. By bringing together these potential young scientists, the group aims to foster collaboration, knowledge exchange, and innovation among the next generation of leaders in disaster management. This ensures a diverse and dynamic group, capable of addressing the unique challenges faced by the South Asian region. Through mentorship, collaborative projects, and active participation in SAADRI's ongoing initiatives, this group will play a crucial role in driving forward the region's disaster risk reduction and climate resilience agenda.

5. Participation at APSTCDRR 2024, 11-13 July

The 5th Asia Pacific Science Technology Conference for DRR (APSTCDRR, 2024) was hosted by IIT Roorkee from 11 July to 13 July 2024. The Conference was in hybrid mode and was attended by close to 200 participants. The event was chaired by APSTAAG Co-Chairs, Mr. Marco Toscano-Rivalta and Prof. Rajib Shaw.

The Event was a success and was supported by UNDRR, CDRI and SAADRI. There were four Technical Sessions and two DRR Innovation Pitch. The focus of the technical sessions and Panel discussions were on understanding the role of the early warning systems in DRR. In this context, related issues, challenges and prospects were presented and deliberated by the invited speakers. The conference saw the release of the UNDRR APSTAG Status Report 2024 and the Roorkee Declaration to be further tabled and discussed in the APMCDRR 2024.

5.1 SAADRI preconference event

Preconference event, Brainstorming on challenges and opportunities of mainstreaming Research and Innovations for Climate and Disaster Resilience (DRR and DRI). The session explored the challenges of mainstreaming innovations in Disaster Risk Reduction (DRR) and Disaster Resilience Initiatives (DRI). It examined how governments, organizations, and research institutions can contribute to this process by fostering collaboration and promoting knowledge sharing. Additionally, the discussion identified the priority actions that the Coalition for Disaster Resilient Infrastructure (CDRI) can take to support the ecosystem of innovations for DRI.

5.2 Launch of the translated Children's book on SFDRR

The SFDRR for Children Book was officially launched during the APSTCDRR Conference.

6. APSTCDRR Report

The UNDRR and AP-STAG (2024). Status of Science and Technology in Disaster Risk Reduction in Asia Pacific. Bangkok: UNDRR, report was developed by the UNDRR's Asia Pacific Scientific and Technology Advisory Group (AP-STAG), with contributions from the session co-chairs of the Asia Pacific Science Technology Conference on Disaster Risk Reduction (APSTCDRR) 2024, and scientists and researchers in the Asia Pacific region.

https://apstcdrr2024.net/wp-content/uploads/2024/07/ Final-Report.pdf

It is based on a comprehensive review and qualitative survey, which examine the application of science and technology to disaster risk reduction, specifically to the four Priorities for Action of the Sendai Framework for Disaster Risk Reduction. The report is comprised of two parts: Part 1 presents a regional, survey-based analysis of the progress made with regard to the Science and Technology Roadmap for Disaster Risk Reduction.

Part 2 includes a regional status review of six selected themes, including: (a) Early Warnings for All (b) Localization, inclusion and governance: role of Science, Technology and Innovation (c) Linking EWS and localization (d) Cities and resilient infrastructure in changing climate (e) Innovation and entrepreneurship for disaster risk and climate resilience (6) Advancing innovation in disaster risk reduction (f) Role of youth and innovation as means to advance science and technology in disaster risk reduction These seven sections correspond to six sessions of the 5th Asia Pacific Science Technology Conference on Disaster Risk Reduction (APSTCDRR), which was held in Indian Institute of Technology (IIT) Roorkee in July 2024.

The third section is the theme linking EWS (early warning system) localization.

cross-cutting

and

7. GeoHack 24: From Geodata to Solution, 19-20 July, 2024

GeoHack 24, organized by IIIT Bhubaneswar in collaboration with IEEE GRSS Kolkata Chapter and South Asia Alliance of Disaster Research Institutes (SAADRI), took place on July 19-20, 2024, as the second event of the GeoHack series. The event commenced with a panel discussion titled "Data 2 Decision," where panelists discussed the significance of data in disaster management decision making and the pros and cons of current policies for enhancing community resilience at a regional as well as global scale. Following the discussion, the GeoHack 24 competition began with ten finalist teams from India, France, Sri Lanka, Zambia, and the Philippines, who showcased their expertise in geospatial data analysis and AI to address real-world challenges. The competition featured innovative solutions like a forest fire alert system, spectral index development using optical and SAR sensors, a drought assessment dashboard, and identifying suitable locations for small hydro powers. The GeoHack 24 hackathon concluded on a high note, bringing together young minds who worked over a period of only a month to develop innovative solutions and further excelled in them. Our members Dr Surajit Ghosh and Ms Anuva attended the same.

8. Participation in Workshop and Hackathon on MultiHazard Risk Modelling, organized by ICIMOD, Kathmandu, Nepal, 23-27 September

The student members of SAADRI, Kumar Abhinay (Ph.D. Scholar, Department of Architecture and Planning and Lead Coordinator, SAADRI-YPP) and Shalu Mathuria (Ph.D. Scholar, CoEDMM) participated in the Regional Workshop on Integrating Modelling, Visualization, and Regional Collaboration for Multi-Hazard Risks in the Hindu Kush Himalaya, organized during September 23-27, 2024, at ICIMOD headquarters, Kathmandu, Nepal.

The workshop and the hackathon was also attended by the participants from HKH region, Nepal, Bhutan, India, Pakistan, China, and Bangladesh. The two SAADRI members teamed up with 2 scholars from Nepal, Bhishma Joshi and Puja Maharjan, and mentors from ICIMOD, Mr. Bipin Dulal and Mr. Sudan Bikas Maharjan and participated in the hackathon on compounding and cascading risk modelling. They went on a field visit in the Melamchi River, which witnessed severe floods and landslide in year 2021.

Based on their experience and learning from the field visit, they designed their research methodology framework to study the compounding and cascading effect of heavy rainfall-induced flood, leading to landslide in downstream for a trans-boundary case in Darchula (Nepal) and Dharchula (India) region.

The team went onto win the hackathon and will be further working on the same research idea till it's completion by March/April 2025, with the guidance and financial support of USD 8000 from ICIMOD.

9. Participation in APMCDRR 2024 Conference, 14 to 18 October, 2024

The 2024 Asia Pacific Ministerial Conference on Disaster Risk Reduction was hosted by the Government of Philippines in Manila. The theme of the conference was "Surge to 2030: Enhancing ambition in Asia-Pacific to accelerate disaster risk reduction". Members from SAADRI participated in the event. Dr. Subir Sen from IIT Roorkee was among the panelist in the session "Regional EW4AII MSF: Risk Knowledge for Early Warning, Early Action" organized by United Nations Office for Disaster Risk Reduction (UNDRR).

10. Participation of SAADRI YPP members in the 2024 International Training Workshop (2024 ITW) by NCDR, Taiwan, 28 October – 02 November, 2024

The student members of SAADRI, Amarnath Sharma and Akshay Ajith attended the 2024 International Training Workshop on Smart Technology and Earthquake Risk Management, held in Taipei, Taiwan, co-organized by the National Science and Technology Center for Disaster Reduction (NCDR) and the New Taipei City Fire Department. The workshop highlighted the roles and responsibilities of disaster preparedness and response organizations. SAADRI BoD Member, Dr Weisen Li was one of the organizing Members and the pivotal resource person.

The focus of the workshop was to share knowledge on seismic science and technology, explore intelligent information platforms and tools, and attend invited talks on case studies from recent catastrophic earthquakes. Participants were divided into teams to engage in hands-on exercises at the Emergency Response Command Academy (ERCA), aimed at improving collaboration and learning in earthquake and fire hazard response. A highlight of the event was a tour of Taipei 101, which showcased seismic resilience technologies, including a tuned mass damper that reduces building sway by 40%.

11. ARCHxTalk at IIT Roorkee, 12 November

SAADRI in collaboration with Dept. of Architecture and Planning, IIT Roorkee organized a lecture on 12th of November 2024. Professor Hiroto Kobayashi and Professor Hiromi from India Japan Laboratory, Keio University delivered the lectures.



Figure 1 CURATE Workshop I & II



The status and prospect on nature-based solution in South Asia: A policy-based analysis

Shobha Poudelo¹*, Deepthi Wickramasinghe², Mahua Mukherjeeo³, Imon Chowdhooreeo⁴, Chimi Chimio⁵, Bhogendra Mishrao⁶, Kumar Abhinayo⁷, Sudip Mitrao⁸, Rajib Shawo⁹

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Abstract

OPEN ACCESS

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South Asian countries face a disproportionate impact from disasters due to their unique topography, poverty, low literacy rates, and socio-economic status. Human activities, such as unplanned urbanization and poorly designed rural road networks, have further contributed to disasters in the region. The article explores the potential of nature-based solutions (NbS) as a means of addressing these challenges through the integration of green, blue, and grey infrastructure. The analysis evaluates the significance of NbS and examines policies and regional cooperation in Bangladesh, Bhutan, India, Nepal, and Sri Lanka, highlight-

Figure 4 ICASECW24 Conference, Nepal, 11 -13 June, 2024

Figure 2 Article publication in PLOS Climate



Figure 5 Participation in APSTCDRR 2024, IIT Roorkee, 11-13 July, 2024





Figure 6 Participation in Workshop and Hackathon by ICIMOD, Kathmandu, 23-27 Sept, 2024



Figure 7 Participation in APMCDRR 2024 Conference, Philippines, 14 to 18 October, 2024



Figure 7 Participation at 2024 ITW, NCDR-Taiwan, 28 October - 02 November, 2024



Figure 8 ARCHxTalk at IIT Roorkee, 12 November, 2024

Israel National Knowledge and Research Centre for Emergency Readiness University of Haifa, Israel

http://muchanut.haifa.ac.il



The National Knowledge and Research Center for Emergency Preparedness was established in January 2018 with 90 researchers divided among 8 disciplinary research teams: Law; Public Policy; Social Science; Public Health and Emergency Medicine; Welfare and Social Work; Engineering, Technology and Planning; Risk Assessment and Management; and Environment.

The research at the Center in 2024 focused on continued research on:

- <u>Regulatory and Policy Frameworks for a Mid</u> and Long-term <u>Recovery after a Major</u> <u>Earthquake</u>, as well as other major disasters, such as the war in Israel with Hamas in Gaza and Hezbollah in Lebanon
- Resilience and Spatial Development Indicators for Israeli local authorities

Following October 7th Hammas attack on Israel from Gaza, the Center was involved in a few more research projects:

- Impacts of the October 7th events and the evolving war on wellbeing in Israel
- <u>The Dynamics of Social Capital and the</u> <u>Recovery of communities in Israel near Gaza: A</u> <u>Formative Evaluation</u> (with grant received from Israel Science Foundation)

 Continued cooperation with Shmuel Neeman institute at the Technion in forming policy papers, such as <u>Protecting Democracy as an</u> <u>Essential Infrastructure in Times of Emergency.</u>

The Center holds weekly seminar talks (most are in Hebrew), all are streamlined on Facebook, recorded and uploaded to YouTube.

A full list of the talks is available on our website here: <u>https://muchanut.haifa.ac.il/index.php/en/</u> events







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Institute for Environment and Development (LESTARI-UKM)

University of Kabangsaan Malaysia, Malaysia

https://www.ukm.my/lestari/en/



Screenshot for the LESTARI's Corporate video

Screenshot for the journal article written by LESTARI's academic

Journey of a university research institute: transition from multi-disciplinary to inter-disciplinary research in supporting sustainable development goals (SDGS)

International Journal of Sustainability in **Higher Education**

1351

Received 7 January 2024 Revised 20 February 2024 Accepted 7 July 2024

Goh Choo Ta, Sharina Abdul Halim, Mohamad Mahathir Amir Sultan, Wan Daraputri Razali, Mazlin Mokhtar and Ibrahim Komoo Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia, Bangi, Malaysia

In this 2024 report, the Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia (UKM) reports selected activities, as below:

(A) LESTARI's Corporate video

LESTARI was celebrating 30th anniversary on 1 Oct 2024. In conjunction with the celebration, LESTARI has established video corporate that promote research activities conducted by LESTARI. In the video corporate, we has explained the background of LESTARI, as well as introducing 4 research centers under LESTARI, post-graduate programmes and significant research activities that were conducted by LESTARI. The video corporate can be accessed via URL below:

https://www.youtube.com/watch?v=Kn7q2wJK7pM

(B) Journal

In conjunction with 30 years of the establishment of LESTARI, a dedicate group of researchers in LESTARI has analysed the research trend in LESTARI for the past 30 years, and how LESTARI has moved from multi-disciplinary research to inter-disciplinary research. The research analysis was published in a journal article entitled 'Journey of a University Research Institute: Transition from Multidisciplinary to Inter-disciplinary Research in supporting Sustainable Development Goals'. This article is published in the International Journal of Sustainability in Higher Education. The article can be accessed via the Emerald website, as below:

https://www.emerald.com/insight/content/doi/10.1108/ ijshe-01-2024-0009/full/html



Prof. Dr. Goh Choo Ta Director E-mail: gohchoota@ukm.edu.my GADRI Annual Report — Asia



Southeast Asia Disaster Prevention Research Initiative (SEADPRI)

University of Kabangsaan Malaysia, Malaysia

https://www.ukm.my/seadpri



Honorable Minister of Natural Resources and Environmental Sustainability YB Nik Nazmi Nik Ahmad presenting a token of appreciation to Professor Sir Jim Skea, Chair of the IPCC, during the outreach event.

SEADPRI-UKM, in collaboration with the British High Commission in Kuala Lumpur and the Ministry of Natural Resources and Environmental Sustainability (NRES), hosted a one-day outreach event on climate science and policy on 14th December 2024 The event follows the IPCC Seventh Assessment Report (AR7) Scoping Meeting held in Kuala Lumpur from 9th to 13th December 2024. The meeting brought together global climate experts, including the IPCC Bureau, chaired by Professor Sir Jim Skea, a renowned expert in sustainable energy from the UK. The outreach event aimed to strengthen the science-policy interface by highlighting recent advancements in climate science and policy, emphasizing leadership by Malaysia and the UK. It also seeks to inspire and engage Malaysian scientists, particularly early career researchers, to actively participate in the IPCC process, contributing to global climate action. The event fostered collaboration between Malaysia and the UK, reinforcing bilateral ties through joint initiatives to address climate change.

Universiti Kebangsaan Malaysia's Southeast Asia Disaster Prevention Research Initiative (SEADPRI-UKM) has been in operation since June 2008. Based at the Institute for Environment and Development, the Centre addresses crucial challenges on disaster risk reduction in Malaysia and the region. The research focus is on climatic hazards, geological hazards and technological hazards, with emphasis on capacity building, mainly through post-graduate programmes and specialized training. Transdisciplinary research conducted by the Centre is action-oriented, bridges the science-governance interface and provides pathways for disaster prevention.



Dr. Nurfashareena Muhamad Head; and Research Fellow E-mail: seadpn@ukm.edu.my In 2016, SEADPRI-UKM was acknowledged by the Integrated Research on Disaster Risk Programme (IRDR), jointly sponsored by International Science Council (ISC) and the United Nations Office for Disaster Risk Reduction (UNDRR), as an IRDR International Centre of

Excellence (ICoE) for Disaster Risk and Climate Extremes (ICoE-SEADPRI-UKM). Globally, SEADPRI -UKM now sits with a group of 16 institutions with similar recognition, representing various regions. The focus of ICoE-SEADPRI-UKM is to strengthen local input for addressing regional disaster risks in conjunction with national and international partners. A major flagship is the Asian Network on Climate Science and Technology (ANCST), coordinated by SEADPRI-UKM and funded by the Cambridge Malaysian Education and Development Trust, to link disaster risk reduction and climate change for building resilience in the region.

SEADPRI-UKM is a Cooperating Organization and Advisory Group Member to Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP), intergovernmental organisation that facilitates and coordinates the implementation of geoscience programmes.

In partnership with U-INSPIRE Malaysia and Young Earth Scientists (YES) Network (Malaysian Chapter). The U-INSPIRE Malaysia was launched and joins the U-INSPIRE Alliance which includes, among others, chapters from Indonesia, Philippines, Nepal, India and Pakistan. U-INSPIRE is a youth and young professionals' platform in Science, Engineering, Technology and Innovation (SETI) to accelerate the implementation of disaster risk reduction (DRR) in line with the Sendai Framework to support DRR policies and action at the local, national and international level. U-INSPIRE Malaysia platform will bring together motivated, ambitious, and committed youth and young professionals in DRR and climate change, especially in empowering the science-policy interface.

Our activities are published biennially in the newsletter Buletin SEADPRI. It contains articles on a regional and national scale in holistic and integrated approach in disaster risk reduction (science, technology, innovation, impact, vulnerability and governance) to reduce risk of climatic hazards, geological hazards and

technological hazards. Available at <u>https://</u> www.ukm.my/seadpri/? page id=1471

Key research projects completed include the following:-

• Development of the National Disaster Risk

Reduction Policy 2030 for Malaysia - <u>https://</u> www.nadma.gov.my/bi/media-en/news/1351-dasarpengurangan-risiko-bencana-negara-2030-rujukanutama-nadma

 Development of the Selangor State's Climate Change Policy - <u>https://lestariselangor.com/en/</u> <u>selangor-state-climate-change-policy/</u>

• The Disaster Risk Reduction Education Module for the Ministry of Education Malaysia in collaboration with UNICEF - <u>https://fb.watch/xg9KDHq3k6/</u>

• Symposium: Bridging Climate Science & Policy to Accelerate Climate Action, British High Commission Outreach Event - <u>https://www.facebook.com/share/</u> p/1D4jUyJ8B1/

• The Kuala Lumpur Multi-hazard Platform (KL-MHP) for Project on Disaster Resilience Cities, a visual decision-making theatre that displays the modelled products of geophysical and atmospheric hazards driven by meteorological forecasts, to graphically communicate risk <u>http://ancst.org/nuof/</u>

• MyBahaya Application for Building Community Resilience for Project IDRC Social Entrepreneurship in DRR - <u>http://ancst.org/idrc/</u>

• Regional Workshop on Youth Innovation in Disaster Prevention and Climate Science - <u>http://</u>ancst.org/regional-workshop-on-youth-innovation-indisaster-prevention-and-climate-science/

Geoscience Communication for DRR: Sharing of
Best Practices - <u>http://ancst.org/geoscience-</u>
<u>communication-for-drr-sharing-of-best-practices-</u>
<u>calling-for-participants/</u>

 Climate Change 2022: Risks, Adaptation and Mitigation Implications and Way Forward - <u>http://</u> <u>ancst.org/climate-change-2022-risks-adaptation-and-</u> <u>mitigation-implications-and-way-forward/</u>

• Training of Trainers: Social Entrepreneurship for Disaster Risk Reduction in Cambodia - http:// ancst.org/training-of-trainers-social-entrepreneurshipfor-disaster-risk-reduction-in-cambodia-10-august-2021/

Knowledge Partners for the The 1st ASEAN
Disaster Resilience Forum (ADRF) - <u>https://</u>
www.bangkokpost.com/opinion/opinion/2631579/
asean-to-boost-disaster-resilience

 Climate Change Impact and Adaptation (CCIA) for Water Sector Transformation 2040 - <u>https://</u> wst2040.my/wp-content/uploads/2022/06/FINAL-WST-2040-vol-7.pdf

 Post COP 27 Dialogue - Science, Technology and Innovation to boost climate ambition - <u>http://</u> <u>ancst.org/post-cop-27-dialogue-science-technology-</u> <u>and-innovation-to-boost-climate-ambition/</u>

 APEC Disaster Risk Management Strategies to Support MSMEs Business Sustainability - <u>https://</u> <u>www.apec.org/docs/default-source/</u> <u>publications/2022/1/apec-disaster-risk-management-</u> <u>strategies-to-support-msmes-business-</u> <u>sustainability/222_epwg_disaster-risk-management-</u> <u>strategies-to-support-msmes-business-</u> <u>sustainability.pdf</u>

 ASEAN Mapping Exercise to Promote Synergy with Other Relevant ASEAN Sectoral Bodies, and Entities Associated with ASEAN on Disaster Management - <u>https://aces.org.sg/wp-content/</u> <u>pdf/2021/444_2021-A4_Single%20Page%</u> <u>20Version_ASEAN%20Mapping%</u> <u>20Exercise_FINAL_HIGH-RES.pdf</u>

• Webinar on Disaster Risk in the Era of Climate Change - <u>https://www.instagram.com/</u> <u>nadma_malaysia/p/CVAEzpoJms4/</u>

• Virtual 2020 Asia Pacific Science and Technology Conference for Disaster Risk Reduction - <u>https://</u> www.ukm.my/apstcdrr/

 Malaysian Youth Delegation Virtual Training Series No. 1-4 - <u>http://ancst.org/virtual-training-series-</u> <u>climate-finance/</u>

 2nd National Conference on Science, Technology and Innovation for Disaster Risk Reduction - <u>http://</u> <u>ancst.org/1958-2/</u>

• The launch of U-INSPIRE Malaysia@UKM - https://www.ukm.my/uinspiremalaysia/?p=105

 Workshop on Status of Climate Science and Technology in Asia - <u>http://ancst.org/download/</u> workshop-on-status-of-climate-science-andtechnology-in-asia-slides/

• Regional Science-Policy Dialogue on Science, Technology and Innovation for Bridging Disaster Risk Reduction and Climate Change Adaptation - <u>http://</u><u>ancst.org/regional-science-policy-dialogue-on-sti-for-</u><u>bridging-drr-and-cca/</u>

• Research Centre of Eco-Environmental Sciences of the Chinese Academy of Sciences - Chemical hazards risk management and disaster prevention Effectiveness of Risk Insurance for Disaster Risk Reduction and Climate Change Adaptation" funded by IGES-Japan - <u>https://www.jstor.org/stable/pdf/</u> resrep00848.11.pdf

• Rockefeller Foundation and the Asia Pacific Adaptation Network (APAN) programs - <u>https://</u><u>www.ukm.my/seadpri/wp-content/uploads/2011/09/</u> seadpri-buletin-newsletter-11.pdf

- Launch of the Malaysia Window to Cambridge at UKM (MW2C@UKM), 2017 -<u>http://ancst.org/launching-ceremony-of-</u> <u>malaysia-window-to-cambridgeukm/</u>
- 2014 Big Flood Forensic Study for East Cost of Peninsular Malaysia

• DPRI-Kyoto University - 2008- 2010: JSPS Programme, 2008 – 2014: Joint research and postgraduate student research sites for large-scale landslide in Sabah & earthquake-triggered landslides in Padang, Indonesia.

• Policy and Planning Responses for Earthquake and Tsunami Hazards in Malaysia, a policy guidance report to government of Malaysia on Policy and Planning responses for earthquake & tsunami hazards, engaged by Academy of Science Malaysia.

• Local Partner for the 3rd Asian Ministerial Conference on Disaster Risk Reduction in Dec 2008 https://www.preventionweb.net/

files/3089_3089FirstAnnouncementAsianMinisterialC onference.pdf

On-going research projects in SEADPRI-UKM include the following:-

- The implementation and advancement phase of the National Disaster Risk Reduction Policy 2030 (2025)
- The implementation and advancement phase of State's Climate Change Policy (2025)
- The implementation phase of proof concept of the Disaster Risk Reduction Education Module for the Ministry of Education Malaysia for youth and young professionals (2024-2025)
- National Risk Assessment of Man-Made (Industrial) Disasters (2024-2025)
- Sustainability Project of Carbon Footprint Assessment for Green Campus (2024-2025)


National Science and Technology Center for Disaster Reduction (NCDR), Chinese Taipei https://www.ncdr.nat.gov.tw/



Opening Ceremony of ITW 2024

The 2024 International Training Workshop (2024 ITW) Technology Earthquake on Smart and Risk Management was held in person in Taipei, Taiwan, from October 28 to November 2, 2024.

Since 2005, the National Science and Technology Center for Disaster Reduction (NCDR) has hosted a series of International Training Workshops (ITWs), welcoming over 500 participants from around the world. These participants include national and local officials involved in mitigation and emergency management, planning professionals, representatives of nonprofit and humanitarian organizations, hazard researchers, and disaster response practitioners.

This year, the 2024 ITW aimed to empower participants in seismic risk management through the application of smart technology. The workshop brought together academics, practitioners, and emergency responders interested in smart technology and earthquake emergency management. Participants had the opportunity to share knowledge on seismic science and technology, explore intelligent information platforms and

> tools, and attend invited talks featuring case studies of

> > catastrophic

recent earthquakes.

In collaboration with the Emergency Response Command Academy (ERCA) of New Taipei City, Taiwan, participants actively engaged with emergency response decision support systems and took part in tabletop exercises, fostering collaboration and shared learning. They also utilized virtual reality (VR) equipment to simulate earthquake disaster scenarios, enhancing their hands-on training experience. The tabletop exercises sparked insightful discussions among participants, further enriching their understanding of crisis response strategies.





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The event also featured keynote speeches from esteemed experts, including representatives from:

- The Center for Excellence in Disaster Management and Humanitarian Assistance (USA)
- The National Research Institute for Earth Science and Disaster Resilience (Japan)
- The National Resilience Council (the Philippines)
- The State College of Meteorology, Climatology, and Geophysics (Indonesia)

During the workshop, Typhoon Kong-rey struck Taiwan. For the safety of all participants and staff, the program was suspended for one day. The strong winds and heavy rainfall provided participants from various countries with a firsthand experience of the power of typhoons and the severe threats posed by natural disasters. The 2024 ITW hosted 40 participants from India, Indonesia, Japan, Malaysia, Myanmar, Sri Lanka, the Philippines, Thailand, and Vietnam. One participant from the University of Technology Malaysia was recommended by the Global Alliance of Disaster Research Institutes (GADRI). Since 2016, NCDR and GADRI have collaborated on disaster risk reduction training, strengthening international cooperation in this critical field.

For over a decade, NCDR has been dedicated to international disaster risk reduction training. Moving forward, it remains committed to fostering innovation and science-based technology to enhance all-hazard risk management across Southeast Asia, South Asia, the Pacific Island nations, and beyond.

More Information about the ITWs over the years: <u>https://www.ncdr.nat.gov.tw/Message?</u> itemid=78&mid=95



The earthquake tabletop exercises and group discussions



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Figure 2 ADPC at the 10th World Water Forum 2024, Bali, Indonesia

From January 1 to December 31, 2024, the Asian Disaster Preparedness Center (ADPC) continued to advance disaster preparedness and climate resilience across Asia through a series of impactful projects, highprofile events, and influential publications. The Urban Resilience to Climate Extremes (URCE) project, supported by the Norwegian Agency for Development Cooperation (NORAD), strengthened urban communities in Southeast Asia against climate-induced disasters. By enhancing climate and disaster risk data management, risk communication, and governance structures, URCE helps local governments, academia, civil society, and the private sector bridge the sciencepolicy gap for more resilient cities. Through targeted capacity-building initiatives and multi-stakeholder collaboration, the project promotes evidence-based planning, integrated urban resilience strategies, and scalable solutions that safeguard lives, livelihoods, and critical infrastructure in the face of extreme weather events.

As part of the Climate Adaptation and Resilience (CARE) for South Asia project supported by the World Bank, ADPC delivers targeted training interventions to

bolster climate resilience. These sessions focus on climate change adaptation in critical sectors such as water, transport, agriculture, and public finance. By equipping policymakers, practitioners, and other stakeholders with risk-informed decision-making tools and knowledge, ADPC's capacity-building initiatives enhance institutional preparedness, encourage climate-smart policies, and support sustainable scaling.

SERVIR Southeast Asia is a collaborative initiative led by ADPC, in partnership with international organizations, leverage satellite-based to Earth observation data and geospatial analytics for enhanced disaster risk management and climate resilience. In 2024, SERVIR Southeast Asia advanced its mission by deploying state-of-the-art satellite monitoring systems to boost early warning capabilities and by conducting capacity-building workshops that equipped local officials with critical skills in using remote sensing data. The project also launched a new online portal offering real-time climate and environmental data, empowering governments and communities to make timely, riskinformed decisions. These efforts have played a key role in improving regional preparedness and adaptive capacity in the face of escalating climate challenges.



E-mail: bill@adpc.net

The **Strengthening National Adaptation Plans (SNAP)** project is an ADPC initiative designed to help countries integrate climate adaptation measures into their national development frameworks. Drawing on robust risk assessments and multi-stakeholder collaboration, SNAP supports policymakers in refining strategies, mobilizing resources, and building institutional capacities to address climate vulnerabilities. By fostering evidencebased policymaking and inclusive engagement, the project ensures that adaptation actions are sustainable, climate-responsive, and effectively integrated into broader development planning.

In 2024, ADPC's training activities have been dynamic and expansive, designed to build robust disaster resilience and climate adaptation capacities across the region. The ADPC Academy has delivered a diverse range of courses—from Nature-Based Solutions for Disaster and Climate Resilience and Localizing Disaster Risk Reduction for Anticipatory Action, to Financing for Disaster and Climate Resilience and Climate Data Analysis—using a blend of online, hybrid, and face-toface formats. These courses, some of which include practical field visits and hands-on exercises in Indonesia, Melbourne, and various locations across Asia, equip policymakers, practitioners, and stakeholders with critical skills in areas such as early warning systems, genderresponsive DRR, urban resilience, and multi-hazard forecasting. By aligning its curriculum with global frameworks like the Sendai Framework and the Paris Agreement, ADPC has successfully enhanced regional capacity for risk-informed decision-making.

These achievements and resources highlight ADPC's dedication to advancing disaster preparedness, climate resilience, and social inclusion across Asia. For additional details on ADPC's 2024 activities, events, and publications, please visit the <u>ADPC News & Events page</u> and the organization's official website at <u>www.adpc.net</u>.



Figure 1 ADPC Strengthening Collaboration with the Department of Disaster Prevention and Mitigation of Thailand



Figure 3 Training on Community-Based Disaster Risk Management and Climate Change Adaptation in Pakistan



Figure 4 Urban Heat Resilience: Bridging Science, Policy, and Sustainable Design - Inception Workshop





Japan and Oceania

Japan	Research Center for Regional Disaster Prevention and Mitigation, Akita University
Japan	Asian Disaster Reduction Center (ADRC)
Japan	Center for Disaster Management Informatics Research, Ehime University
Japan	International Centre for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO
Japan	International Consortium on Landslides (ICL)
Japan	Institute of Education, Research and Regional Cooperation for Crisis Management, Shikoku (IECMS), Kagawa University
Japan	Research and Education Center for Natural Hazards, Kagoshima University
Japan	Institute of Nature and Environmental Technology, Kanazawa University
Japan	Research Center for Social Safety Science, Faculty of Safety Science, Kansai University
Japan	Research and Development Center of Fire and Environmental Safety (RDFES), Center for Disaster Countermeasures (CDC), The University of Kitakyushu
Japan	Research Center for Urban Safety and Security (RCUSS), Kobe University
Japan	Disaster Nursing and Global Nursing section of Fundamental Nursing, Kobe City College of Nursing
Japan	Implementation Research and Education System Center for Reducing Disaster Risk (IRESC), Kumamoto University
Japan	Institute of Disaster Area Revitalization, Regrowth and Governance (IDiARRG), Research Institute for Disaster Area Reconstruction, Kwansei Gakuin University
Japan	Disaster Prevention Research Institute (DPRI), Kyoto University
Japan	Graduate School of Global Environmental Studies (GSGES), Kyoto University
Japan	Disaster Risk Reduction Research Center, Faculty of Engineering, Kyushu University
Japan	Research Institute for Applied Mechanics (RIAM), Kyushu University
Japan	Center of Environmental Science and Disaster Mitigation for Advanced Research (CEDAR), Muroran Institute of Technology
Japan	Advanced Disaster Prevention Engineering Center (ADPEC), Nagoya Institute of Technology
Japan	Disaster Mitigation Research Center (DMRC), Nagoya University
Japan	National Research Institute for Earth Science and Disaster Resilience (NIED)
Japan	Research Institute for Natural Hazards & Disaster Recovery, Niigata University
Japan	Research Initiative for Natural Disaster Prevention of Oil and Gas Spill in Industrial Parks, Graduate School of Engineering, Osaka University
Japan	Graduate School of Human Sciences, Faculty of Human Sciences, Osaka University
Japan	Frontier Research Center for Natural Disaster Mitigation, Ritsumeikan University
Japan	Institute of Disaster Mitigation for Urban Cultural Heritage (R-DMUCH), Ritsumeikan University
Japan	Disaster Prevention Research Center for Island Regions, University of the Ryukyus
Japan	International Research Institute of Disaster Science (IRIDeS), Tohoku University
Japan	Center for Urban Earthquake Engineering (CUEE), Tokyo Institute of Technology
Japan	Earthquake Research Institute (ERI), The University of Tokyo

GADRI Annual Report — Japan



Asian Disaster Reduction Center (ADRC)

Japan

https://www.adrc.asia/



The Asian Conference on Disaster Reduction (ACDR2024) was organized in Hanoi, Vietnam on 12-13 November 2024, hosted by the Vietnam Disaster and Dyke Management Authority (VDDMA), in cooperation with the Cabinet Office, Government of Japan and Asian Disaster Reduction Center (ADRC).

Opening Session

Mr Nguyen Hoang Hiep (Vice Minister of Agriculture and Rural Development, Government of Vietnam), Mr NUKINA Koji (Assistant Vice Minister for Disaster Management, Cabinet Office, Government of Japan) and Prof. HAMADA Masanori (Chairman, ADRC) delivered the opening remarks stressing the important of role of ADRC in reducing disaster risk in Asia, as well as needs of enforcing disaster countermeasures, and impacts and challenges of recent disasters.

Roundtable

Fifteen member countries, namely: Brunei Darussalam, Cambodia, Japan, Republic of Korea, Lao PDR, Malaysia, Mongolia, Myanmar, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam delivered official statements at the roundtable on "Challenges and Progress in Implementing the Actions Related to Resilience to Climate Crisis in the Sendai Framework for Disaster Risk Reduction (SFDRR)," which was moderated by Ms Doan Thi Tuyet Nga (Director of International Cooperation and Science Technology Department, VDDMA).



Senior Researcher E-mail: ys-shiomi@adrc.asia

Dr. Shiomi Yumi

Session 1: Enhancing Flood and Flash Flood Risk Information

Moderated by Prof. MIURA Fusanori (Yamaguchi University, Japan), this session showcased the latest technologies that could help enhance flood and flash flood risk information.

- Associate Prof. Demetrios Eliades (University of Cyprus)
- Prof. SHUMUTA Yoshiharu (Center for Asian Studies, Kanagawa University)
- Prof. MIURA
- Dr Masita Dwi Mandini Manessa (Lecturer, Geography Department, University of Indonesia)
- Mr. Nguyen Xuan Sang (Deputy Director of Agriculture and Rural Development Department, Yen Bai Province, Vietnam)
- Mr. Hoang Minh Tuan (Head of Disaster Management Administration, Irrigation Sub-Department, Agriculture and Rural Development Department, Cao Bang Province, Vietnam)

Session 2: Improving Flood Countermeasures Based on Analyses of Future Risk for Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA)

Moderated by Dr Nguyen Nghia Hung (Deputy Director of Southern Institute for Water Resources Research) The speakers shared principles and approaches in improving flood countermeasures

for DRR-CCA.

- Mr SUZUKI Takashi (Advisor for Disaster Risk Management at VDDMA/ JICA Expert)
- Dr ONO Takahiro (Special Appointed Professor, Tohoku University/ General Manager, Tokio Marine Holdings)
- Mr Junha Kim (Head of Team, Ministry of the Interior and Safety, Republic of Korea)
- Ms Angsumalin Angsusingha (Disaster Management Expert, Disaster Management Center, Thailand)
- Mr Le Anh Dung (Director of Irrigation Sub-Department, Agriculture and Rural Development Department, Ha Giang Province, Vietnam)

Special Session: Disasters and Disaster Management in Vietnam

Moderated by Mr SUZUKI (Advisor for Disaster Risk Management at VDDMA/ JICA Expert). this special session provided an overview of the disasters and disaster management in Vietnam. Highlighting floods, flash floods, and landslides in the context of Typhoon Yagi that impacted several provinces in Vietnam in September 2024, this session showed examples and challenges of disaster management in the areas of preparedness, prevention and mitigation, response, and recovery.

- Mr Nguyen Xuan Tung of VDDMA
- Mr Quan Van Viet from Lao Cai Province
- Mr Luong Khac Kien from Son La Province
- Mr Pham Quoc Hung from Yen Bai Province
- Mr Doan Manh Phuong from Quang Ninh Province
- Dr Nguyen Nghia Hung of the Southern Institute for Water Resource Research
- Mr Ngo Huu Huy of VDDMA
- Ms Dam Thi Hoa of VDDMA

Closing Session

The conference concluded with speeches from Mr Pham Duc Luan (Director-General of the VDDMA, MARD, Vietnam), Mr NUKINA Koji (Assistant Vice Minister for Disaster Management, Cabinet Office, Government of Japan), and Prof. MIURA Fusanori, newly appointed Chairman of ADRC, who mentioned their expectations for ADRC and member countries to further promote DRR taking into account climate change, in addition to the crucial role of ADRC to implement the SFDRR in the remaining five years.

The documents for the conference are available on ACDR2024 website: <u>https://www.adrc.asia/</u> acdr/2024 index.php

[For more activities and details, please visit ADRC's website (https://www.adrc.asia/)

GADRI Annual Report — Japan



Development of a system for the integrated management of water resources and disasters in poorly gauged basins

Near-real-time rainfall data with adequate resolutions are a prerequisite for effective water resource and disaster management. However, in many river basins in the world, near-real-time rainfall data is rarely available due to insufficient ground observation networks. ICHARM is continuously collaborating with JAXA to maximize the near

-real-time freelysatellite precipitation products (SPPs) for effective water resources and disaster management in poorly gauged basins ICHARM is also studying methods for making effective bias corrections of SPPs incorporating ground observation data and for designing optimal ground observation networks.

Fig.1



Prof. Toshio Koike Executive Director E-mail: <u>t-koike@pwri.go.jp</u>

Participation in the 10th World Water Forum

The 10th World Water Forum was held from May 18 to 25, 2024, at the Nusa Dua Convention Center in Bali, Indonesia. The World Water Forum is organized every three years by the World Water Council and the host country (this time, Indonesia). The 10th forum was attended by approximately 64,000 participants from 160 countries. ICHARM organized "Theme 3: Disaster Risk Reduction and Management" of the Thematic Process. Five subthemes were set under this theme: Integrated flood prevention and management; Drought prevention and management; Ecosystem-based DRR in the water sector; Climate-smart, sustainable and improved resilience of water infrastructures; and Early warning systems for all. A total of 22 sessions were conducted for these sub-themes, including synthesis and cross-cutting sessions.

Development of Online Synthesis System for Sustainable Resilience: OSS-SR

OSS-SR has been developed and implemented in Davao City, the Philippines, under the leadership of local agencies and the support of ICHARM. This system is used to disseminate risk information, including real-time flood forecasts, and information about the impacts of climate change. As a result of discussions with local stakeholders regarding the future operation and maintenance of OSS-SR, an OSS-SR subcommittee has been established within the Davao River Basin Management Alliance. Furthermore, the Davao Regional Development Council adopted Resolution No. 42, which defines cooperation with ICHARM in developing OSS-SR and facilitator training

Fig.2

Disaster Management Policy Program awarded the 6th Japan Construction International Award

The Disaster Management Policy Program, implemented by ICHARM in collaboration with JICA and GRIPS, includes the Water-related Disaster Management Course, conducted by ICHARM, and the Seismology Course, the Earthquake Engineering Course, and the Tsunami Disaster Mitigation Course, conducted by the International Institute of Seismology and Earthquake Engineering (IISEE) of the Building Research Institute. Since the start of the program, a total of 503 people from 66 countries worldwide have completed one of the courses. On June 20, 2023, ICHARM, along with GRIPS, JICA, and IISEE, received the Japan Construction International Award (Pioneering Activity Category) for this program from the minister of MLIT. The award recognized the fact that the program has produced so many disaster management experts in developing countries and praised the worldwide recognition that it has earned for its long-term effort to increase expertise in this countries using field in developing Japan's experience and knowledge

Photo 1



Photo 1 Award Ceremony



Fig.2 Resolution No.42 adopted by the Davao Regional Development Council stipulating the cooperation with ICHARM



Institute of Education, Research and Regional Cooperation for Crisis Management, Shikoku (IECMS), Kagawa University, Japan http://www.kagawa-u.ac.jp/iecms_english/



The Shikoku Crisis Management Education, Research, and Regional

Cooperation Promotion Organization at Kagawa University received the "Disaster Prevention and Mitigation Sustainable Grand Prize× Disaster Mitigation Sustainable Award/Grand Prize" (Disaster Mitigation Sustainable Technology Association). Dr. Hidenori Yoshida, Director of the Institute, attended the award ceremony held at Tokyo Big Sight on February 20, received a certificate of commendation and a plaque, and reported the award to the President on February 27.

This award was given in recognition of the education, research, and community contribution activities that the Organization has been engaged in so far, in recognition of its achievements in a comprehensive and objective manner from the perspectives of resilience and sustainability in disaster prevention and mitigation, as well as its contribution to the SDGs.

https://ssmartace.or.jp/grand-prize-2024-results/

achievements in the dissemination of disaster prevention ideas or the development of disaster prevention systems, and who have served as a role model for all people in disaster risk reduction and who are worthy of being honored by the Prime Minister on Disaster Prevention Day.



For seven years, from October 29 to the present, Vice President Hidenori Yoshida has devoted himself to the development and enlightenment of education, research, and regional cooperation related to regional disaster prevention, mitigation, and crisis management as the Director of the Shikoku Crisis Management Education, Research, and Regional Cooperation Promotion Organization. This achievement was highly evaluated and awarded.

https://www.kagawa-u.ac.jp/32086/32108/



 Vice President Hidenori Yoshida received the Prime Minister's Commendation for Disaster Prevention Meritorious Service in the 6th year of Reiwa, and received the award from the Prime Minister on Friday, September 13.

This award is given to those who have made outstanding achievements or achievements in disaster prevention activities in disasters and those who have made outstanding achievements or Prof. Miyoshi Masaki Chief, Planning & Coiordination E-mail: <u>miyoshi.masaki@kagawa-u.ac.jp</u> Ms. Aya Tani E-mail: tani.aya@kagawa-u.ac.jp





Center for Disaster Countermeasures (CDC) The University of Kitakyushu, Japan

http://www.env.kitakyu-u.ac.jp/ja/shoubou/

The Center for Disaster Countermeasures has been actively disseminating knowledge on the environmentally friendly firefighting agent developed by a joint venture of the Kitakyushu City Government, private companies, and the University of Kitakyushu. This natural soap-based firefighting agent enhances the efficiency of firefighting and reduces the amount of water use while minimizing its environmental and ecological impacts. This soap-based firefighting "Miracle Foam" is categorized as a Class A firefighting agent used to deal with fire cases involving ordinary solid combustibles such as paper, wood, cloth, and some plastics. Our center held an online seminar on this firefighting agent on February 1, 2024, and an inperson workshop for firefighting and environmental experts from Indonesia on May 29, 2024.

More than 200 firefighters and experts from 148 fire departments across Japan participated in the February online seminar. The seminar started with introducing the firefighting agent by Shabondama Soap Co., a Kitakyushu-based natural soap company, and followed by an online visit to its factory. Then, an experiment showed the excellent permeability of the water mixed with the firefighting agent. This enhanced permeability enables more water to reach the surface of burning materials to effectively remove the heat of fire, resulting in fast extinguishing of the fire with a smaller amount of water. The Kitakyushu Fire and Disaster Management Bureau firefighters then presented their research results. They tested the impacts of splaying the firefighting agent on agricultural plants, assuming a situation where overflown firefighting agent flows into farmland. Although the plants' growth rate slowed briefly after spraying the firefighting agent, they did not find any noticeable differences in the chemical content and the taste of the plant harvest.

Then, Prof. Uezu Kazuya lectured on the scientific theory of extinguishing fire and how this firefighting agent improved heat removal efficiency. Prof. Kawano Tomonori then gave a lecture from the perspective of a biologist. He defined the criteria for environmentally friendly firefighting agents and explained the difference between natural soap-based and artificially

synthesized firefighting agents. The soapbased firefighting agents quickly lose their poisonous



effects on aquatic small creatures once they are mixed YouTube video of the soap-based firefighting agent seminar on February 1, 2025.

with natural water. Minerals contained in natural water play an important role in removing the adverse impact of soap on the creatures. The video of these lectures is available on YouTube: https://www.youtube.com/ watch?v=gPg5e-A5TJg.

The May seminar, held in the Kitakyushu Science and Research Park, had around 20 participants, including experts from Indonesia. These experts are the Indonesian members of the Shabondama Soap Co.'s project to suppress peat fires in the country using environmentally friendly soap-based firefighting agents. This project is funded by the Japan International Cooperation Agency and aims to significantly reduce greenhouse gas emissions due to peat fires. The participants learned the capabilities and usage of the firefighting agent.



Prof. Takaaki Kato E-mail: tkato@kitakyu-u.ac.jp





Kick-off Meeting of the Research Center for Climate Change Adaptation Strategy (CAStr), Disaster Prevention Research Institute (DPRI), Kyoto University



To commemorate the establishment of the Research Center for Climate Change Adaptation Strategy (CAStr), the Disaster Prevention Research Institute (DPRI), Kyoto University, Japan held a kick-off meeting via zoom on 6 September 2024. The kickoff meeting, introduced and shared results of climate change research conducted at DPRI which mainly focuses on natural disasters. The speakers and the audience actively engaged in discussion and discussed on future developments and pathways. The meeting was attended by 189 participants, far exceeding expectations.

The Research Center for Climate Change Adaptation Strategy (CAStr) was established by the Disaster Prevention Research Institute (DPRI), Kyoto University on 1 July 2024. The Center aims to conduct research on predictions of meteorological and hydrological disasters, which are expected to become more severe in the future due to climate change. The Center will also focus on social adaptation, as well as promote collaborative research by researchers within and outside of the university and share the results with the society.

The kick-off meeting which started at 3 p.m., was followed by greetings by the DPRI Director, Prof. Tomoharu Hori, and Prof. Norihito Tokitoh, Executive Vice-President, Kyoto University. The Opening Remarks were delivered by the Director, Mr. Akira Yamaguchi of the Environment and Energy Division of the Ministry of Education, Culture, Sports, Science and Technology; followed by the greeting of the Director, Mr. Masayoshi Hirose of the Ministry of Land, Infrastructure, Transport and Tourism; and Chief Engineer of the Ministry of Land, Infrastructure, Transport and Tourism; and the Director Mr. Yasuaki Hijioka of the Climate Change Adaptation Center of the National Institute for Environmental Studies.

The opening greetings and remarks were followed by introductory speeches by the members of DPRI, including the CAStr Director Prof. Eiichi Nakakita who introduced the "History of Climate Change Research". Other members of DPRI included Prof. Tetsuya Takemi, President of Meteorological Society of Japan who spoke on "The Future of Climate Change Predictions and Impact" and Prof. Nobuhito Mori on "The Current State of Prediction and Adaptation Strategies for Extreme Disasters". Dean Tachikawa Yasuto of the Graduate School of Engineering and Director Katahira Masato of the Institute of Advanced Energy discussed pathways "Toward Climate Change Research Collaboration at Kyoto University." The discussion session was moderated by Prof. Hirokazu Tatano, Deputy Director, CAStr.

 <u>Research Center for Climate Change Adaptation</u> (CAStr), Disaster Prevention Research Institute, Kyoto University

Source: DPRI, Kyoto

University Home Page





Joint Statement signed in collaboration with the Mexican National Disaster Prevention Center



Signing ceremony (from left: Yasuyuki Kono, Vice-president for international strategy of Kyoto University, Tomoharu Hori, Director of DPRI, Chiaki Kobayashi, Director General of the Japan International Cooperation Agency (JICA) Mexico Office, Enrique Guevara Ortiz, Director General of the National Disaster Prevention Center, and Jose Alfredo Galvan Corona, Director General of the Project Operation in Mexico, Mexican Agency for International Development Cooperation, the Secretary of Foreign Affairs.

The Disaster Prevention Research Institute (DPRI), Kyoto University (hereinafter referred to as "DPRI"), the Mexican National Disaster Prevention Center (hereinafter referred to as CENAPRED), the Secretary of Foreign Affairs through Mexican Agency for International Development Cooperation (hereinafter referred to as AMEXCID) and Japan International Cooperation Agency (JICA) Mexico office held a Joint Statement signing ceremony at CENAPRED on November 28, 2024 (Mexico time).

With the On-Site Laboratory "International Research Laboratory for Earthquake and Tsunami Risk Cognition and Reduction", which was approved by the Kyoto University in September 2024 as a crossbound laboratory established within the National Autonomous University of Mexico and the Disaster Prevention Research Institute of Kyoto University, and the ongoing SATREPS project "Compound Disaster Risk Reduction associated with Large Earthquakes and Tsunamis", the statement aims to utilize the results of international collaborative research between DPRI and Mexico for disaster risk reduction policies in Mexico, and to strengthen the network with government agencies and universities in Mexico. Vice President Yasuyuki Kono (in charge of international strategy) also attended the signing ceremony.

Source: DPRI, Kyoto University Home Page





Opening Ceremony for the On-Site Laboratory "International Research Laboratory for Earthquake and Tsunami Risk Cognition and Reduction" at the National Autonomous University of Mexico



To commemorate the launch of the Kyoto University On-Site Laboratory "International Research Laboratory for Earthquake and Tsunami Risk Cognition and Reduction", an opening ceremony was held at the National Autonomous University of Mexico on November 29th, 2024. The establishment of the On-Site Laboratory was approved by the Kyoto University in September this year, and researchers from both sides will travel back and forth and interact with each other by utilizing the laboratories set up both at the National Autonomous University of Mexico and at the Disaster Prevention Research Institute of Kyoto University.

In addition to the Jose Luis Macias Vazquez, Director of the Instituto of Geophysics and Javier Gomez Castellanos, Investigation Coordinator of the School of Engineering of the National Autonomous University of Mexico, the opening ceremony was attended by Kozo Honsei, Ambassador of Japan to Mexico, Chiaki Kobayashi, Director General of the Japan International Cooperation Agency (JICA) Mexico Office, Enrique Guevara Ortiz, Director General of the National Disaster Prevention Center, and Jose Alfredo Galvan Corona, Director General of the Project Operation in Mexico, Mexican Agency for International Development Cooperation, the Secretary of Foreign Affairs. From Kyoto University,

Yasuyuki Kono, Vice-President for International Strategy and Tomoharu Hori, Director of the Disaster Prevention Research Institute attended the ceremony.

In the symposium that followed, Director Tomoharu Hori gave an opening remarks and Associate Professor Yoshihiro Ito, Assistant Professor Genta Nakano from Disaster Prevention Research Institute and Professor Victor Cruz Atienza and Associate Professor Josue Tago Pacheco from National Autonomous University of Mexico summarized the long-term collaboration and outcomes of the international collaboration between National Autonomous University of Mexico and Kyoto University started from the 1990s to the present day, and expressed their hopes for further international collaborative research based at the "International Research Laboratory for Earthquake and Tsunami Risk Cognition and Reduction".

The symposium also aimed to explore the potential collaboration with Latin American countries. Ana Milena Prada Uribe, Sub-director of the National Unit for Disaster Risk Management, Colombia, Marino Protti Quesada, National University of Costa Rica, Miguel Angel Hernandez Martinez, El Salvador University and Marina Manea, National Autonomous University of Mexico introduced the current research activities and some seeds of the potential future collaborations.



Source: DPRI, Kyoto University Home Page





Publication of report – A Multiplex Rupture Sequence Under Complex Fault Network Due To Preceding Earthquake Swarms During the 2024 Mw 7.5 Noto Peninsula, Japan, Earthquake



At approximately 16:10 on January 1, 2024, a major earthquake with a magnitude (Mw) of 7.5, the "2024 Noto Peninsula Earthquake" (hereinafter referred to as the "Noto Peninsula Earthquake"), occurred in the Noto region of Ishikawa Prefecture. The maximum seismic intensity was recorded at 7, resulting in extensive damage, including many casualties. The existence of multiple active faults, mainly extending in a northeast-southwest direction, was known in the Noto Peninsula and its surrounding areas. Slow nonseismic crustal deformation and active seismic activity, thought to be related to fluid movement in the subsurface, had been observed since about three years ago. Clarifying how these networks of active faults and crustal activity drive the rupture of large earthquakes is important for understanding the

mechanism

earthquake generation and the generation of strong shaking.

A report that has been published by the research group led by Prof. Yukitoshi Fukahata, Disaster Prevention Research Institute (DPRI), Kyoto University; and Assistant Prof. Ryo Okuwaki, University of Tsukuba et.al., analyzed seismic waveform data observed around the world to estimate the rupture process of the Noto Peninsula earthquake. As a result, it was found that this earthquake consisted of multiple rupture episodes, and in particular, the initial rupture, which lasted about 10 seconds from the onset of the earthquake, overlapped with an area of active crustal activity that had been observed before the earthquake.

The results of this study were published online in the international academic journal "<u>Geophysical Research</u> <u>Letters</u>" on June 8, 2024.

 A Multiplex Rupture Sequence Under Complex Fault <u>Network Due To Preceding Earthquake Swarms</u> <u>During the 2024 Mw 7.5 Noto Peninsula, Japan,</u> <u>Earthquake</u>

Source: DPRI, Kyoto University Home Page

of





Participation at the IPCC Scoping Meeting of the Working Group Contributions to the Seventh Assessment Report



Source: https://www.coast.dpri.kyoto-u.ac.jp/japanese/?p=8076

Professor Nobuhito Mori, Coastal Disaster Risk, Research Center for Climate Chage Adaptation Strategy, DPRI, Kyoto University participated in the Intergovernmental Panel on Climate Change (IPCC) Scoping Meeting of the Working Group Contributions to the Seventh Assessment Report which was held in Kuala Lumpur, Malaysia from 9 to 13 December 2024. The Scoping Meeting was held to prepare the draft outline of the Working Group contributions to the <u>Seventh Assessment Report</u> and to work on the details of how the Working Group contributions to be prepared and their proposed timelines.

Source: DPRI, Kyoto University Home Page





Institute of Disaster Mitigation for Urban Cultural Heritage (R-DMUCH), Ritsumeikan University, Japan

http://www.r-dmuch.jp/en/



Scene from a Disaster Imagination Game (DIG) focusing on fire prevention in Ponto-cho area

The Institute of Disaster Mitigation for Urban Cultural Heritage at Ritsumeikan University (R-DMUCH) serves as a focal point for organizing international research, training, and information networks in cultural heritage risk management and disaster mitigation. Since 2006, the institute has been implementing the UNESCO Chair Programme on Cultural Heritage and Risk Management. This programme aims to promote intensive education, scientific networking, and research on disaster risk management for both movable and immovable, as well as tangible and intangible, cultural heritage. One of its key initiatives is the International Training Course (ITC) on Disaster Risk Management of Cultural Heritage, conducted in collaboration with UNESCO, ICCROM, ICOM, ICOMOS/ICORP, and various national and international organizations. To date, 206 professionals from 79 countriesrepresenting government agencies, universities, NGOs, private companies, and other organizationshave collaborated and participated in the ITC.

This year, <u>R-DMUCH</u> organized the 18th ITC in a hybrid format, combining a six-day online program from July 29 to August 22, 2024, with a two-week in-

person program in Kyoto other and locations from August 30 to September 13. 2024. Fourteen participants from Bhutan, Ethiopia, Chile, Croatia. France, Germany, Hungary, Indonesia, Malaysia, Norway, Romania, Turkey, and Mexico were selected from a competitive pool of 65 applicants. Unfortunately, the participant from Mexico could not attend due to her health issue. Additionally, this year marked the signing of an academic exchange agreement (MOU) with ICOMOS Philippines, two members of ICOMOS Philippines were invited by the R-DMUCH to take part in the ITC through this agreement. This collaboration aims to establish a training program on disaster risk management of cultural heritage for the Philippines. Furthermore, this year, two Ritsumeikan University students participated as interns, actively engaging in lectures, site visits in Kyoto City, workshops, and discussions alongside the trainees. The internship program, launched last year as part of the ITC initiative, aims to cultivate globally relevant skills and encourage students to participate in initiatives such as the "UNESCO Training Program," promoted by the Ministry of Education, Culture, Sports, Science and Technology (Japanese National Commission for UNESCO).

> Prof. Shinta Yoshitomi Director



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Group photo of the ITC 2024 participants with the Ritsumeikan University President

The theme of this year's course was "Linking Tangible and Intangible Cultural Heritage for Disaster Risk Management." The program featured interactive components, including online and onsite lectures, site visits, workshops, and discussions. In order interconnect these interactive to components, an online learning platform was built for participants to learn online lectures, interact with our resource persons and other participants, and share materials. A diverse group of lecturers contributed to the course, representing institutions such as the Agency for Cultural Affairs, the Tokyo National Research Institute for Cultural Properties, the National Institutes for Cultural Heritage, the Kyoto National Museum, the Kyoto Prefectural Board of Education, Kobe City's Bureau of Culture and Sports, the Sayo Town Board of Education, the Kyoto City Fire Department, the Ponto-cho Management Town Council, the Disaster Prevention Research Institute at Kyoto University, and Miyagi University. International contributors included UNESCO-EPRU, the Kathmandu Valley Preservation Trust (KVPT), the Egyptian Heritage Rescue Foundation, and George Town World Heritage Incorporated.

The participants visited various case sites representing different phases of the disaster cycle-pre-disaster, during-disaster, and postdisaster. These included the community engagement for disaster prevention in the Pontocho area, the restoration work on the Higashi Honganji Temple's bell tower, disaster preparedness measures for movable cultural heritage at the Kyoto National Museum, seismic retrofitting, the base isolation devices in particular, at the Sawa no Tsuru Sake Museum, the Disaster Reduction and Human Renovation Institution, seismic techniques used at Kitano Ijinkan, and the recovery process in Hirafuku, Sayo Town. Practical workshops, such as the rescue of movable cultural heritage at the old residence house, were also conducted.

A key feature of the ITC is the requirement for participants to draft a disaster risk management plan for a specific cultural heritage site in their home countries. This exercise helps participants develop the skills that are essential to propose solutions tailored to their social, economic, and institutional contexts. By fostering such expertise and building technical support networks, the program promotes sustainable international efforts to protect cultural heritage. On the final day, the participants presented their disaster risk management plans. The session saw lively exchanges of questions and comments not only from the lecturers but also among the participants themselves, leading to a significantly extended session that went well beyond the scheduled time.

Despite challenges imposed by the threat of a large typhoon during the onsite programme and the increasing severity of heat waves, the program was concluded successfully, thanks to the cooperation of all involved.

For more information, ITC's annual proceedings are available in our website <u>https://rdmuch-itc.com/</u> resources

ITC 2024 Learning Platform

https://itcdrm-learning.com/unesco-chair-program/

ITC proceedings (to be published on March 2025) <u>https://rdmuch-itc.com/resources</u>



Lecture on seismic structural analysis of traditional construction methods

Inspection of the restoration work on the bell tower of Higashi Honganji Temple



GADRI Annual Report — Japan



Earthquake Research Institute (ERI) The University of Tokyo, Japan http://www.eri.u-tokyo.ac.jp/en/



Figure 1: Space–time diagram of the immediate aftershocks following the 2023 M 6.5 rupture that were identified by the matched filter technique. Circles denote the aftershocks, which are scaled by earthquake magnitude and color-coded according to depth. The dashed blue line indicates a migration front that travelled at 20 km/h. (a) Horizontal distance along the N45°W–S45°E profile versus time. (b) Depth distributions.

2024 Activities:

An intense earthquake swarm has occurred for more than three years since November 2020 within a 20 \times 20 km area beneath the northeastern tip of the Noto Peninsula, central Japan. The largest magnitude earthquake for each year from 2021 to 2023 increased from 5.1 to 5.4 and 6.5 by the end of 2023. On January 1 2024, a M 7.6 earthquake rupture nucleated within the swarm area and propagated bilaterally to the ENE and WSW along multiple faults over 100 km distances.

Globally, it is rare that a long-lasting earthquake swarm precedes event. such а large Seismic activity. data. crustal movement and resistivity analysis suggest that deep fluids were involved in the preceding earthquake swarm (e.g., Amezawa et al., 2022; Nakajima, 2022; Nishimura et al., 2023).

Prof. Takashi Furumura Director

E-mail: director@eri.u-tokyo.ac.jp

We relocated the earthquakes associated with the 2022 M 5.4 and 2023 M 6.5 ruptures by applying a double-difference relocation algorithm to differential travel-time data derived from a deep neural networkbased picker model that can pick the compressional-(P-) and shear- (S-) wave arrival times from continuous waveform data (Zhu and Beroza, 2019). We then applied the matched filter technique (e.g., Kato et al., 2013) to the continuous waveform data (with the relocated earthquakes being template events) to enhance the relocated catalog. These results provide an excellent opportunity to explore the fault geometry and rupture area associated with these two large-magnitude events within the Noto Peninsula earthquake swarm, and possibly to infer fault-valve behavior from the expansion of the aftershock area to shallow depths immediately after the 2023 M 6.5 event (Kato 2024).

Most of the aftershocks were aligned along a \sim 45°SEdipping plane. The M 6.5 event initially ruptured the same deep section of the fault zone that had been ruptured by the 2022 M 5.4 event, before propagating rapidly to shallow depths and offshore along the ruptured fault plane. The aftershock front migrated at a speed of \sim 20 km/h (Fig. 1), which is similar to or slightly slower than the speed of rapid tremor/lowfrequency earthquake migration during slow-slip events along subduction zones (e.g., Kato and Nakagawa, 2020).

This rapid upward migration of the immediate aftershocks might have been driven by the upwelling of crustal fluids along the intensely fractured and permeable fault zone via the mainshock dynamic rupture. This observation may be the first seismic evidence for the rapid migration of early aftershocks. The upward migration of the aftershock zone is consistent with fault-valve behavior (Sibson, 1992). The fault-valve model is defined by cyclical variations in fluid pressure within the fault zone, whereby they increase gradually during inter-seismic periods due to sealing/healing at the base of the brittle fault zone, resulting in overpressured fluids beneath the seismogenic zone. The increased permeability due to the coseismic generation of fractures in the fault damage zone leads to post-seismic fluid discharge along the fault from the overpressured parts of the crust. The fluid flow along the fault zone during the fluid discharge phase is recorded by the migration of the subsequent aftershocks (Fig. 2).

Reference

 Kato, A. (2024). Implications of fault-valve behavior from immediate aftershocks following the 2023 M j6.5earthquake beneath the Noto Peninsula, central Japan. Geophysical Research Letters, 51, e2023GL106444. https:// doi.org/10.1029/2023GL106444



(a) Before the 2023 M6.5 earthquake

(b) Right after the 2023 M6.5 earthquake



Oceania

Australia	Fenner School of Environment & Society, Australian National University (ANU)
Australia	College of Health & Human Sciences, Charles Darwin University
Australia	Humanitarian Response & Disaster Management Studies, School of Health, Charles Darwin University
Australia	Centre for Disaster Studies, College of Science and Engineering, James Cook University
Australia	Humanitarian Engineering Lab, RMIT University
Australia	Centre for Infrastructure Performance and Reliability, School of Engineering, The University of Newcastle
Australia	Sustainability Research Centre, University of Sunshine Coast
Australia	Science and Engineering Faculty, Queensland University of Technology
Australia	Humanitarian & Development Research Initiative (HADRI), School of Social Sciences and Psychology, Western Sydney University
Australia	School pf Earth and Environmental Sciences/ SMAH, University of Wollongong
New Zealand	GNS Science



Humanitarian Engineering Lab, RMIT University Australia

https://www.rmit.edu.au/



Engineering WITH People: Welcome to Satilla. This version was developed by Dr Spyros Schismenos and Dr Nick Brown. and was funded by Adobe. Scan the QR codes to learn more about the game and download the game files

Brief Profile

The Disaster Research Network (DRN) at RMIT University is dedicated to disaster management at the local, national and international levels. Coordinated by Professor Matt Duckham, A/Professor Erica Kuligowski, Professor Jago Dodson and Dr Spyros Schismenos, the RMIT DRN connects over 80 researchers and across diverse disciplines, who collaborate with communities and emergency practitioners to strengthen disaster resilience in Australia and internationally.

2024 Outcomes

2024 proved to be a great year for the DRN! Its members actively organised and participated in workshops and conferences related to disaster management in Australia and overseas. A standout event was the 'Victorian Disaster Research Forum'. Victoria State boasts world-leading, impact-focused disaster and natural hazards research capabilities across multiple universities. These capabilities present unique opportunities for innovation in responding to Victoria's unique combinations of natural hazards, climate, and community risks. In order to help to realise these opportunities, RMIT organised the 'Victorian Disaster Research Forum' which aims to better connect and coordinate disaster researchers across Victoria's universities, with the goal of

- reducing the barriers to innovation,
- growing disaster research impact, and

better translating research findings into practical disaster resilience and emergency management and recovery

Dr. Spyros Schismenos



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The Forum took place on October 1st, 2024 and was led by Professor Matt Duckham, A/Professor Erica Kuligowski. It was open to all researchers in Victoria with interests in natural hazards and disaster-related research, as well as to practitioners who wanted to shape an applied disaster research agenda for Victoria. You can find more information about the topics discussed during the Forum here: <u>https://</u> www.youtube.com/playlist?

list=PLEVcTdxB9kWvxqObGh5mKCotV9QkKScGd

DRN would like to express its gratitude and appreciation to Swinburne University and Professor Allison Kealy for their valuable contribution to the 'Victorian Disaster Research Forum'.

Engineering with People – a unique board game for community hazard resilience and sustainable development

Engineering WITH People is the first board game designed for promoting humanitarian engineering principles, with a strong focus on hazard management. The game immerses players in realworld scenarios where they must navigate complex challenges, such as flood response, limited hazard preparedness and community inaccessibility. By taking on different roles, including engineers, policymakers, community leaders, local residents or aid workers, players develop problem-solving skills while understanding the social, environmental and ethical dimensions of engineering decisions, particularly in hazard scenarios. The game encourages professionals and students to engage with vulnerable and marginalised communities in order to empathise and raise awareness of local needs and capabilities.

The game is currently used as an educational and training tool at RMIT and other universities in Australia, New Zealand, Greece and the USA. Beyond its educational value, Engineering WITH People can also be used for data collection and stakeholder engagement.

RMIT bridges the gap between Academia, Industry and Society to improve community hazard resilience!

In July 2024, SydWest Multicultural Services, Settlement Services International and PRONIA established an alliance with RMIT University to connect engineering students and staff with Culturally And Linguistically Diverse (CALD) communities in New South Wales and Victoria. This initiative is known as the 'Humanitarian Engineering Consortium: Research Understanding and Leveraging Engineering with Society', or HERCULES for short.

The HERCULES Consortium is an Australia-first initiative that brings together engineers, researchers, local councils and community organisations to advance community-driven disaster management. It focuses on the development of inclusive and practical interventions that integrate engineering expertise with local knowledge, ensuring that disaster preparedness, response, and recovery efforts are tailored to community needs. For more information visit: <u>https://www.ssi.org.au/mediacentre/media-releases/groundbreaking-rmitconsortium-puts-community-at-the-heart-ofengineering-solutions/</u>

Reaching out to engage in new opportunities!

The DRN has a rich history of innovation and partnership in disaster resilience research. It includes various expertise areas, such as green infrastructure, satellite mapping of bushfires, evacuation modelling, resilient recovery design, and humanitarian engineering. Please contact us if you want to know more about our work and wish to collaborate.

Dr Spyros Schismenos, Lecturer in Humanitarian Engineering (DRN's point of contact for GADRI Members) spyros.schismenos@rmit.edu.au



HERCULES Agreement - (left to right: Dr. Spyros Schismenos – RMIT academic, Ms. Nikki Efremidis – PRONIA Interim CEO, Ms. Elfa Moraitakis – SydWest Multicultural Services CEO), Ms. Violet Roumeliotis – Settlement Services International CEO

- Resilient Communities and Governance, concentrating on factors contributing to individual, family, and community resilience, reducing disaster risk, and empowering decision-makers.
- Whole-of-Society Resilience, emphasising the integration of diverse methodologies, technologies, and approaches for sustainable and community resilience.

Notable research projects within these themes are mentioned below. Please visit the following link for additional information:

https://www.rmit.edu.au/research/centres-collaborations/ disaster-research-and-response-network/capabilities

Reaching out to engage in new opportunities!

The DRN has a rich history of innovation and partnership in disaster resilience research. It includes various expertise areas, such as green infrastructure, satellite mapping of bushfires, evacuation modelling, resilient recovery design, and humanitarian engineering. Please contact us if you want to know more about our work and wish to collaborate. Dr Spyros Schismenos, Lecturer in Humanitarian Engineering

(DRN's point of contact for GADRI Members) <u>spyros.schismenos@rmit.edu.au</u>

Example Past Projects by DRN researchers:

- Cost-effective mitigation strategy for flood prone buildings <u>https://www.bnhcrc.com.au/research/</u> <u>floodpronebuildings</u>
- Enhancing resilience of critical road infrastructure: <u>https://www.bnhcrc.com.au/research/</u> <u>roadinfrastructure</u>
- Enhancing the Australian Gridded Climate Dataset rainfall analysis using satellite data <u>https://</u> www.nature.com/articles/s41598-022-25255-6
- Preparing emergency services for operations in a climate-challenged world: <u>https://</u> <u>www.bnhcrc.com.au/research/understanding-and-</u> <u>mitigating-hazards/8023</u>



Larger group and breakout discussions on how the Disaster Research Network can support RMIT researchers in the future





Centre for Disaster Studies (CDS) James Cook University Australia

https://www.jcu.edu.au/centre-for-disaster-studies



Concept Image for Resilience Builders Educational Minecraft Game

Following a university restructure at the end of 2023, key staff for the Centre for Disaster Studies (CDS) were made redundant and now conduct research and maintain the Centre in an adjunct capacity. The end of 2023 also saw the impact of Tropical Cyclone Jasper in Far North Queensland significant flooding, evacuations and with infrastructure damage. While these local communities were still recovering, Tropical Cyclone Kirrily crossed the coast just north of followed Townsville, by extensive telecommunication losses, power outages and a heatwave.

With such an active tropical monsoon season, the Centre of Disaster Studies undertook online survey research within these communities to better understand preparedness and communication. Numerous publications have followed. As regional subject matter experts, members for the CDS have continued to provide ongoing media engagement particularly in regard to preparing and responding to

severe weather events.

The Centre was also involved in a Queensland Connect program with

a Resilience theme. As a partnership between Advanced Queensland and Queensland University of Technology (QUT) the program brings together subject matter experts from government, universities, private enterprise and industry, within an entrepreneurial framework to resolve real world issues. The "Team Inundation" group was curated with flooding as the hazard Over 18 months of research and focus. collaboration, team members conceptualized the "Resilience Builders program. The intent of the program is to utilise educational Minecraft embedded within the school curriculum to initially teach flood risk awareness and household level preparedness. The Minecraft game is still in the development stage.



E-mail: yetts.gurtner@jcu.edu.au

Dr. Yetta Gurtner



Localised flooding Tropical Cyclone Jasper

Publications

- Gurtner, Y & King, D (2024) Cyclone and Flood Post Disaster Surveys: Cyclone Jasper December 2023 and Cyclone Kirrily January 2024; The Social Impacts and Preparedness Experiences of Households Which Experienced the Cyclone and Floods of Tropical Cyclone Jasper in Far North Queensland and Tropical Cyclone Kirrily in North Queensland. *Centre for Disaster Studies James Cook University*
- Gurtner Y. & King D. (2024). Chapter 28 Recovery Outcomes. In Editors: Luke Juran and Bimal K. Paul. *The Routledge Handbook of Disaster Response and Recovery*. In press.
- Gurtner Y. & King D. (accepted in publication). Lessons from the Tropics: Insights on Information and Communication from 3 Wet Season Events in North Queensland. Australian Journal of Emergency Management.
- King D (2023) Controlling floods in megacities with no regrets. *Nature Water*. DOI: 10.1038/ s44221-023-00032-5
- King D (2022) Hearing Minority Voices: Institutional Discrimination Towards LGBTQ in Disaster and Recovery. Journal of Extreme Events, 8 (4).
- Schwartz, S. (2024). Understanding lost person behaviour in Australian wilderness environments [*Doctoral thesis*]. James Cook University.

Conference Presentations

• Gurtner, Y (2024) Resilience Builders:

Educational Minecraft for Generational Behaviour Change *Australia and New Zealand Disaster and Emergency Management Conference*. July 22-23, 2024 Gold Coast

 Schwartz, S. (2024) Developing Lost Wilderness Tourist Trauma Reduction Models. Australia and New Zealand Disaster and Emergency Management Conference. July 22-23, 2024 Gold Coast



The Routledge Handbook of Disaster Response and Recovery

Edited by Simal Ranti Plack and Luke Juran

COMING SOON



Europe Africa





Europe Africa



Austria	Center for Digital Safety and Security, Austrian Institute of Technology (AIT)
Austria	Disaster Competence Network Austria (DCNA)
Austria	International Institute for Applied Systems Analysis, (IIASA)
Belgium	One Health Platform
Bulgaria	Dept of Information Technologies and Communications, University of National and World Economy
Croatia	Croatian Centre for Earthquake Engineering (CCEE), Faculty of Civil Engineering, University of Zagreb
France	BRGM (Bureau de Recherches Geologiques et Minieres)
France	Council of Europe
France	Institut Des Sciences de la Terre (ISTerre), Grenoble University
Germany	Center for Disaster Management and Risk Reduction Technology (CEDIM)
Germany	Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut EMI
Germany	Disaster Research Unit, Department of Social and Political Sciences, Freie Universitat Berlin
Germany	Research Institute for Sustainability - Helmholtz Center Potsdam (RIFS)
Germany	United Nations University, Institute for Environment and Human Security (UNU-EHS)
Iceland	Earthquake Engineering Research Centre, University of Iceland
Italy	European Commission, Joint Research Centre (JRC)
Italy	Department of Earth Sciences, University of Florence (Universita degli Studi di Firenze)
Italy	Global Earthquake Model (GEM) Foundation
Netherlands	Institute of Security and Global Affairs (ISGA), Leiden University
Netherlands	Faculty of ITC, ITC Centre for Disaster Resilience, University of Twente
Norway	Nord University
Poland	Fire University
Slovakia	Faculty of Security Engineering, University of Zilina
Sweden	Stockholm Environment Institute (SEI)
Sweden	Risk and Crisis Research Centre (RCR), Mid Sweden University
Switzerland	Global Risk Forum GRF Davos
	Faculty of Casasianasa and the Environment University of Lausanne

UK	Faculty of Health, Medicine and Social Care, School of Allied Health, Anglia Ruskin University
UK	Bournemouth University Disaster Management Centre (BUDMC)
UK	British Geological Survey
UK	Cabot Institute, University of Bristol
UK	National Centre for Resilience (NCR), University of Glasgow
UK	Global Disaster Risk Reduction, UK Health Security Agency
UK	Global Disaster Resilience Centre, School of Art Design and Architecture, University of Huddersfield
UK	School of Business, Dept Management, Innovation and Technology Division, University of Leicester
UK	Department of Risk and Disaster Reduction (RDR), University College of London (UCL)
UK	Water Engineering and Development Centre (WEDC), Loughborough University
UK	Disaster and Development Network (DDN), Department of Geography, Northumbria University
UK	Overseas Development Institute (ODI) Global
UK	Research Centre for Disaster Resilience, University of Salford
UK	Swansea University

Disaster Competence Network Austria (DCNA) Austria

https://dcna.at/index.php/en/home.html



Disaster Competence Network Austria

Membership and Projects

In 2024, the DCNA experienced continued growth, now comprising 25 ordinary members and 8 associate members, including multiple new additions to the network. Our team of 13 experts actively participated in over 25 national and international disaster and security research projects throughout the year. Notably, DCNA contributed to UCPKN projects such as BORIS2 (which started in 2024), COLLARIS, CREXDATA, and COVALEX. strengthening international collaboration and knowledge exchange. Additionally to our research

Bridging the gap between research and practice: The Disaster Competence Network Austria (DCNA) continued to advance its mission with unwavering commitment in 2024. We take pride in the strides made this year, particularly in fostering collaboration across a diverse range of stakeholders, including researchers, emergency responders, civil protection agencies, policymakers, and industry practitioners. Our podcast continued to engage a growing audience, offering fresh insights into topics like wildfire management, smart city disaster resilience, cybersecurity in emergency services, and Al-driven risk assessment. Additionally, the DCNA Young Scientist program further expanded its efforts to inspire and support the next generation of researchers.



projects, we collaborated closely with members from our expert groups, administrations and emergency response organizations, for example by working with the Austrian Fire Brigade Association in a series of workings on the future of firefighting.

International Events and Engagement

DCNA actively engaged in international platforms to discuss disaster risk reduction and management. Some highlights were our participation in the Humanitarian Networks and Partnerships Week in Geneva, the European Civil Protection Forum as well as the annual CERIS-DRS event in Brussels. In late autumn, DCNA participated in numerous events at the Europe and Central Asia Regional Platform for Disaster Risk Reduction, addressing a multitude of topics from national network that empower end users, emerging risks related to climate change and urbanization, highlighting DCNA's role in driving policy-relevant research.

> Dr. Christian Resch Managing Director



E-mail: christian.resch@dcna.at



Annual Conference and Key Milestones

This year's Disaster Research Days (DRD24) took place in Vienna from October 8-10, 2024. Our annual disaster and security research conference attracted around 200 participants from international academia, industry, and government. DRD24 was a joint event by the European Commission's Community of European Research and Innovation for Security (CERIS), the United Nations Office for Disaster Risk Reduction's European Science and Technology Advisory Group (E-STAG) and co-hosted by the Austrian Federal Ministry of Finance, the Austrian Federal Ministry of Science, Research and Education and the Disaster Competence Network Austria. The interdisciplinary discussions that took place throughout the event are crucial to ensure that political frameworks and measures correspond to the latest scientific findings and thus offer effective solutions for current and future disaster risks. The range of discussion topics at DRD24 was very broad - from cooperation between science and politics to challenges in integrating innovative technologies, to building social resilience and protecting critical infrastructures.

DCNA Science Plan



The Science Plan is the result of a comprehensive consultation process with experts from more than 40 scientific institutions, as well as representatives from authorities, emergency organizations, and industry, and includes many research questions and priorities that focus on social science analyses, technical

innovations, ecological approaches and political frameworks.

"Our goal is not only to respond to disasters, but to proactively anticipate them and minimize their impacts. To do this, it is essential to deepen scientific knowledge and make it accessible to political decision-makers, practitioners and the general public", says Christian Resch, Executive Director of the DCNA. The Science Plan specifically defines research questions in the field of disaster protection and serves as a strategic guide to developing scientific findings in the coming years that focus on current and future challenges in disaster management - from prevention to crisis management to reconstruction.

Looking Ahead

As we reflect on 2024, we express our deep gratitude to our members, partners, and stakeholders for their unwavering support and collaboration. The DCNA remains committed to fostering innovation, promoting resilience, and bridging the gap between research and practice. Together, we look forward to building on these achievements in 2025 and beyond.

Links:

DCNA on LinkedIn: <u>https://www.linkedin.com/</u> <u>company/disaster-competence-network-austria/</u> Disaster Research Days 2024 video: <u>https://</u> <u>youtu.be/5OdJFZI83IA?si=zvIE07n6hiROq1iP</u>





Science Research Center for Disaster Risk Reduction (SRCDRR), University of National and World Economy (UNWE), Bulgaria

http://www.unwe.bg/en/



The **SCRDRR** continues the work on two R&D Projects in 2024:

1. SMART RISK MANAGEMENT FOR BUSINESS FROM ADVERSE EVENTS AND NATURAL DISASTERS, (2021-2025), funded by the National Science Fund of Bulgaria

The project develops an innovative methodology for integrated risk assessment, which includes new and modified classical and smart methods and models. Each method and model is adapted to the specifics of the specific business at the level of economic sector and individual company, taking into account the specific impacts of potential adverse events and natural disasters in the specific region. The main result of the project will be the developed general framework for smart risk management of adverse events and natural disasters based on an innovative methodology for integrated risk assessment.

The following developments have been achieved:

An approach for vulnerability analysis of businesses to climate-related hazards is proposed. It is known that in recent years, a sharp rise in the frequency and intensity of climate-related hazards is observed worldwide. This increases the vulnerability of businesses to climaterelated hazards, which in turn adversely affects the

sustainable development of the economic and companies. For these reasons, the proposed approach assumes that the level of vulnerability for each business depends on the levels of the potential impact of the specific climate-related hazards in the given geographical region. The potential impact depends on the levels of a business's sensitivity and exposure to climate-related hazards. The approach consists of several steps. For each of the variables related to the vulnerability, five levels are defined (Very low, Low, Middle, High, Very high). The usefulness and peculiarities of the proposed approach for vulnerability analysis of businesses to climate-related hazards are validated with particular examples. The proposed approach for vulnerability analysis can successfully help the managers to make informed decisions about the choice of targeted measures to adapt businesses to climate change.

> Prof. Dimiter Velev Director



E-mail: dgvelev@unwe.bg

 RESEARCH ON THE APPLICATION POSSIBILITIES OF THE METAVERSE CONCEPT IN BUSINESS AND EDUCATION, (2023 - 2024), funded by the Science Fund of the University of National and World Economy, Bulgaria.

The SRCDRR organized the 14th International Conference on Application of Information and Communication Technology and Statistics in Economy and Education (ICAICTSEE-2023), $2-3^{rd}$, http:// December 2024, UNWE, icaictsee.unwe.bg/. The conference is officially registered as an International Federation for Information Processing (IFIP, https://ifip.org/) event. The conference covered topics, such as Business Information Systems, Big Data, IoT, AI, VR, AR, e-learning Technologies, e-Commerce and e-Business, Business Statistics, etc.

The conference outcome was 52 presented research project are norm 12 European countries. papers, explosion of fresh ideas and establishment The Director of SRCDRR, Prof. Dr. Dimiter Velev, of new professional relationships.

3. EVENT PARTICIPATIONS

The Director of SRCDRR, Prof. Dr. Dimiter Velev, and a team member participated in the Understanding Risk Global Forum 2024, June 16-21, 2024, Himeji, Hyogo Prefecture, Japan with more

than 1,700 attendees, <u>https://understandrisk.org/</u> <u>event/ur24/</u>. The UR24 was a true platform for collaboration, knowledge sharing, and innovation in Disaster Risk Management.The Forum hosted DRM experts from 135 countries, 700+ organizations representing Government Agencies, Multilateral Organizations, the Private Sector, NGOs, Research Institutions, Academia and Civil Society worldwide.

The SRCDRR director, Prof. Dimiter Velev, took part in the annual conference of the **Resilience Platform** - **RESILab**^{ex} - Enhancing the Resilience to Disasters for Sutainable Development - a project co-financed under Venezia Guilia Regional funds (L.R.18/2011) -CEI-FVG operative programme 756/2021. The SRCDRR is a member of the RESILab^{ex}. The event took place at the International Centre for Mechanical Sciences (CISM) at the University of Udine, Italy, November 26 - 27, 2024. The participants in the project are from 12 European countries.

The Director of SRCDRR, Prof. Dr. Dimiter Velev, and members of his team, took part in 5 international conferences. Prof. Velev delivered 1 keynote and 2 invited speeches. The topics covered different aspects of advanced ICT application, as well as in disaster risk reduction



The 2024 ResiliEnhance Platform Meeting
GADRI Annual Report — Europe



Croatian Centre for Earthquake Engineering (CCEE), Faculty of Civil Engineering, University of Zagreb Croatia

https://www.hcpi.hr/



Croatian Center for Earthquake Engineering (CCEE), a The Croatian Center for Earthquake Engineering (CCEE) as scientific branch of the Faculty of Civil Engineering (FCE), University of Zagreb is still in charged to play pivotal role in seismic risk assessment, post-earthquake reconstruction, and earthquake risk management, particularly in response to the 2020 earthquakes. One of the primary objectives are to support authorities and decision-makers in disaster preparedness and reducing the seismic vulnerability of buildings and infrastructure.

To achieve these goals, nine projects were launched in 2023, fully funded by the government and CCEE, focusing on innovative solutions for seismic risk reduction and disaster management:

- Structural health monitoring by using unexpensive accelerometers that are planned to be installed on buildings with different typology,
- Development of program packages and standards for out-of-plane mechanism calculations according to Eurocode 1998-3,

Development of a tool based on VR (virtual reality) to train damage efficient and for rapid assessment using,

Advanced numerical modelling and structural analysis of masonry buildings in aggregates,

- Preliminary and rapid analysis of the seismic resistance of existing structures using visual programming,
- Damage assessment using unmanned aerial vehicles (UAV),
- Development of an improved digital form for visual damage assessment, considering experience from past earthquakes,
- Development of form for damage assessment of bridges,
- Seismic risk assessment of educational buildings in Croatia.



Dr. Josip Altić Professor and Head E-mail: josip.altic@grad.unizg.hr

engineers

Emergency Engineering Response and Rapid Post-Disaster

Two HCPI members, also members of the Croatian MUSAR team, were deployed as part of international aid efforts under the EU Civil Protection Mechanism after the devastating flash floods in Bosnia and Herzegovina in 2024.

CCEE participating in rescue after floods and landslides across Bosnia and Herzegovina, 2024

Development of Digital Tools for Structural Damage Assessment

CCEE continued investing in mobile and digital tools to streamline damage assessment processes. These

efforts included enhancing mobile applications for realtime building inspections, testing Al-driven damage detection tools using drone and satellite imagery, and integrating data collection systems with national disaster



response frameworks. The effectiveness of these digital tools was tested through two training sessions for engineers and following an earthquake (magnitude 4.3 on the Richter scale) that affected on 1 May 2024 the Rakovica area.

CCEE team on during assessment after 2024 Rakovica earthquake

Bridge Inspection and Seismic Safety Evaluation

A specialized program focused on seismic assessment of bridges received funding, including field evaluations of most important bridges in earthquake-prone areas, development of inspection protocols to standardize damage classification of bridges, training workshops for engineers on bridge assessment post-earthquake.

 Image: Section of the section of th

Application for inspection and damage assessment of bridges

Virtual and Augmented Reality Training for Engineers

In 2024, CCEE members attended a series of trainings conducted by LINKS Foundation from Turin, Italy (both

online and in-person). CCEE participated in VR/XRbased training aimed at enhancing engineers' postearthquake evaluation skills.





Organization of lecturers and training for experts and engineers in 2024:

In November 2024, CCEE organized invited the lecture for experts and engineers held by eminent scientist and expert Prof Paolo Morandi of the EUCENTRE foundation, Pavia, Italy.

Professor Amr Elnashai (University of Illinois at Urbana Champaign Illinois/ University of Houston) held a specialist course 'EARTHQUAKE ENGINEERING', in Zagreb in April 2024.



Organization of conferences, symposiums, and workshops:

The <u>3rd Croatian Conference on Earthquake</u> <u>Engineering (3CroCEE)</u> is scheduled to take place from March 19 to 22, 2025, in Split, Croatia. This event marks the fifth anniversary of the 2020 Zagreb earthquake and aims to continue the tradition of enhancing earthquake awareness and knowledge dissemination. The conference will feature special workshops, panels, and round tables focusing on critical topics in earthquake engineering. Early bird registration is open until February 14, 2025, with regular registration closing on March 15, 2025.

New post-graduate program:

In 2024, the first year of the new post-graduate specialist study "Earthquake Engineering" finished with a remarkable success.

Awards:

At the 9th Assembly of Croatian Constructors in Cavtat, CCEE was honored with the prestigious "Graditeljski Oskar" Award, presented by the Croatian Association of Civil Engineers. This award recognizes CCEE's outstanding contributions to the field of earthquake engineering, disaster resilience, and structural safety in Croatia.

Professional projects of seismic performance and retrofitting of damaged buildings after 2020 earthquake:

Zagreb Cathedral

- National theater
- National Palace of Justice
- etc.

Plans for 2025:

Main focus will be on the continuation and development of the **9 projects** to support authorities and decision-makers in this critical period for Croatia.

"Seismic Risk Assessment of City of Zagreb" project is intended to be a **pilot project for the seismic risk assessment** for the entire Croatian territory, which ended with a complete success in 2023. Knowledge and experience gained through this project will be disseminated in a project covering region of three counties in central Croatia.

Participation in conferences, meetings, seminars and trainings in order to disseminate knowledge and experience gained after recent earthquakes in Croatia.



Copied from FDA home page: https://www.cedim.kit.edu/english/2863.php

The Center for Disaster Management and Risk Reduction (CEDIM) Technology is an interdisciplinary research center disaster and resilience research. As part of its near-real time Forensic Disaster Analysis (FDA), CEDIM investigates disaster dynamics, identifies key risk drivers, estimates impacts (damage, fatalities, displaced persons), and derives implications for disaster mitigation.

In 2024, CEDIM produced several reports of hazardous events and disasters worldwide. Two major catastrophic events were considered in detail, with the first FDA focusing on the 2024 Noto earthquake in Japan, which had a magnitude of 7.5 Mw and struck on January 1 at 4:10 p.m. local time near Suzu's coast. The strongest tremors were recorded on the Noto Peninsula and towards the Sea of Japan, with shaking felt across the country. A USGS model indicated a maximum slip of 3.7 m along a nearly 200 km fault. CEDIM estimates direct damage at approximately \$4.9 billion (range: \$2.3–11.1 billion), mainly affecting Wajima, Suzu, and Nanao. Indirect losses are not included.

The second FDA event was the June 2024 flood in southern Germany. At the end of May, record rainfall in the federal states of Bavaria and Baden-Württemberg caused severe flooding, especially along the Danube's right-hand tributaries. Over 100 mm of rain fell in 48 hours, locally exceeding 200 mm in five days. The Deutscher Wetterdienst (German Weather Service) had issued a timely warning about this event. Bavaria, Baden-Württemberg, and neighboring regions were most affected, with up to 150 mm totals falling in the Allgäu and Augsburg areas. Extreme flooding occurred between the Iller and Isar rivers, while the Danube reached HQ50 levels, slowly receding in Passau. The impact was severe: six deaths, missing persons, evacuations, dam breaches, power outages, and major traffic disruptions. A state of emergency was declared in 15 Bavarian districts, and shipping on the Rhine, Neckar, and Danube was halted. Thousands of emergency responders, including firefighters, Federal Agency for Technical Relief (THW), and the military, carried out rescue operations.

> Prof. Dr. Michael Kunz CEDIM Spokesperson E-mail: info@cedim.de



CEDIM's current research focus program is on "Impacts of heat waves and droughts in Central Europe on society, economy, and ecology" and currently addressing the following topics: One project is dedicated to the effects of the dry summers of 2018 to 2020 on tree crown mortality in Luxembourg. By analyzing aerial images using deep learning, the extent of forest damage was mapped. Tree crown mortality increased from 0.64 km² in 2017 to 7.49 km² in 2020, with 80% of the dead trees being conifers. Spruce trees damaged by the bark beetle (lps typographus) were particularly affected. The results show that deep learning can be used to continuously monitor forest damage in order to adjust forest management and better manage future disturbances.

Another ongoing project investigates the effects of extreme temperatures and thermal stress in urban areas, with a particular focus on the perception of heat waves. The aim is to use remote sensing data and biomedical indices such as the Physiological Equivalent Temperature (PET) and the Universal Thermal Climate Comfort Index (UTCI) to provide a comprehensive picture of thermal comfort in cities. For example, the correlation between perceived comfort and satellite data was analyzed in a region of Germany to identify areas at risk from heat. Highresolution data sources are now being integrated for more detailed analysis. Another focus is on urban pedestrian areas, such as zones, where meteorological variables are recorded to calculate the UTCI.

A CEDIM project with a different research focus is investigating microgrids, decentralized energy networks that not only offer technical advantages, but also aim to contribute to social justice by improving access to energy in disadvantaged urban areas. They provide a stable power supply, especially after natural disasters or extreme weather events. CEDIM is researching their integration into cities and analyzing how they can mitigate climate change and other stresses on urban energy infrastructures.

The new real-world lab ERNIE (Real-time decisions in the presence of risky ignorance in the impact prediction of extreme events) is currently being established at KIT in close collaboration with CEDIM, featuring a tandem of two professorships. ERNIE focuses on forecasting and analyzing the impacts of short-term extreme events as well as long-term climate changes and their interactions with society, the economy, and the environment in urban areas. Of particular importance is how society deals with risks and uncertainties.

In addition to the activities mentioned above, CEDIM held several meetings with different stakeholders, such as insurance companies, politicians, authorities or research institutions.

Further news can be found on our website—https:// www.cedim.kit.edu/english/3101.php; the updated CEDIM flyer can be downloaded here—chromeextension://efaidnbmnnnibpcajpcglclefindmkaj/ https://www.cedim.kit.edu/download/ Flyer_CEDIM_2022_english_web.pdf.



Artific

`*ter Flood



GRACE/CEDIM Winter School 2025 on Meteorological Extremes



Hail frequency in Germany: regional trends over the last 20 years

Copied from website—website—https://www.cedim.kit.edu/english/3101.php

Earthquake Engineering Research Centre University of Iceland, Iceland

https://www.eerc.hi.is

The EERC completed the third and the final year of a grant of excellence funded by the Icelandic Centre for Research. It also completed a research project on strong ground motion related to volcanic eruptions in the Reykjanes Peninsula.

An important milestone in adding strong motion data to an international database was completed (<u>https://esm-db.eu/#/home</u>). Most of the Icelandic data is now freely available for download through this repository.



 9th European Congress on Computational Methods in Applied Sciences and Engineering ECCOMAS 2024, Lisboa, Portugal, 3-7 June 2024—https:// eccomas2024.org/)



 18th International Brick and Block Masonry Conference,IB2MAC 2024, University of Birmingham, 21 to 24 July 2024, (https:// more.bham.ac.uk/ib2mac2024/)

IB²MaC



Conferences:

OF ICELAND

Researchers from the EERC attended and presented their research at many international conferences such as:

 XVIII European Conference on Soil Mechanics and Geotechnical Engineering ECSMGE 2024 (https:// www.ecsmge-2024.com/)



 18th World Conference on Earthquake Engineering (WCEE2024), held in Milan from June 30th to July 5th, 2024 —(https:// www.wcee2024.it/



Prof. Rajesh Rupakhety Head of Unit E-mail: rajesh@bi.is





Department of Earth Sciences University of Florence, Italy https://www.unescogeohazards.unifi.it



Figure 1: Objectives of the UNESCO Chair on prevention and sustainable management of geo-hydrological hazards.

The Department of Earth Sciences of the University of Florence (DST-UNIFI; https://www.dst.unifi.it) is a recognised centre of excellence for international research and higher education in Italy, with an Engineering Geology and geohazards group that counts almost more than 60 people, including professors, researchers, technicians, post-docs, PhD students, collaborators and visiting scientists.

The Civil Protection Centre of the University of Florence (CPC-UNIFI https:// www.protezionecivile.unifi.it) is part of the Italian National Civil Protection Service, as it is the centre of Competence for civil protection in the field of geological risk prevention. The Centre promotes the dissemination of the culture of civil protection, information and knowledge on natural and anthropogenic risks and the enhancement of community resilience in line with the objectives of the

United Nations Sendai Framework for Disaster Risk Reduction 2015–2030. In 2024, the activities of the CPC-UNIFI continued through the organisation of dissemination and training events and through collaboration with the National Civil Protection Service in several emergency operational actions for technical assistance in case of geohydrological hazards to human life and infrastructures.

UNESCO Chair on Prevention and Sustainable Management of Geo-hydrological hazards, University of Florence



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The UNESCO Chair on Prevention and Sustainable Management of Geo-hydrological Hazards (UNESCO Chair - https://www.unescogeohazards.unifi.it), which was established in 2016, was extended in 2020 and renewed again in 2024. The new chairholder is Prof. Nicola Casagli.

The aim of the Chair is to promote an integrated system of research, education, information and documentation in the fields of geosciences, applied hydrology, hydrogeology, geohazards and risk reduction. The Chair will facilitate collaboration between high-level, internationally recognised researchers and teaching staff of the University and other institutions in Italy, but also in Europe, Asia and the Pacific and other regions of the world.

The specific objectives of this Chair are to (Figure 1): i) develop research and innovation for the prevention and mitigation of geo-hydrological hazards; ii) support policies for risk reduction and resilience enhancement; iii) foster the protection of cultural heritage threatened by geo-hydrological hazards; iv) promote scientific networking and open science, including outreach and capacity development. These objectives are pursued through a close cooperation with UNESCO on relevant programmes and activities, other UNESCO Chairs and UNITWIN Networks, as well as with other higher education institutes.

In 2024 the Chairholder and other members of the UNESCO Chair has become member of the of the advisory board of the International Sediment Initiative (ISI) which is a UNESCO Flagship Initiative within the IHP (Intergovernmental Hydrological Program) currently in its Phase IX development (2022-2028).

The UNESCO Chair, formerly as DST-UNIFI, was entitled in 2008 as a World Centre of Excellence (WCoE) by the Global Promotion Committee of International Programme on Landslides (GPC/IPL). This recognition after the first triennium (2008-2011) was reaffirmed five times 2011-2014, 2014-2017, 2017-2020, 2021-2023 and for 2024-2026.

The DST-UNIFI, the CPC-UNIFI and the UNESCO Chair 2024 have participated in several research projects in the field of prevention and management of geo-hydrological hazards with a particular focus on landslides, subsidence and floods, funded by several international organisations such as ICL/IPL, EU and ECHO, the European Space Agency (ESA) and the European Environment Agency (EEA). The research activities carried out as WCoE were conducted as part of the ATLaS (Advanced Technologies for LandSlides) project, which aims to develop new methods and advanced technologies to reduce landslide risk. In this framework, more than 40 scientific papers were published in international peer-reviewed journals in 2024, dealing with landslide analysis, mapping, monitoring, modelling and prediction, remote sensing, geophysics, geotechnics. volcanic flank instability, earth subsidence, natural risk assessment, resilience to natural disasters, hydrogeology and environmental geology

The UNESCO Chair participated as a member of the International Consortium on Landslides (ICL) at the ICL-KLC Conference 2024 at Kyoto University from November 4-7, 2024. During the conference, the status of the organisation of the Memorial Conference for the Sendai Landslide Partnerships 2015-2025 and the Kyoto Landslide Commitment in December 2025 in Paris at UNESCO headquarters was discussed. The year 2025 is the final year of the Sendai Landslide Partnerships 2015-2025 and the fifth year of the Kyoto Landslide Commitment 2020 to promote global understanding and reduction of landslide disaster risk. Both initiatives are a commitment to the Sendai Framework for Disaster Risk Reduction 2015-2030, the 2030 Agenda Sustainable Development Goals, the New Urban Agenda and the Paris Climate Agreement.

For further information:

- https://www.dst.unifi.it
- https://www.protezionecivile.unifi.it
- •https://www.unesco-geohazards.unifi.it



Global Earthquake Model (GEM) Foundation, Italy https://www.globalquakemodel.org



Fifteen years ago, the GEM Foundation embarked on a visionary journey – to equip communities worldwide with the knowledge and tools needed to understand and reduce earthquake risks, building a safer future. We would like to express deep gratitude to our past leaders, remarkable team, local partners, and supporters for working together with us on the assessment of global seismic risk. Pioneering open-source tools and fostering global collaboration, we have supported communities around the world in making informed decisions and building earthquake resilience.

HELEN CROWLEY GEM Secretary General

The year 2024 was marked by milestones, innovations, and strategic collaborations that have strengthened global earthquake resilience.

Celebrating 15 Years of Progress

GEM kicked off the year with its 15th-anniversary celebrations, a testament to its unwavering commitment to transforming earthquake science into actionable solutions. The milestone was marked by events that highlighted GEM's achievements and introduced new collaborations, such as a partnership with PreventionWeb to broaden access seismic risk profiles. to Additionally, GEM's sub-national first-ever earthquake risk assessment for Bangladesh, supported by UNDRR and the Government of Bangladesh, demonstrated its focus on tailored solutions for local resilience.

Innovations in Seismic Risk Assessment

Throughout the year, GEM advanced its mission through groundbreaking tools and initiatives. The launch of ATLAS 2.0 provided next-generation seismic hazard data services, while Global the Seismic Regulations Database offered valuable insights into building code impacts worldwide.

The <u>OpenQuake Engine</u> saw significant enhancements with the release of versions 3.19, 3.20, and 3.21, delivering improved performance, expanded features, and cutting-edge models to the global community.

Complementing these advancements, GEM staff led or co-authored key <u>publications</u> that provided valuable insights into seismic risk assessment methodologies, reinforcing GEM's position as a trusted contributor to the field.

Prof. Helen Crowley Secretary-General



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Strengthening Global Partnerships

GEM strengthened its partnerships with key stakeholders, including <u>a new five-year collaboration</u> with the USGS and renewed support from its public and private sponsors, a new partner, <u>NormanMax</u>, and product distribution partners, Climate Engine and Jupiter. Notably, GEM's participation at the <u>WFP Innovation Accelerator Pitch event</u> in Germany, the <u>OECD Science Forum</u> in France, the <u>Understanding Risk Global Forum (UR24)</u> in Japan, and <u>WCEE2024 in Italy</u> underscored its leadership in seismic hazard and risk assessment.

Adding to these achievements, GEM Secretary General Helen Crowley was honoured with the prestigious <u>Joyner Memorial Lecture Award</u>, recognising her exceptional contributions to bridging earthquake science and engineering.

Empowering Through Education

A highlight of the year was the <u>GEM-EGU Summer</u> <u>School on GeoHazards Risk</u>, which brought together experts and students to explore cutting-edge risk assessment techniques. GEM online participation to the <u>International Day for Disaster Risk Reduction</u> celebrations further emphasised the role of education in building a disaster-resilient future.



UNDRR Bangladesh Seismic Risk Assessment Results

Regional and Global Impact

From the FORCE project's activities in <u>El Salvador</u>, <u>Bhutan</u>, and <u>Southwest Pacific</u> to its contributions to the <u>EMME24 Model at ASC 2024</u>, <u>Albania's</u> <u>Updated National Seismic Hazard Model</u>, and the <u>Multi-Hazard Risk Assessment Project in Malawi</u>, GEM continued to address regional needs while shaping global standards.

At INGV's 25th-anniversary event in Rome, GEM presented <u>"A Brief Overview of the Past, Present,</u> and Future of the Global Earthquake Model (GEM) <u>Foundation."</u> This live presentation showcased GEM's evolution, significant contributions to the



GEM team at WCEE2024

field, and its vision for strengthening ties with public sector partners.

To further enhance understanding of earthquake impacts and post-event analyses, GEM launched its <u>Post Event Information webpage</u>, a comprehensive resource offering detailed insights into recent significant earthquakes.

The approval of a more inclusive <u>public</u> <u>sponsorship scheme</u> this year sets the stage for stronger collaborations in 2025.

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Institute of Security and Global Affairs (ISGA) Leiden University Netherlands

https://www.universiteitleiden.nl/en/governance-and-global-affairs/institute-of-security-and-global-

affairs



The Institute of Security and Global Affairs (ISGA) is a research institute specializing in security issues (https://www.universiteitleiden.nl/en/governanceand-global-affairs/institute-of-security-and-globalaffairs). It is part of the Faculty of Governance and Global Affairs at Leiden University and evolved from the Centre for Terrorism and Counterterrorism (CTC) and the Centre for Global Affairs.

Researchers at ISGA engage in interdisciplinary research and teaching within the global field of security studies. The institute adopts a "glocal" approach, examining the local, national, transnational, and global impacts of security issues in an interconnected manner. Research and teaching take place in The Hague, a strategic location that facilitates dynamic interactions between ISGA, other academic institutions, national and international governments, the private sector, and NGOs.

The Institute of Security and Global Affairs (ISGA) offers courses at both bachelor's and master's level. There are also minors, online learning and professionals. The courses for master's program Crisis and Security Management (CSM), for example, students with contemporary provide security challenges from both local and global points of view, gaining a deep understanding of the 'wicked

problem' of security and crisis topics in a complex and globalizing world (https:// www.universiteitleiden.nl/en/education/studyprogrammes/master/crisis-and-securitymanagement). This full-time one-year master's program is unique in the Netherlands because of the combination of the common courses and the track courses, and the emphasis on both academic and professional skills.



Dr. Andrea Bartolucci

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2024, ISGA formed several significant In collaborations with knowledge platforms and humanitarian organizations. Notably, ISGA became an official supporter of the World Health Organization (WHO) EMT (Emergency Medical Teams) Initiative. As part of this collaboration, the institute will contribute scientific expertise to improve emergency response strategies, drive essential research, and support training initiatives to ensure EMTs are prepared to respond effectively. Additionally, ISGA joined KUNO, a together platform that brings humanitarian practitioners, academics, policymakers, and others for joint learning, reflection, and debate. KUNO organizes expert meetings, working sessions for professionals, training, and public debates in cooperation with its partners. The platform is particularly committed to inviting experts from the Global South to participate in these discussions.

ISGA launched a research project titled "Securing Humanitarian Operations: Preparedness and Response to Cyber Crises in Aid Delivery," funded FGGA by the Starter Grants (https:// www.universiteitleiden.nl/en/research/researchprojects/governance-and-global-affairs/securinghumanitarian-operations-preparedness-andresponse-to-cyber-crises-in-aid-delivery). This project addresses the scientific and societal challenge of developing cyber crisis preparation and response strategies for humanitarian

organizations (HOs). Drawing on organizational science, cybersecurity governance, and crisis management, the project will develop a conceptual

and theoretical framework for cyber crises in Hos, investigate incident preparation and response practices within Hos, assess previous cyber crisis communication strategies used by Hos, and provide recommendations to strengthen preparedness and response to cyber crises in the humanitarian sector.

In 2024, Dr. Bartolucci visited the Institute of Environmental Radioactivity, Fukushima University, and the International Research Institute of Disaster Science (IRIDeS), Tohoku University. These visits, organized through the Erasmus+ International Credit Mobility (ICM) program, aimed to strengthen collaboration between ISGA and Japanese partners. The collaboration, established in 2022 and formalized with a signed Memorandum of Understanding (MoU), seeks to enhance the participation of Japanese scholars and experts in the "Case Study Fukushima" course within the BSc in Security Studies. The involvement of experts directly engaged in the study of the 2011 triple disaster in Japan has been positively received by students, as reflected in course evaluations. These experts, with backgrounds in safety science, disaster response, and natural disaster defenses, have provided valuable insights, broadening the scope of interdisciplinary research and equipping students with advanced skills in safety science.

Dr. Andrea Bartolucci also participated as a consultant and co-author for the "After Action Analysis & Recommendations for INSARAG" report that was presented at the INSARAG After Action Review (AAR) of the USAR response to the Türkiye and Syria earthquakes in Doha, Qatar.







Fire University Poland https://www.apoz.edu.pl



New Technologies in Enhancing Training for Fire Service in Wildfire Response The SILVANUS Approach





Shaping

National Security

organizational units The university actively participated in disaster risk reduction (DRR) due to natural hazards and man-made events. There were the Institute of Safety Engineering, the Institute of Internal Security, the Faculty of Safety Engineering and Civil Protection and the Firefighting Rescue Unit of APoż. Consequently, during the fifths full year of participation in GADRI, APoż covered research, educational and operational areas of the reduction. As regards tensions related to military conflict in Ukraine, APoż actively supported Ministry of Interior and Public Administration in evaluation of civil protection and civil defense approach in Poland in the direction of the integrated

approach as well as gave input to works on DRR carried out by the Union Civil Protection Mechanism.

Prof. Pawel Gromek E-mail: pgromek@apoz.edu.pl

In the period reported, APoż was conducting research in following international projects related to DRR aspects (among the others):

- 1. Integrated Technological and Information Platform for wildfire Management (SILVANUS), Horizon 2020.
- Comprehensive Hazard Identification, and Monitoring systEm for uRban Areas (CHIMERA), Horizon Europe.
- Developing resilience against extreme weather threats caused by climate change at local level in Central Europe (LOCALIENCE), Interreg Central Europe.
- Development of the principles of an integrated system for collecting and processing of rescue knowledge for the phases: preparation, prevention, response and recovery, for fire protection and civil protection.

As regards SILVANUS project, intensive efforts were done to prepare a body of knowledge that contains information on new technologies in enhancing training for fire service in wildfire response. In CHIMERA project APoż research team gave input to requirements for new detection technologies and integrated approaches on CBRN detection and decision support tools. When considering development of the principles of an integrated system for collecting and processing of rescue knowledge for the phases: preparation, prevention, response and recovery, for fire protection and civil protection, APoż lead the project and analysed comprehensively information sources of the topic.

In addition, research results collected by APoż staff members were published in Routledge in the book: Shaping National Security International Emergency Mechanisms and Disaster Risk Reduction (ISBN 9781032515076). The book is boundary breaking publication that introduces a unique approach on elaborating and using international emergency mechanisms for the purposes of DRR in the context of national security. Doctoral dissertations were carried out in security studies (in social sciences), environmental engineering, mining and power engineering (in technical sciences), and safety engineering (in technical sciences).

As APoż plays a significant role in DRR education in Poland, the university was indicated in the Polish law as the only one institution dedicated to provide a professional training on civil protection and civil defense for primary decision makers from public administration (ministers, secretaries of the state, chiefs of public institutions and services, governors). Relevant training courses are planned to be initiated in 2025.







UNIVERSITY OF ŽILINA Faculty of Security Engineering

Department of Crisis Management Department of Crisis Management University of Žilina, Slovakia https://www.uniza.sk/en/



The year 2024 marked a significant achievement for the Crisis Management Department at the University of Žilina, as it successfully secured multiple European grants.

The first project, RETIME – Urban Adaptation and Alert Solutions for a Timely (Re)Action, addresses the increasing challenges posed by climate change, rapid urbanization, and the complexities of long-term urban planning, which amplify the impacts of hazardous events on communities. **RETIME** aims to enhance climate resilience in urban areas by developing and testing innovative adaptation solutions across three pilot sites. A particular emphasis is placed on addressing the current and future needs of vulnerable groups and integrating robust resilience models. More information is available at https://retime-project.eu/.

Another project, **SAFAR** (https://saf-ar.com/), leverages previous expertise in firefighter training by utilizing augmented reality (AR) digital twins and 360° camera technology for both classroom and live training scenarios. SAF-AR is designed to establish an immersive Extended Reality (XR) training framework to meet the growing demand for modern, accessible, and versatile media applications. This approach ensures greater

adoption among trainers and educators within firefighter training organizations. The project supports the digital transformation of firefighter and crisis management training, enhancing both classroom and practical sessions, as well as the organizational structure as

whole. Additionally, the department а has commenced work on the UNICOPS (Universal CBRNE protection system supporting the safety and open nature of higher education institutions) project. This initiative focuses on strengthening safety and maintaining the open nature of higher education institutions. In collaboration with the ISEM Institute, the project will conduct security audits and bolster the department's CBRNE (Chemical, Biological, Radiological, Nuclear, and Explosives) center, which operates within the University of Žilina.

Furthermore, we focused on developing tools for the EU within the OiRA platform and presented them to end users. Through the INO-PRE civic association, we organized a summer school for children. A significant milestone was the joint training of students from the Estonian Academy of Security Sciences (EASS) and the University of Žilina (UNIZA) in the field of innovative technologies.

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Stockholm Environment Institute (SEI) Sweden

https://www.sei.org/



Highlights of 2024

 Development of the SEI new five-year strategy (2025-2029)

The new strategy maintained the three key impact areas:

- Climate transition: We work to bring about the transitions that limit further climate change through reduced emissions, and to enhance resilience and adaptation to the climate change that will happen. Integrated DRR and climate adaptation, for example, is critical for building equitable climate resilience for the climate transition.
- **Nature and resources:** We work on the governance of natural resources and ecosystems to promote sustainability.
- Wellbeing and Health: We work toward better health and wellbeing across major environmental and resource domains.

Our research recognizes that disaster risk and development are closely linked: it is development processes that largely determine who and what is exposed to disaster risk as well as how much, and how effectively they can respond. SEI works to integrate disaster risk reduction with equitable, sustainable, and resilient development. Below are only a few examples to show a wide array of ongoing activities during 2024. https:// www.sei.org/publications/strategy-2025-29/

 Solutions and Opportunities in managing water Storage to reduce transboundary water-related disaster risks and to address multiple water demands (SOS)

The **S**olutions and **O**pportunities in managing water **S**torage to reduce transboundary waterrelated disaster risks and to address multiple water demands (SOS) project aims to develop inclusive and sustainable solutions for managing water storage options that optimize disaster risk reduction, diversify benefits for water, energy, and climate security, and foster transboundary cooperation and governance. <u>https://www.sei.org/projects/solutions-opportunities-water-storage-sos/</u>



Dr. Guoyi Han E-mail: guoyi.han@sei.org RISKSEC 2.0 Local climate change adaptation: from risk governance to securitisation strategies, which studies risk securitization governance and in four European municipalities.

<u>https://www.sei.org/projects/risksec-2-0/</u> for more info, highlights, events, and publications.

Science for a secure society: Hydroclimatic hazard. risk, and crisis management in Sweden (CrisAct) CrisAct aims at providing a comprehensive sciencebased framework for monitoring and managing hydroclimatically driven natural hazard crisis and disaster response, in order to protect society against droughts, floods, and heat waves, occurring separately or in combination https://www.sei.org/projects/ sequence. or crisact/ for more info and publications.

• MEFadapt: Minerals–Energy–Food Complex and transboundary climate risk

provide insights The project will into interconnections, trade-offs, opportunities Minerals-Energy-Food within the (MEF) Complex to help policymakers in developing strategies for sustainable governance of natural resources and adaptation to transboundary climate risks that bolster global resilience. https://www.sei.org/projects/ minerals-energy-food-adaptation/

• Resilient Coasts – Caribbean Sea

Caribbean nations are exceptionally vulnerable to natural disasters and the coastal impacts of climate change. The Resilient Coasts – Caribbean Sea project will develop Living Labs where local communities explore how they can bolster their resilience by restoring coastal ecosystems and applying nature-based solutions. The project will not only enhance local capacity but help create a viable business case for nature-based solutions. <u>https://www.sei.org/projects/resilient -coasts-caribbean-sea/</u>

• Extreme weather and food security: effects, measures and solutions

The Formas supported Extreme weather project aims to build resilience in the global food system by exploring trade and environmental connections between distant global geographies. Researchers will investigate effects, measures and solutions for long-term sustainable and resilient societies in Sweden and abroad. https://www.sei.org/ projects/extreme-weather/

Podcast: Critiquing knowledge coproduction in disaster risk reduction

'Co-production of knowledge itself needs to go beyond just knowledge space, and to find meaningful benefits for the communities ... where it's not just creation of knowledge, but the knowledge has to change and lead to action that can benefit the community.' -Dayoon Kim, Research Associate at SEI Asia <u>https://www.sei.org/features/podcast-</u> knowledge-co-production-drr/



GADRI Annual Report — Europe



Risk and Crisis Research Cnetre (RCR) Mid Sweden University Sweden

https://www.miun.se/en/Research/research/-centers/RCR/



The <u>Risk and Crisis Research Centre (RCR)</u> at Mid Sweden University has been involved in several different projects during the year. The breadth of projects spans from critically examining constructions of household preparedness, to transforming cities and towns to sustainable food systems through urban community gardens, to examining how landscape management in the Wildland-Urban Interface (WUI) can reduce communities' vulnerability to wildfire. A list of current projects can be found below.

One of the many projects to highlight is "People, measures and resilience: New ways to study risk communication, responsibility and preparedness". During 2024 a second experimental study was planned and executed in which RCR's Simulation Lab was used to bring to life a photo exhibition under threat. Having previously enacted a violent attack on the fictional nightclub Valkyrie in <u>RCR</u> <u>Simulation Lab</u>, the project has used novel ways to study peoples knowledge, willingness to communicate and deal with major societal disturbances.

Planning is also underway for another immersive simulation in RCR Simulation Lab within the Horizon project aiming to European economic and social resilience through an enhanced ability to quickly respond to future crises. In addition to research projects RCR hosted the 8th Åre Risk Event conference (16-18 April, 2024). The theme for this edition was "Crisis Preparedness in a Changing World" and saw the following keynote speakers:

Johan von Schreeb, surgeon and professor of global disaster medicine leading the Knowledge Centre for Global Disaster Medicine and the Centre for Health Crisis at Karolinska Institutet. Having worked in disasters around the world for 25 years and being one of the founders of Swedish Doctors Without Borders he spoke on the topic of fieldwork combining with research. Olena Muradyan, head of the Department of Sociology at Karazin Kharkiv National University (KNU) in Ukraine, spoke about her experiences in sustaining educational and research activities following the start of Russia's invasion on 24 February 2022.

• **Gunhild Hoogensen Gjørv,** professor in Security Studies and Geopolitics with the Arctic University of Norway (UiT), specializing in critical studies on peace and conflict, spoke on the topics of security and general societal trust.



Prof. Aron Larsson E-mail: aron.larsson@miun.se



Projects:

- 'Doing' household preparedness: A critical approach to preparedness discourses and practices
- This research project examines constructions of household preparedness. From an intersectional perspective, we investigate how class, gender, gender and functionality interact with preparedness discourses and how this in turn affects the meanings of household preparedness and its practices.

FUTURESILIENCE

- The FUTURESILIENCE project (Creating future societal resilience through innovative, sciencebased co-creation labs) aims to strengthen European economic and social resilience through an enhanced ability to quickly respond to future crises.
- HUSS—Hybrid Teams under Special Healthcare Leadership
- This project focuses on special healthcare leadership teams (SSL) and what happens if/ when the organization of SLL is conducted through hybrid solutions due to societal disruptions.
- Landscape management in the Wildland Urban Interface to reduce future wildfire vulnerability for communities. What are the barriers to change?
- The aim of this project is to formulate, through a socio-environmental framework, how integrated landscape management in the Wildland-Urban Interface (WUI) can reduce communities' vulnerability to wildfire.
- LEGITIPREP
 Boundaries of Legitimation: Crisis Normalization and Preparedness
- LEGITIPREP is a three-year project that aims to increase knowledge about legitimacy in crisis

areas and how trust in the authorities is affected by it.

- People, measures and resilience: New ways to study risk communication, responsibility and preparedness
- In this project we study the heterogeneous population's knowledge, willingness and conditions to communicate and deal with major societal disturbances.
- Perspectives on Accessibility
 The relationships between infrastructure and regional development
- The purpose of the study is to investigate the relationships between the transport system (including all modes of transport and infrastructure) and regional development with a special focus on accessibility.
- RESECTOR: Reinterpreting Sector Responsibility in Nordic Crisis Management after COVID 19
- The research project aims to study how COVID-19 challenged the Nordic countries' crisis management systems and, through lessons, promote the development of crisis management in the Nordic countries, focusing on crosssectoral crisis management.
- The integration network in Västernorrland over 40 years
- This project aims to compile and analyze experiences – in the form of a knowledge bank – from the Integration Network of Västernorrland during the period 1985-2024. The analysis will serve as the basis for future integrationpromoting measures in Västernorrland.
- Transforming cities and towns to sustainable food systems through urban gardening
- This research project focuses on barriers and possibilities for increased community gardening in small and medium-sized towns in Sweden. We particularly explore the potential of using community gardening as a means to create more sustainable towns and cities.

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UK Health Security Agency

Global Disaster Risk Reduction (GDRR) UK Health Security Agency United Kingdom https://www.gov.uk/

The UK Health Security Agency (UKHSA) prepares for and responds to infectious diseases, and environmental hazards, to keep communities safe, save lives and protect livelihoods.

UKHSA provide scientific and operational leadership working with local, national and international partners to protect the public's health and build the nation's health security capability. UKHSA is an executive agency, sponsored by the Department of Health and Social Care (DHSC). For most of UKHSA's work, the remit covers England as health protection is largely a devolved policy area. UKHSA recognises the crossborder nature of health threats and health inequalities and works in close partnership with the devolved governments on common challenges

In January 2025 the <u>UKHSA Science: Securing Health</u> and Prosperity 2024 Review was published. Science is at the heart of UKHSA. Through our scientific work we detect and understand threats to health. Our scientists work in partnership with academia, industry and other public sector organisations to develop effective tools and interventions to protect health. In 2023 the <u>UKHSA</u> <u>science strategy</u> vision and ambition for better health outcomes and greater prosperity through science was published.

Highlights from the <u>UKHSA Science: Securing Health</u> and Prosperity 2024 Review include:

• UKHSA's global contribution to Disaster Risk Reduction

UKHSA plays a crucial role in global health security through its science and research and has strong input and impact at the international level. We work in partnership with international organisations and support the WHO through our WHO Collaborating Centres and Laboratories. These include:



Protection – membership of three committees and vice-chair of main Commission

- UN Scientific Committees on Effects of Atomic Radiation – developments of reports on sources and effects of radiation
- In-country support and Centres of Excellence by providing technical advice and partnership strengthening through staff deployment in Africa CDC
- UN Secretary General's Call to Action on Extreme Heat – UKHSA contribution to the UNDRR hazard information profile on heatwave to shaping the call to action
- Strengthening capabilities to protect health from environmental hazards

Over the past year UKHSA has enhanced our scientific capabilities to protect health from environmental hazards, including from chemical, radiation and nuclear emergencies, expanding our analytical toxicology facilities. Evidence-based advice and guidance for the public on radiation and chemical incidents has been published. Toxicologists, environmental epidemiologists and other scientists have conducted research to provide evidence-based advice to policy makers aiming to combat long-term threats to health from exposure to hazards in the environment. They developed, together with partners, the UK's first targeted high air pollution alert system for healthcare which was launched in February 2024 to provide email alerts to GPs and emergency departments the day before a high air pollution episode is forecast, to inform healthcare professionals that people in London may be affected.

Prof.. Virginia Murray



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• Centre for Climate and Health Security

Climate change is the context in which the need to protect health from infectious diseases and environmental hazards is increasingly being identified, with many infectious diseases being climate sensitive and the frequency and severity of heatwaves, flooding and other hazards to health increasing, it is vital to understand and anticipate the impacts of climate and environmental change on health. Many of the adverse health effects that are expected are avoidable through effective mitigation and adaptation measures. UKHSA has established the Centre for Climate and Health Security to provide a focus for strong and sustainable global, national and local partnerships to ensure that communities are resilient to and protected from the health effects of climate change and to reduce inequalities. The centre has expertise in areas such as health risk assessment, medical entomology and adverse weather and health.

Global impact of UKHSA science

UKHSA plays a crucial role in global health security through its science and research and has strong input and impact at the international level. We work in partnership with international organisations and support the WHO through our WHO Collaborating Centres and Laboratories.

UKHSA's global contribution to Disaster Risk Reduction



Avoidable Deaths Network (ADN) Leicester University **United Kingdom** https://www.avoidable-deaths.net/

Project Updates

ADN launched the International Awareness Day for Avoidable Deaths (IAD4AD) on 13 March 2023 in the city of Izumiostu, Japan headlined by UNDRR Head Ms Mami Mizutori. The campaign is celebrated ADN launched the Case Station for Avoidable Deaths annually on 12 March. The campaign aims to raise the visibility of indirect disaster deaths, missing CaSA is a smallest unit for research, outreach and persons, causes and circumstances of deaths, and impactful work with the high-risk vulnerable population value the number of lives saved. For more who carry the burden of disaster deaths and injuries. information, please visit: https://iad4ad.avoidabledeaths.net/

Over 30 activities were organised across 13 countries to mark year 1 of IAD4AD. The post-event report can be read through this link: https://iad4ad.avoidabledeaths.net/2024-activities/

The project funded by ESRC-IAA and ESRC-Commercialisation Prototyping the Facility and Mobile Kits for Disasters and Crises was successfully concluded. Further funds have been secured from ESRC/AHRC SHAPE Catalyst delivered by the ARC

Accelerator to bring the kits to India and Bangladesh's markets.

The project funded by the Royal National Lifeboat Institution, 'Identifying Data Gaps in Drowning Data Collection in LMIC,' was successfully concluded in September 2024. This project identified

a minimum dataset that can report the circumstances of a drowning death and scopes to improve the existing verbal autopsy instruments for fatal and nonfatal drowning in LMIC settings.

(CaSA) in Burujhari, Ganjam District of Odisha, India. CaSA functions through community volunteers called ADN Ambassadors. For more details, visit: https:// www.avoidable-deaths.net/case-station-for-avoidablesnakebite-deaths-casa/

We also welcome donation for the Ambassador https://le.ac.uk/research/institutes/ programme: environmental-futures/areas/join-the-fight



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Prof. Nibedita Ray-Bennett



Knowledge exchange events update:

- organised three knowledge exchange special sessions webinars with three partners in India and the UK which featured 20 speakers and a total of 209 registered participants.
- organised a three-day symposium in Odisha with seven partner organizations, featuring nine expert speakers and 174 participants from 13 countries.
- organised a side event at a conference on 6 May 2024, in collaboration with UN OCHA, featuring 5 speakers and 78 participants.
- organised a stakeholder workshop with 15 participants from 4 countries.
- joined the Santiago Network's Loss and Damage Platform with 25 technical experts, seven future leaders and 26 partners from 10 countries

Publications update:

The ADN team published two bulletins, one newsletter, one annual report, two peer-review articles, four technical reports and the <u>ADN Junior</u> <u>Champion Magazine Vol 2</u> (ISSN 2759-0380).

 Ray-Bennett, N.S., Ekezie, W., Biswas, I. et al., (2024) Sexual and Reproductive Service Interventions for Menstrual Regulation, Safe Abortion and Post-Abortion Care and Their Effectiveness During Disasters: A Global Systematic Review. International Journal for Disaster Risk Science (2024): DOI 10.1007/

s13753-024-00565-7 https://link.springer.com/ article/10.1007/s13753-024-00565-7

• Ray-Bennett, N.S.. Dissanayake, L., Ekezie, W., Macleod, L. (2024) Assessment of drowning data collection processes in low-and middle-income countries: Α scoping review report. Avoidable Network Deaths and Royal National Lifeboat Institution.

Under review:

• Ray-Bennett, N.S., Dissanayake, L., Ekezie,

W., MacLeod, L. et al., (2025) Verbal Autopsy Instruments for 'Causes and Circumstances' Surrounding Drowning Deaths in Low- and Middle-Income Countries: A Scoping Review, *BMJ Injury Prevention* (under review)

Future Leader Programme update:

The ADN's Presidents, Drs Nibedita Ray-Bennett and Hideyuki Shiroshita, mentored more than 60 interns from five different countries. Four are Future Leaders interns (18 years of age and above), and the remainder are Junior Champions (10-17 years of age). ADN has also welcomed four Future Leaders.

The <u>Future Leaders work on ADN's projects</u>, events and publications.

Professor Peter Jackson Annual Lecture:

On 13 March 2023, ADN launched '<u>Professor</u> <u>Peter Jackson Annual Lecture</u>' to value mentoring and mentorship for sustainable human development in LMIC.

In 2024, Professor Vinod Sharma delivered the second lecture in Odisha, India.



Department of Risk and Disaster Reduction (RDR) University College London, United Kingdom https://www.ucl.ac.uk/risk-disaster-reduction/



Graduation Ceremony 2024

The department changed its name to the Department of Risk and Disaster Reduction (RDR) from the Institute of Risk and Disaster Reduction. RDR had become a formal academic department of UCL in 2020. The name change was made to reflect this.

The department graduated its first cohort of 50 students from its BSc Global Humanitarian Studies programme.

RDR launched new projects on:

- 'Reframing Arrival infrastructures' on arrival experiences of forced migrants
- 'Risk of Exploitation in Lone Children Seeking UK Asylum'
- Dr Shipra Jain was appointed as Lecturer of Meteorological Risks as the department continues to grow.

https://www.ucl.ac.uk/risk-disaster-reduction/newsand-events

The Department of Risk and Disaster Reduction (RDR) was founded in 2010 as an institute in UCL transitioning department in 2020. It has grow and develop in 2024 and department now has 31 academic and teaching staff. It runs a BSc Global Humanitarian Studies programme with about 180 students, 3 masters' programmes in risk with about 100 students, and has a doctoral research centre with about 40 PhD students. It leads the UCL Humanitarian Institute and has three research centres: Centre for Gender and Disaster, Centre for digital Public Health in Emergencies (dPHE) and the Warning Research Centre (a joint centre with the Department of Science and Technology Studies).

The department's research is themed around: Climate change and adaptation; conflict and migration; health and social risks; inclusion and politics; natural hazards and risks; warning, resilience and finance. Over the past year, we have collectively published over 130 research spanning the full breadth of risk and disaster reduction and humanitarian response`

Climate change and adaptation

As part of the UCL-UK Met Office Academic Partnership (MOAP), RDR has been developing its involvement in climate change impacts and adaptation. Dr Shipra Jain was appointed Lecturer of Meteorological Risks. She is an interdisciplinary researcher who previously worked at Centre for Climate Research Singapore.



Prof. Peter Sammonds Director E-mail: irdr-enquiries@ucl.ac.uk





Conflict and migration

RDR launched new projects on:

'Reframing Arrival infrastructures' on arrival experiences of forced migrants and 'Risk of Exploitation in Lone Children Seeking UK Asylum'.

Warning, resilience and finance

UCL Warning Research Centre which RDR coleads, was invited to develop the UNDRR Inclusive Early Warning Early Action guide by integrating academic knowledge into a report to generate a checklist, and more importantly, how to implement that checklist.

Health and social risks

The department has been working on 'Social Finance for Better Post-Disaster Health' programme, led by Dr Rozana Himaz and Dr Saman Ghaffarian in collaboration with Indonesia's Resilience Development Initiative in the disaster-health-finance nexus.

Inclusion and politics

On the retirement of Professor Maureen Fordham from UCL, Dr Louisa Acciari took over as director, Centre for Gender and Disaster. The centre's international research network project GRRIPP produced ground breaking work in 'Gender Responsive Resilience & Intersectionality in Policy and Practice'.

Natural hazards and risks

Highlights included the 'Disaster Avoided' project led by Professor Ilan Kelman. Describing how

disasters are being avoided can support action to address the root causes of disasters, not just respond to them after they happen. The ENFRAG project (ENhancing state-dependent FRAGility through experimentally validated energy-based approaches) aimed at advancing state-dependent earthquake fragility assessment methodologies. This was led by Professor Fatemeh Jalayer.

RDR held its annual conference on 'Future Risks: Causes, Consequences, Change' on 25 June 2024. The keynote speech was delivered by Ms Paola Albrito, Director of the UN Office for Disaster Risk Reduction.

Other events RDR organized included:

- 'Hope and inspiration for futures under climate change' on 30 January 2024
- "Essential yet exploited? Invisibilised frontline workers during the pandemic' on 15 March 2024.
- RDR Centre for Digital Public Health in Emergencies 6th Annual Workshop: Vectorborne diseases Digital One Health approach on 15 May 2024.
- 'Cost-Effective and Fair Climate Change Adaptation' on 18 September 2024.
- RDR also hosted the UKADR Conference 2024: Collaborative Research to Make a Difference 26 June 2024–27 June 2024.



Loughborough University United Kingdom https://www.lboro.ac.uk/research/icidr/



Recipients of the 2024 Prince Sultan Bin Abdulaziz International Prize for Water (PSIPW) at the award ceremony

2024 has been a remarkable and fruitful year for the International Centre for Informatics and Disaster Resilience (ICIDR), marked by significant milestones and achievements. One of the highlights is Professor Qiuhua Liang being named Royal Academy of Engineering Fellow, а recognition of his outstanding contributions to water engineering. In addition, Professor Liang and his team received a prestigious global award for pioneering open-source system for multi-hazard modelling - the 2024 Prince Sultan Bin Abdulaziz International Prize for Water. Building on ICIDR's initiative to establish the Global Partnership for Smart Informatics and Multi-hazard Reduction inaugural (SIMR), the SIMR International Conference (SIMR 2024), held at Loughborough, UK in September 2024, was a major success, drawing over 190 multi-disciplinary researchers and professionals from more than 100 leading research institutions worldwide. further То advance international knowledge exchange, ICIDR launched the IMRR UNESCO Chair

and SIMR monthly live webinar series in December 2024, bringing together internationally renowned experts to share research advancements and insights in disaster risk reduction research and practice. Moreover, two MSc programmes were developed and launched at Loughborough University, to train the next generation of researchers and professionals to support disaster risk reduction research and practice. Throughout the year, team members have also been invited to attend prominent international conferences and deliver keynote speeches, which has further promoted our research and expanded our influence in the global disaster risk reduction community. Collectively, these efforts have strengthened the team's reputation and impact, paving the way for continued innovation and collaboration in disaster risk reduction.



Prof. Qiuhua Liang

E-mail: q.liang@lboro.ac.uk

Professor Qiuhua Liang and Loughborough university's Vice-Chancellor Professor Nick Jennings at the RAEng new fellows' dinner



Achievement

Professor Qiuhua Liang named Royal Academy of Engineering Fellow

Professor Qiuhua Liang was named one of the 71 new Royal Academy of Engineering (RAEng) Fellows.

Harnessing the latest high-performance computing and data analytics technologies, Professor Liang develops mathematical and numerical models with computational speed to unprecedented tackle disaster risk induced by natural hazards. He established the International Centre for Informatics and Disaster Resilience (ICIDR, https:// www.lboro.ac.uk/research/icidr/) and initiated the Global Partnership for Smart Informatics and Multihazard Reduction (SIMR) in 2023. More information about Professor Liang's election can be found here https://raeng.org.uk/about-us/fellowship/new-fellows-2024/professor-qiuhua-liang-freng.

The 2024 RAEng cohort consists of sixty Fellows, six International Fellows and five Honorary Fellows, each of whom has made exceptional contributions to their own sector, pioneering new innovations, leading progress in business or academia, providing high level advice to government, or promoting wider understanding of engineering and technology.



Events

First International Conference on Smart Informatics and Multi-hazard Reduction (SIMR 2024)

SIMR 2024 (<u>https://www.lboro.ac.uk/departments/</u> <u>abce/unesco-chair/events/smir-2024/</u>) was successfully held at Loughborough University from September 15 to 19, 2024. This inaugural conference provided a prominent platform for international experts, researchers, and practitioners to share the latest research findings, innovative technologies, and practical experiences in addressing the complex challenges posed by multi-hazard risks and climate change.

SIMR 2024 brought together 192 participants from 10 countries, representing 119 leading research institutions worldwide. The conference received an impressive 242 abstract submissions, with 129 selected for oral presentations organized into 26 parallel sessions. The program was further enriched by 4 keynote speeches delivered by internationally renowned speakers and a high-level forum. More information about the conference program can be found here <u>https://www.lboro.ac.uk/departments/</u> abce/unesco-chair/events/smir-2024/programme/.

In addition to the scientific sessions, SIMR 2024 offered training courses on advanced hazard modelling and risk assessment. Participants also enjoyed a field trip to the Peak District and a memorable conference dinner aboard a British First-Class Dining Train.

Overall, SIMR 2024 was a great success, receiving enthusiastic feedback and high praise from all participants.

IMRR UNESCO Chair and SIMR Monthly Live Webinar Series Launched in December 2024

The IMRR UNESCO Chair & SIMR Webinar Series is a monthly event organised by <u>the UNESCO Chair</u> <u>in Informatics and Multi-hazard Risk Reduction</u>, in partnership with the Global Partnership for Smart Informatics and Multi-hazard Reduction (SIMR). It invites world leading academics and researchers to share their work and vision in relevant fields, foster international and interdisciplinary collaboration, and inspire the younger generation to engage in cuttingedge research to address global challenges such as disaster risk and climate change.

The webinar series has shown remarkable engagement in its initial months, with participation from researchers, practitioners, and students worldwide. The December 2024 launch webinar welcomed Distinguished Professor Fi-John Chang from National Taiwan University as the first speaker. His presentation on Al-powered flood control showcased innovative integration of systems intelligence and Internet of Things artificial technologies for urban flood management. This inaugural session drew 368 registrations with over 200 active participants. The second webinar in January 2025 featured Chair Professor Limin Zhang from the Hong Kong University of Science and Technology. His presentation on digital twin technologies for urban resilience highlighted groundbreaking applications in flood and landslide

risk management. The session attracted 399 registrations with more than 280 active participants. The presentation sparked extensive discussions on smart city solutions for disaster risk reduction.

Details of past and upcoming webinars can be found here: <u>https://www.lboro.ac.uk/departments/abce/</u> <u>unesco-chair/events/webinar-series/</u>

To receive updates on future webinars, please contact the organiser at unesco.imrr@mailbox.lboro.ac.uk.



Lecture at the iRALL School 2024



The International Research Association on Large Landslides (iRALL), established in 2015, is a globally recognized, non-governmental, non profit, and unaffiliated institution for the promotion of knowledge about large landslides. The secretariat of iRALL is hosted at the State Key Laboratory of Geohazard Prevention and Geoenvironment Protection (SKLGP), Chengdu University of Technology, China. iRALL annually offers a two-week high-level course, the "iRALL School", focusing on the investigation, analysis, and management of large landslides for early career researchers (ECRs) from all over the world.

This year, the iRALL School 2024, hosted by Chengdu University of Technology, brought together 46 ECRs from 13 countries. As part of the event, Professor Qiuhua Liang was invited to deliver a lecture entitled "High-Performance Numerical Modelling of Large Landslides". The lecture focused on providing participants with cutting-edge skills and insights into the development and use of highperformance modelling technologies for simulating landslide hazards.

IRDR 2024 International Conference

The Integrated Research on Disaster Risk (IRDR) is an international scientific programme co-sponsored by the International Science Council (ISC) and the United Nations Office for Disaster Risk Reduction (UNDRR) and supported by the China Association for Science and Technology (CAST). As a decadelong, interdisciplinary research programme, IRDR unites global experts and stakeholders to address the challenges brought by natural hazard events, mitigate their impacts, and improve related policymaking mechanisms.

The IRDR 2024 International Conference was held from 22–23 October 2024 in Beijing, China. Under the theme "Science for an Inclusive, Safe, and Sustainable World: ACTIONS OF IRDR Global Community", the conference provided a platform for the global IRDR community to share knowledge and insights regarding the action plan of 2025-2027 and the development of the risk science.

Professor Qiuhua Liang was invited to deliver a speech on Disaster Risk Reduction (DRR) education in the era of informatics. His presentation was part of a session that examined the challenges, gaps, and goals in advancing broader DRR education, including stakeholder training, higher education, and public knowledge-sharing. Professor Liang emphasized the transformative potential of informatics in advancing DRR education. In addition to his presentation, Professor Liang participated in a high-level panel discussion titled "Addressing Inequalities, Injustice, and Marginalization". The panel discussed the urgent need for equitable approaches to disaster risk management, ensuring that vulnerable and marginalized communities are not excluded from DRR initiatives.

Keynote Speech at the 2024 Jiangsu Exchange Week and IAMES Conference

The International Association of Meteorological Education and Sciences (IAMES), established in 2020, is a non-governmental, non-profit organization to advance international collaboration in meteorological research and education. Initiated by Nanjing University of Information Science and Technology (NUIST), it is supported by more than 30 institutions from over 20 countries. IAMES has launched several impactful initiatives, including Academic Forums and the AI Earth Competition.

The 2024 Jiangsu International Exchange Week and IAMES Annual Conference, held on October 28th and 29th in Jiangsu, China, brought together leading experts to share advancements in meteorological sciences and interdisciplinary research. Professor Qiuhua Liang was invited to deliver a keynote speech entitled "Flood Forecasting by Integrating Hydrodynamic Models and Weather Predictions". The speech showcased pioneering advancements in combining high-performance hydrodynamic modelling with weather forecasting techniques to enable high-resolution, catchment-scale, real-time flood forecasting. Professor Liang's insights attracted significant attention, leading to an interview with the Jiangsu Education News Channel, which be accessed https://m.jstv.com/ can video/2024/10/29/1300910639961706496.html

Following the conference, Professor Liang visited NUIST to discuss potential collaborations. These discussions explored opportunities for joint research projects, MSc program partnerships, staff and PhD exchanges, and joint funding applications, aiming to strengthen academic and research ties between institutions.



Prof Qiuhua Liang attended the high-level panel discussion at IRDR 2024 International Conference

Taihu International Conference on Water Management

The Taihu International Conference on Water Management (InConTaihu), held from November 12th to 15th, 2024, in Wuxi, China, provided a platform for global experts to exchange ideas and explore innovative solutions to address both historical and emerging water challenges in a changing environment. Centered on the theme "Green Basins and Smart Waters", the conference brought together over 270 distinguished representatives from more than 20 countries and regions to build up capacities for water security in basins like Taihu across the globe.

Professor Qiuhua Liang and Dr Huili Chen were invited to attend the event. As part of the conference, Professor Liang delivered a keynote speech entitled "Multi-Scale Modelling Approaches for Catchment Systems Management". His presentation showcased advanced methodologies and models designed to tackle complex challenges in flood management and water quality, particularly across varying spatial scales.

ICIDR Colleagues Joined Tsinghua's International Symposium on Disaster Reduction and Emergency Management

Professor Ksenia Chmutina, Professor Qiuhua Liang and Dr Huili Chen, together with other colleagues from Loughborough University, joined Tsinghua's International Symposium on Disaster Reduction and Emergency Management in Hefei, China, where Professor Chmutina gave a keynote, and Professor Liang and Dr Chen presented their work. Professor Chmutina and Professor Liang also participated in the launch of the International Association for Disaster Reduction and Emergency Management, led by Prof Hongyong Yuan from Tsinghua University. Professor Liang is now on the Executive Board of the Association, and Professor Chmutina is its vice-president. Furthermore, Professor Chmutina led the Loughborough University delegation during the Tsinghua-Loughborough Bilateral Forum on Resilience of Urban Safety, where potential for future collaboration was discussed.

Representative Journal publications

- Angel D, Chmutina K, Haines V, Del Pinto M (2024) "Effing Awful!': developing audio representation as a medium for conveying people's experiences of flooded homes. Disaster Prevention and Management. DOI: 10.1108/DPM-01-2024-0033
- Cheek W, Chmutina K (2024) Lifting the Spatial Veil: Using Soja's Postmodern Geographies to Theorize Disasters. Journal of Disaster Studies, 1 (1), 70-90.
- Chmutina K, von Meding J, Williams DA, Remes J, Cheek W, Alburo Cañete KZ (2024) Solidarity in disaster scholarship. Disasters. DOI: 10.1111/disa.12657
- Cohen A, Dalyot S, Natapov A, Nelson T (2024) How accessible are cities for visually impaired pedestrians? A case of Greater London. Environment and Planning B: Urban Analytics and City Science, 0(0). EPB: Urban Analytics and City Science 0(0). DOI: 10.1177/23998083241256402
- Del Pinto M, Chmutina K, Palaiologou F, Bosher L (2024) The Role of the Spatial Network in Urban Disaster Risk Variations: Reimagining the Notion of Spatial Vulnerability at the Urban Scale. International Journal of Disaster Risk Science. DOI: : https:// doi.org/10.1007/s13753-024-00554-w

- Gupta R, Chembolu V, Marjoribanks TI, Dutta S (2024) Assessing the efficacy of hydroecological based wetland management approach for flood resilience of a large river catchment. Journal of Hydrology, 641, 131761.
- Hergibo P, Liang Q, Phillips TN, Xie Z (2024) A quadtree-based adaptive moment-of-fluid method for interface reconstruction with filaments. Journal of Computational Physics, 499: 112719.
- Hill B, Chen H, Liang Q, Bosher L, Vann J (2024) Monitoring solutions for remote locations: A data gathering approach for remote nature-based solution sites. Nature-Based Solutions, 5, 100120.
- Hill B, Chen H, Liang Q, Bosher L, Vann J (2024) Monitoring solutions for remote locations: A data gathering approach for remote nature-based solution sites. Nature-Based Solutions, 5: 100120.
- Lan H, Hoult N, Moore I D (2024) Numerical Investigation of Strain Variations along Steel Pipelines in Four-Point Bending Tests. Journal of Pipeline Systems Engineering and Practice, 15(4), 04024042. https://doi.org/10.1061/ JPSEA2.PSENG-1625

Representative Journal publications

- Lan H, Yan X, Moore I D (2024) Mud infiltration and travel paths during mud loss experiments on horizontal borehole stability. Tunnelling and Underground Space Technology, 144, 105565. https://doi.org/10.1016/j.tust.2023.105565
- Natapov A, Cohen A, Dalyot S (2024) Urban planning and design with points of interest and visual perception. Environment and Planning B: Urban Analytics and City Science, 51(3). DOI:10.1177/23998083231191338
- Qin H, Liang Q, Chen H, De Silva V (2024) A Coupled Human and Natural Systems (CHANS) framework integrated with reinforcement learning for urban flood mitigation. Journal of Hydrology, 643, 131918.

Opportunities

New MSc programmes in Loughborough University

Two MSc programmes has been developed and launched in Loughborough University: Informatics and Disaster Risk Management (<u>https://www.lboro.ac.uk/study/postgraduate/masters-</u>

degrees/a-z/informatics-and-disaster-risk-

<u>management/</u>); Sustainable Water and Climate Resilience (<u>https://www.lboro.ac.uk/study/</u> <u>postgraduate/masters-degrees/a-z/sustainable-</u>

<u>water-climate-resilience/</u>), to train the next generation of researchers and professionals to support DRR research and practice.

Applications are now open for the Fall 2025 intake.

The 2nd International Conference on Smart Informatics and Multi-hazard Reduction (SIMR 2025)

We are pleased to announce that the 2^{nd} International Conference of the Global Partnership for Smart Informatics and Multi-hazard Reduction (SIMR 2025) will be held in Chengdu, China, September 10 – 16, 2025.

SIMR 2025 will provide a multi-disciplinary forum for academic researchers and professionals to share research developments and practical experiences. The focus of this second international SIMR

- Qin H, Liang Q, Chen H, De Silva V (2024) A high performance Coupled Human And Natural Systems (CHANS) model for flood risk assessment and reduction. Water Resources Research, 60(7), e2023WR036269.
- Qin H, Liang Q, Chen H, De Silva V (2024) A twoway coupled CHANS model for flood emergency management, with a focus on temporary flood defences. Environmental Modelling & Software, 181, 106166.
- Wang W, Du Q, Yang H, Jin P, Wang F, Liang Q (2024) Drought patterns and multiple teleconnection factors driving forces in China during 1960–2018. Journal of Hydrology, 631: 130821

conference is on developing and implementing multi -faceted approaches to address the global challenges created by increasing multi-hazard risk in a fast-changing world affected by climate change. The conference aims to foster international and interdisciplinary collaboration to advance scientific research and practice in harnessing emerging informatics technologies for effective hazard risk assessment and disaster reduction to achieve longterm resilience. Therefore, the conference will provide ample opportunity for researchers and professionals interested in disaster risk reduction research and practice to network, develop new skills and partnerships, exchange information, and explore new collaborations. We welcome contributions from all relevant science, engineering, social, and humanity disciplines.

In addition to scientific sessions, SIMR 2025 will offer training courses where participants can learn the latest high-performance hazard modelling and risk assessment skills. The conference will also include the field trip to 2008 Wenchuan Earthquake memorial site, Luding earthquake affected area and Dujiangyan.

Abstract submission will be open soon!

For more information and updates about SIMR 2025, please visit: <u>https://www.lboro.ac.uk/</u> <u>departments/abce/unesco-chair/events/simr-</u> <u>conference-2025/</u>

Conference Schedule

September 10	September 11	September 12	September 13	September 14-16	
Registration &	Opening Ceremony	Sessions	Sessions	Field Trip	
Training courses	& Sessions	003310113	003310113	Tield Thp	



Disaster and Development Network (DDN) Department of Geography and Environmental Sciences, Northumbria University, United Kingdom https://www.northumbria.ac.uk/ddn



The Disaster and Development Network (DDN) represents the integration of research, enterprise and teaching orientated by the disaster management and sustainable development nexus. Operating from Northumbria University's Department of Geography and Environmental Sciences since 2000, the network engages the work of the Disaster and Development Centre (DDC)(2004-2012), Disaster and Development Postgraduate programme (2000-present), Disaster, Development and Sustainability (DDR) research group (2012-2023), affiliated student led Disaster and Development Society (DDS)(2015-2024), and an inter-Faculty Geographies of Development and Disaster (DDG) Research Excellence Framework (REF) cluster (2018-present). The wider merged activity includes our recently more integrated teaching and research activities with the Centre for Global Development. Full details of the work of the network and wider grouping at Northumbria can be followed at the three web sites provided in the heading of this report.

The predominant focus of the DDN is the progression of knowledge and skills that engage hazards, disasters and complex emergencies from the perspective of intersecting disasters and development experiences and narratives that span science, practice and policy environments. It is committed to delivering impact on future survivability and resilience of people and systems facing critical levels of rapid and slow onset environmental, economic, and political change. Some updates for 2024 include:

Indicative research activity:

- Andrew Collins Andrew gained the title of Emeritus Professor following his retirement from regular teaching and administrative roles in the University at the start of August 2024. He will continue to progress research and impact engagement related activities under this title remaining one of the affiliates of the Disaster and Development Network and various assemblages of that theme at Northumbria and globally.
- Katie Oven UKRI-NERC GCRF "Sajag-Nepal– Planning and preparedness for the mountain hazard and risk chain in Nepal". This includes one full time researcher, Amy Johnson, a PhD Researcher, Bina Limbu and Research Fellow, Katherine Arrell.
- Francis Massé "Identifying and mitigating the impacts of COVID-19 on legal and sustainable wildlife trade in LMICs". This includes PhD Scholarship, Mridula Paul, supervised by Francis Masse and Andrew.
- Becky Richardson's research focusing on "Childcentred approaches to health risk communication in Nairobi schools". This PhD Scholarship is supervised by Andrew, John Clayton and Katie Oven.



Prof. Andrew Collins E-mail: andrew.collins@northumbria.ac.uk

- Mark Ashley Parry, served as Associate Lecturer and for the Disaster and Development Network, continuing to develop a new initiatives on climate education in the UK. This initiative involves him working in seven schools across Northern England, in partnership with an education charity, for which he has developed a pre-designed work booklet for students.
- Kevin Glynn UKRI GCRF project "Ixchel: Building understanding of the physical, cultural and socio-economic drivers of risk for

strengthening resilience in the Guatemalan cordillera".

- Richard Kotter consolidated new initiatives for local and external engagement within UK and South Asia based Emergency Services focussed on collaborations in Pakistan.
- Ed Rollason ongoing work on exploring community vulnerability and risk exposure, and the means of building 'whole society resilience' on Teesside.

The DDN managed process for Northumbria University to gain observer status to the UNFCCC COP series led to Northumbria gaining access to COP28 and subsequent rounds.

Northumbria DDN was re-elected by the GADRI membership to serve a further term within the GADRI board of directors. The DDN also remains active in the United Kingdom Alliance for Disaster Research, providing both an Advisory Board role and Early Career Research leadership role.

The DDN is represented in the International Society for Disaster Risk Reduction (IDRiM) Board Directorship.

The DDN was again involved with multiple roles in conference and seminar activities of collaborative organizations and those of other independent scientific bodies. Having been the first UK academic institution to gain accreditation to the process of United Nations DRR during the early 2000's in the early preparations of the Hyogo Acord, there has been a DDN engagement in all Global Platforms to date and a representative will attend the 2025 Global Platform in Geneva.

DDN continues as a component of the core research areas at Northumbria University that contributed to it achieving the highest increase in Research Power across UK universities in the REF exercise of 2021. The Geographies of Disaster and Development theme played a key role as part of the. Department of Geography and Environmental Sciences which produced 'World Leading Research Impact Case Studies'. The example closest to the ongoing peoplecentred disasters engagement theme is titled: "embedding a people-centred approach to health in Disaster Risk Reduction at the Local and International scales". A summary version of this impact is at: https://www.northumbria.ac.uk/research/researchimpact-at-northumbria/societal-impact/new-peoplecentred-global-policies-prepare-communities-betterfor-diasasters/

The wider array of University multidisciplinary research themes contributed to the achievement of Times Higher Education (THE) Award, 'UK University of the Year' in 2022. Continuing in this success, Northumbria University has once again been recognised as one of the top universities in the UK after being awarded the title of 'Modern University of the Year' 2025 by The Times and The Sunday Times. [as announced in September 2024]

Northumbria University is a signatory of the <u>SDG</u> <u>Accord</u> and continues to develop its portfolio of sustainability initiatives. For example, Northumbria University was reported by People & Planet (2023/24) to be <u>First Class university and top North East [of</u> <u>England] University for sustainability</u>. It has also been ranked as 10th in the UK for environmental and ethical performance in the People & Planet's University League for 2024/25.

Indicative 2024 publications:

- Alam, E., Collins, A.E., Islam, Md. A.R.T., Paul, A. and Islam, Md. K. (2024) 'Change in cyclone disaster vulnerability and response in coastal Bangladesh', *Disasters*, 44:2., pp. doi.org/10.1111/disa.12608
- Taylor, S., Booth, D. and Irudayarajan, R. (2024) 'Diasporic Engagement and the Climate Crisis in Kerala: Inclusive Disaster Relief and Reconstruction?', South Asian Diaspora, 15: 2., pp. 217-31. <u>https://</u> doi.org/10.1080/19438192.2023.2240172
- Göçoğlu, V., Göksu, S., & Kotter, R. (2024). 'Unleashing Urban Technology Dynamics: The Interplay of AI Patents, Metropolitan Area Population, and R&D Expenditures in Sustainable Urban Development'. *Journal of Urban Technology*, 1–23. <u>https://</u> <u>doi.org/10.1080/10630732.2023.2289818</u>
- Kincey, M.E., Rosser, N.J., Swirad, Z.M., Robinson, T.R., Shresha, R., Pujara, D.S., Basyal, G.K., Densmore, A.L., Arrell, K., Oven, K.J. and Dunant, A. (2024) 'National-Scale Rainfall-Triggered Landslide Susceptibility and Exposure in Nepal'. *Earths Future*, <u>https://</u> doi.org/10.1029/2023EF004102
- Harvey, E.L., Kincey, M.E., Rosser, N.J.,

Gadtaula, A., Collins, E., Densmore, A.L., Dunant, A., **Oven, K.J**., Arrell, K., Basyal, G.P., Dhital, M.R., Robinson, T.R., Van Wyk de Vries, M., Paudyal, S., Pujara D.S., and Shrestha. R. 'Review of landslide inventories for Nepal between 2010 and 2021 reveals data gaps in global landslide hotspot', *Natural Hazards* <u>https://</u> doi.org/10.1007/s11069-024-07013-1

- Arrell, K., Rosser, N.J., Kincey, M.E., Robinson, T.R., Horton, P., Densmore, A.L., Oven, K.J., Shrestha, R. and Pujara, D.S. (2024) 'The dynamic threat from landslides following large continental earthquakes', *Plos One* <u>https://</u> doi.org/10.1371/journal.pone.0308444
- Deary, M. E. and Griffiths, S. D. (2024) 'The Impact of Air Pollution from Industrial Fires in Urban Settings: Monitoring, Modelling, Health, and Environmental Justice Perspectives', *Environments*, 11: 7. https://doi.org/10.3390/ environments11070157
- Van Vliet, N., <u>Massé, F.</u>, Muhindo, J., Nyumu, J., Mbangale, E. and Shephard, S. (2024) <u>Wild</u> <u>animal attacks and other occupational risks</u> <u>perceived by Indigenous hunters and fishers in</u> <u>the Yangambi landscape</u>', <u>Human Dimensions of</u> <u>Wildlife.</u> p. 1-14. <u>https://</u> <u>doi.org/10.1080/10871209.2024.2394595</u>



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Global Risks and Resilience Programme ODI Global, United Kingdom

http://www.odi.org

ODI's <u>Global Risks and Resilience Programme</u> published a range of reports, briefings and working papers in 2024:

- <u>The role of natural capital accounting in</u> <u>enhancing the climate resilience in Small Island</u> <u>Developing States</u>
- <u>The essential role of climate information</u> systems for early action interventions and resilience-focused decision-making
- <u>Mapping the information and learning landscape</u> for adaptation in Small Island Developing States
- Humanitarian action on climate and conflict: narratives, challenges and opportunities
- <u>Rapid assessment of the hunger-climate-conflict</u> nexus: Synthesis report
- <u>Rapid assessments of the hunger-climate-</u> <u>conflict nexus in Mali, South Sudan and</u> <u>Somalia: second assessment</u>
- Islands at the edge: How climate shocks shape poverty in Small Island Developing States
- <u>The price of a changing climate: extreme</u> weather and economic loss and damage in <u>SIDS</u>
- <u>Ten traps to avoid if aid programming is serious</u> <u>about engaging with context: Lessons from</u> <u>Afghanistan</u>
- <u>Strengthening resilience and climate adaptation</u> <u>in conflict and fragile settings: towards effective</u> <u>action</u>
- Bearing the burden: Climate Changeattributable losses and damages in the Sahel and Greater Horn of Africa
- <u>Assessing and financing loss and damage due</u> to climate change in Somalia
- <u>Climate change and human security implications</u> for humanitarian, development, disaster and climate risk management in Mozambique | ODI: <u>Think change</u>
- ODI Report: Humanitarian action on climate and conflict
- <u>Understanding and characterising collective</u> tenure and tenure security in pastoral systems:

Kenya, Sudan and Burkina Faso

- Breaking the cycle of debt in Small Island
 Developing States
- Towards a new knowledge architecture for SIDS
- Policy implementation and the socio-political geography of small island contexts
- <u>Nurturing civil society in SIDS: how can civic</u> <u>space be expanded and strengthened for</u> <u>greater inclusion, equity and empowerment?</u>
- What does it mean to take context seriously for engaging in markets? Lessons from Afghanistan
- Fishy Business: estimating the impact of irregular and unsustainable fishing of distantwater fishing fleets in Ecuador, Ghana, Peri, the Philippines and Senegal
- <u>Nigeria: impacts of Naira redesign on livelihoods</u> in Hayin Ade and Wuro Bappate
- <u>Sovereignty sales, economic revitalisation and</u> <u>inclusive development in Small Island</u> <u>Developing States (SIDS)</u>

Projects

- The programme has numerous multi-year projects/initiatives, including:
- ODI is the research and communications lead for <u>Supporting Pastoralism and Agriculture in</u> <u>Recurrent and Protracted Crises (SPARC)</u> (2020 – 2025), which aims to generate evidence and address knowledge gaps to build the resilience of pastoralists, agro-pastoralists and farmers in Africa and the Middle East
- ODI's Global China 2049 Initiative



Dr. Emma Gogerty Research Fellow E-mail: e.gogerty@odi.org
Images from events where ODI Global Participated at COP29







Projects

• RESI is a global advisory network based within the Global Risks and Resilience programme at ODI. Since 2021, RESI has been working with Small Island Developing States (SIDS) and their partners to frame policy problems, influence international institutions and find solutions to growing sustainability challenges in small islands. RESI aims to improve the conditions under which SIDS can achieve financial sustainability, environmental justice, international alliances and equitable societies.

Events

- ODI Global convened, hosted and/or participated in more than 32 events at <u>COP29</u> We managed the Climate, Peace and Transboundary Resilience Pavillion. Discussions on how to scale up climate finance and adaptation action in places affected by fragility, armed conflict and violence were held at the pavilion during Week 1 and Week 2 was focused on how we understand and manage transboundary climate risks, and what needs to happen at COP29 and beyond to raise the profile of cross-border risks. <u>Session videos available here</u>
- <u>Middle Corridor: what are the economic</u> opportunities and challenges/
- We held an Event in Papua New Guinea in November 2024 under the title "Catalyzing Cohesive Action on Climate and Security: Bridging Silos for Enhanced Humanitarian Action: Papua New Guinea Deep Dive". The event gathered voices different working on humanitarian programmes to explore opportunities of collaboration and coordination to meet immediate needs, reduce the drivers of conflict and fragility, promote greater human security, and deliver climate-resilient development. This was a closed event due to confidentiality, but a Deep Dive report is currently under production.
- On the 25th September, we co-hosted in New York at the sidelines of the 79th UNGA a roundtable 'Climate action in crisis contexts: titled opportunities for development and private sector finance', this high-level roundtable was hosted by USAID's Bureau for Humanitarian Assistance, the European Union, the Center for Climate and Security, the g7+ Secretariat and ODI. The event was attended by over 30 key representatives from governments, vertical climate funds, international financial institutions, and select non-governmental organizations, and private sector representatives including the Minister of Planning of Sierra Leone, The Vice President of the IFC, the Senior Vice President of the AfDB, DG of IOM, amongst other. An outcome document summarising

the takeaways of the roundtable is currently being finalised.

In May, we presented at the Stockholm Peace and • Development Forum 2024 workshop on 'Climate **Resilience for Peace: Programming in Fragile** and Conflict-Affected Contexts in Africa', that we co-organised by Stockholm International Peace Research Institute, African Development Bank, US Department of State, Global Center on Adaptation, and COP28 UAE. The workshop highlighted the need for evidence-informed approaches to identify and tackle climate and security interlinkages in conflict-affected and fragile settings, exploring possibilities for collaboration, spotlighting lessons learned, and proposing solutions for the implementation of the Relief, Recovery and Peace (RRP) Declaration, with a focus on Africa.

Media Highlights

- Mauricio Vazquez comments on the mechanism to drive climate action in fragile and conflict-areas by Emirates News Agency <u>Anwar Gargash Diplomatic</u> <u>Academy, g7+ and ODI establish a new mechanism</u> <u>in Climate action.</u>
- Emily Wilkinson comment on the Caribbean Marshsall Plan by the Guardian UK <u>Carribean</u> <u>leader calls for 'Marshall plan' to help rebuild after</u> <u>Hurricane Beryl</u>
- Mauricio Vazquez comments on an exclusive news report by the Reuters <u>Fragile countries make \$20</u> <u>billion climate finance push at COP29</u>
- Rebcca Nadin's comments on the China-Africa relations in the Times report <u>Why Xi has rolled out</u> <u>the red carpet for Africa's Leader</u>

Blogs/Articles

- <u>The barriers to uptake of disaster risk management</u> science in urban planning: A political economy analysis
- Sustaining Development in Small Islands: Climate Change, Geopolitical Security, and the Permissive Liberal Order
- <u>Readiness to access climate finance in Chad</u>
- <u>Climate risk report for the Central and South Asia</u>
 <u>region</u>
- <u>Climate risk report for the Southeast Asia region</u>
- <u>'Gender lens': the</u> <u>approach that low-carbon</u> <u>businesses cannot do</u> <u>without</u>
- <u>Assessing and</u>
 <u>loss and damage</u>
 <u>due</u>
 <u>to climate change in</u>
 <u>Somalia</u>

financing



Disaster Resilience Research Group University of Salford United Kingdom

https://hub.salford.ac.uk/uprise-for-disaster-resilience/



Throughout the year, the University of Salford's research activities have demonstrated а comprehensive, multi-disciplinary approach to disaster risk management, community engagement, and climate resilience. These initiatives align with the objectives of the University's Disaster Resilience Research Group and the THINKlab, both focused on pioneering solutions for the challenges posed by climate change. This report highlights key activities, including the deployment of the Multi-Hazard Early Warning System (MHEWS) on Fuvahmulah Island, notable research achievements. conference contributions, and global collaborations.

A series of collaborative meetings and field visits were conducted with the Mayor of Fuvahmulah Island, local councillors, and disaster response agency representatives to advance the MHEWS initiative. These engagements provided critical insights into the island's climate challenges and informed the customization of the MOBILISE solutions to enhance disaster preparedness.

The team also identified an appropriate site for the Living Lab concept, which aims to foster local partnerships and build technical capacity for the effective deployment of

> MHEWS. This project is part of *The Digital* Maldives for Adaptation, Decentralization,

and Diversification Project, which is funded to support climate resilience in the region.

As part of the MHEWS pilot, the University's technical team, led by Prof. Terrence Fernando, collaborated

with key stakeholders, including the Maldives Meteorological Service and the National Disaster Management Authority. A visit to the Maldives Meteorological Service's facilities enabled a thorough review of the infrastructure for weather data collection and storage, which will play a pivotal role in the project's success.

University Salford's The of Disaster Resilience Research Group proudly celebrated the accomplishments of four PhD graduates at the 2024 Graduation Ceremony. Despite the challenges posed by the COVID-19 pandemic, these graduates made significant contributions to the fields of disaster resilience, risk-sensitive urban

planning, and climate resilience.

The graduates and their thesis topics include:

- Dr. Devindi Geekiyanage: "A Holistic Approach for Fostering Community Engagement in the Decision -Making of Risk-Sensitive Urban Planning & Development."
- Dr. Pavithra Ganeshu: "Enhancing Stakeholder Collaboration in Risk-Sensitive Urban Planning in Sri Lanka."
- Dr. Srimal Samansiri: "The Characteristics of an Integrated Flood Warning and Response System that Can Facilitate Evidence-Based Decision-Making: A Case Study in Sri Lanka."
- Dr. Farhan Roslan: "A Framework for Implementing Risk-Sensitive Urban Development."

These researchers, working under the MOBILISE and TRANSCEND projects, have contributed to several published journal articles and continue to apply their knowledge in real-world challenges related to climate adaptation and resilience.



Prof. Kaushal Keraminiyage E-mail: k.p.keraminiyage@salford.ac.uk



Prof. Terrence Fernando delivered keynote speeches and participated in high-level panel discussions at various international conferences, where he shared insights on technology-driven solutions for disaster management. Notably, his keynote address at the MWRCY Malaysia Conference focused on how digital technology can enhance multi-hazard forecasting and early warning systems to strengthen disaster preparedness and resilience. Held in Kuala Lumpur, this conference brought together experts in humanitarian efforts, disaster management, and climate change.

Additionally, Prof. Kaushal Keraminiyage was invited to speak at the FARU 2024 International Conference at the University of Moratuwa in Sri Lanka. His presentation on sustainable community resilience in the context of global environmental challenges generated vibrant discussions. Prof. Keraminiyage also participated in the Research Week Fireside Chat at the University of Moratuwa, further advancing the exchange of ideas on disaster risk reduction and climate adaptation.

The research centre has continued to contribute to academic discourse on early warning systems with the publication of *"Identifying Critical Failure Factors of Flood Early Warning and Response Systems: An Analytical Review and Interpretive Structural Modelling Analysis."* Co-authored by Dr. Srimal Samansiri and Prof. Terrence Fernando, this paper delves into the critical failure factors of flood warning systems and presents strategies to enhance their effectiveness.

This research contributes to the improvement of the MHEWS framework by identifying key challenges and offering actionable recommendations for strengthening disaster response systems.

Other notable publications from the year include:

 "Inter-organisational Collaboration Structures and Features to Facilitate Stakeholder Collaboration," by P. Ganeshu, T. Fernando, M.C. Therrien, K. Keraminiyage.

• "Assessment of Community Disaster Resilience in Sri Lanka: Methodological Approach in Developing an Index," by K.H.K. Dharmadasa, U. Kulatunga, M. Thayaparan, K.P. Keraminiyage.

THINKlab at the University of Salford continues to lead in interdisciplinary research, focusing on digital technology, smart cities, and climate resilience. It provides a collaborative platform for researchers, students, and industry professionals to innovate and create solutions that bridge the gap between academia, government, and industry.

The MOBILISE and TRANSCEND projects are core to THINKlab's agenda, making significant contributions to disaster risk management and climate adaptation efforts in Sri Lanka and the Maldives. THINKlab's involvement in these projects exemplifies the power of academic-industry partnerships in driving impactful research and practical solutions.

The progress made through these initiatives not only strengthens disaster preparedness but also serves as a model for other regions to adopt similar solutions, contributing to a global network of strategies for addressing climate-induced hazards.





Africa





Africa



Africa

Algeria	Faculty of Civil Engineering, Built Environment Research Laboratory (LBE), University of Science & Technology Houari Boumediene (USTHB)		
Egypt	Faculty of Engineering, Alexandria University		
Egypt	Geology Department, Faculty of Science, Assiut University		
Egypt	German University in Cairo (GUC)		
Egypt	Water Resources Research Institute (WRRI), National Water Research Center(NWRC), Ministry of Water Resources and Irrigation		
Ghana	University for Development Studies (UDS)		
Ghana	Department of Geography & Resource Development, University of Ghana		
Ghana	Hydrology and Water Resource Engineering, Water Research Institute, Council for Scientific and Industrial Research (CSIR)		
Morocco	Faculty of Sciences and Technics of Mohammedia, University of Hassan II of Casablanca		
South Africa	Disaster Management Training and Education Centre for Africa (DiMTEC), University of the Free State		
Sudan	UNESCO Chair in Water Resources		
Zimbabwe	Geography Department, Bindura University of Science Education African Alliance of Disaster Research Institutes (AADRI)		





Africa Alliance for Disaster Risk Institutions (AADRI), Bindura University, Zimbabwe

https://www.aadri.org.zw/

EXTRACTS FROM THE MAIN REPORT BY THE AFRICA ALLIANCE FOR DISASTER RESEARCH INSTITUTE (AADRI) ON THE 2024 ASSESSMENT OF DISASTER RISKS AND PREPAREDNESS IN AFRICA

Executive Summary:

The Africa Alliance for Disaster Research Institute (AADRI) conducted а comprehensive assessment of disaster risks and preparedness across Africa in 2024. This report reveals the escalating of climate-induced disasters. impact exacerbated by rapid urbanization and socioeconomic vulnerabilities. While significant progress has been made in implementing the Sendai Framework, particularly showcased at the 21st session of the Africa Working Group on Disaster Risk Reduction (AWGDRR), persistent challenges in funding, coordination, and management hinder data effective resilience-building. This report provides key findings, highlights notable progress, identifies critical challenges, and offers actionable recommendations to enhance disaster preparedness and mitigate the devastating impacts on African communities.

Introduction:

Africa faces a complex and evolving landscape of disaster risks, driven by climate change, demographic shifts, and socioeconomic inequalities. This report, based on AADRI's 2024 assessment, aims to provide a comprehensive overview of the current state of disaster risk reduction (DRR) and preparedness across the continent. It also acknowledges and celebrates the achievements demonstrated at the 21st AWGDRR, while emphasizing the urgent need for accelerated action.

Key Findings:

- Escalating Disaster Trends:
- Africa is experiencing a surge ir climaterelated disasters, including droughts,



floods, cyclones, and wildfires, with the Sahel and East Africa being particularly vulnerable.

- Rapid urbanization and population growth, especially in informal settlements, are increasing exposure to disaster risks.
- The convergence of natural and human-induced disasters, such as epidemics and conflicts, is compounding vulnerabilities.

Devastating Socioeconomic Impacts:

- In 2024, over 20 million Africans were affected by disasters, resulting in significant loss of life, displacement, and food insecurity.
- Economic losses are estimated at \$10 billion, hindering sustainable development and exacerbating poverty.
- Disasters disproportionately impact marginalized populations, including women, children, the elderly, and people with disabilities.



Prof. Desmond Manatsa Interim President, AADRI Email: dmanatsa@gmail.com

Notable Progress and Best Practices:

- Enhanced Early Warning and Communication:
- Republic of the Congo: Effective public sensitization through radio programs, leveraging ACMAD's meteorological data.
- Uganda: Translation of complex climate and disaster information into accessible public advisories.
- Sierra Leone: Operationalization of a nationwide toll-free emergency line (199).
- Strengthened Governance and Financing:
- Sierra Leone: Development and approval of a national disaster risk financing strategy.
- Rwanda: Adoption of the Disaster Risk Management Policy (DRM) and establishment of a decentralized National Emergency Command Centre.
- Tanzania: Planned launch of a national situation room for disaster risk reduction.
- Regional Collaboration and Strategic Planning:
- ECCAS: Development of a regional climate change strategy aligned with the AU's framework.
- ECOWAS: Development of a regional crisis strategy.
- IGAD: Launch of the Multi-Hazard Early Warning and Early Action Framework and Roadmap on Anticipatory Action.
- SADC: Operationalization of the Emergency and Humanitarian Operations Centre (SHOC).
- Morocco: Strengthening urban resilience through improved tools.

Critical Challenges:

- Persistent Funding Gaps: Insufficient investment in DRR and climate adaptation limits the implementation of effective strategies.
- Coordination Deficiencies: Weak institutional frameworks and inadequate coordination among stakeholders hamper disaster response efforts.
- Data and Information Gaps: Lack of comprehensive and standardized data hinders evidence-based decision-making.
- Vulnerability of Marginalized Groups: Disasters exacerbate existing inequalities and disproportionately impact vulnerable populations.

Actionable Recommendations:

- Invest in Integrated Early Warning Systems:
- Prioritize investment in multi-hazard early warning systems (MHEWS) that integrate advanced technology and community-based mechanisms.
- Develop targeted communication strategies to ensure timely and accessible dissemination of warnings to all communities.
- Scale Up Sustainable Financing for DRR:
- Establish dedicated national and regional DRR funds, leveraging both public and private sector resources.
- Streamline access to international climate finance and the Loss and Damage Fund, ensuring equitable distribution.
- Strengthen Institutional Coordination and Governance:

- Enhance national and local DRR coordination mechanisms, promoting collaboration among government agencies, civil society, and the private sector.
- Develop and enforce robust DRR policies and regulations.
- Enhance Data Collection and Knowledge Management:
- Invest in standardized data collection and analysis tools, including geographic information systems (GIS) and remote sensing technologies.
- Establish national and regional DRR knowledge platforms to facilitate data sharing and best practice dissemination.
- Empower Community-Based DRR Initiatives:
- Support community-led initiatives that build local capacity and resilience.
- Integrate indigenous knowledge and traditional practices into DRR strategies.
- Prioritize Inclusion and Equity:

- Develop and implement gender-responsive and inclusive DRR policies and programs.
- Ensure the participation of marginalized groups in all phases of DRR planning and implementation.
- Accelerate Loss and Damage Fund Operationalization:
- Provide support to member states to access and utilize the Loss and Damage fund.
- Strengthen the Santiago network to provide needed technical assistance.

Conclusion:

Africa has demonstrated a commitment to DRR, as evidenced by the progress highlighted at the 21st AWGDRR. However, the escalating impacts of climate change and other hazards necessitate urgent and sustained action. By implementing the recommendations outlined in this report, African nations can build greater resilience, protect their communities, and achieve sustainable development. The AADRI remains dedicated to supporting these efforts through research, advocacy, and collaborative partnerships.



Delegates of the to the 21st session of the Africa Working Group on Disaster Risk Reduction (AWGDRR) organised by the Directorate of Sustainable Environment and Blue Economy (SEBE) of the African Union Commission, the United Nations Office for Disaster Risk Reduction (UNDRR) and the Government of the Republic of Rwanda and held in Kigali, Rwanda, from 16 to 18 April 2024.

Prepared by:

Prof Desmond Manatsa and Prof Emmanuel Mavhura

Africa Alliance for Disaster Research Institute (AADRI

AADRI WORKSHOP REPORT AT THE COP 29 SIDE EVENT

A collaborative effort for Africa Disaster Risk Reduction at the COP 29 side event: Launch of the African Disaster Risk Management and Recovery Platform at COP29 in Baku, Azerbaijan.



Launch of the African Disaster Risk Management and Recovery Platform

Introduction:

- On November 15, 2024, at the 29th Conference of the Parties (COP29) in Baku, Azerbaijan, the African Union Development Agency-NEPAD (AUDA-NEPAD), in collaboration with the African Risk Capacity (ARC) and the World Food Programme (WFP), officially launched the African Disaster Risk Management and Recovery Platform (ADRMRP). This groundbreaking initiative marks a significant milestone in Africa's efforts to address the escalating challenges posed by climate change and disasters.
- The platform is designed to revolutionize how Africa approaches disaster risk reduction, management, and recovery by introducing innovative, practical, and scalable solutions. It aims to strengthen the continent's resilience to climate-related disasters, ensuring long-term environmental, social, and economic stability.

Key Objectives of the Platform:

- Mobilize Resources:
- The platform seeks to mobilize both technical and financial resources to enhance Africa's capacity to mitigate, adapt to, and recover from climate-related disasters.
- It will leverage partnerships with governments, the private sector, and international development organizations to secure funding and expertise.

Foster Collaboration:

- The ADRMRP will serve as a collaborative hub, bringing together stakeholders from across the continent to share knowledge, best practices, and innovative solutions.
- It will promote synergies between existing initiatives, such as the Sendai Framework for Disaster Risk Reduction and the African Union's Climate Change and Resilient Development Strategy.

Strengthen Resilience:

- By integrating early warning systems, disaster preparedness plans, and climate adaptation strategies, the platform will enhance Africa's ability to anticipate, respond to, and recover from disasters.
- It will prioritize vulnerable communities, including women, children, and marginalized populations, ensuring that no one is left behind.

Promote Sustainable Development:

- The platform aligns with the United Nations Sustainable Development Goals (SDGs), particularly SDG 13 (Climate Action) and SDG 11 (Sustainable Cities and Communities).
- It will support the implementation of nature-based solutions, such as reforestation and sustainable land management, to build ecological resilience.

Relevance to Africa's Climate Challenges:

- Africa is one of the most vulnerable continents to the impacts of climate change, with increasing frequency and intensity of droughts, floods, cyclones, and other extreme weather events. These disasters have devastating consequences, including loss of life, displacement, food insecurity, and economic losses.
- The launch of the ADRMRP comes at a critical time, as Africa seeks to address these challenges while advancing its development agenda. The platform builds on the progress made at the 21st session of the Africa Working Group on Disaster Risk Reduction (AWGDRR), held in Kigali, Rwanda, in April 2024, where stakeholders emphasized the need for coordinated action and resource mobilization.

Expected Outcomes:

- Enhanced Early Warning Systems:
- The platform will support the development and deployment of advanced early warning technologies, ensuring timely and accurate information reaches at-risk communities.
- Improved Disaster Preparedness and Response:
- By strengthening institutional frameworks and capacity-building initiatives, the platform will enable faster and more effective responses to disasters.
- Increased Investment in Climate Adaptation:

- The ADRMRP will attract funding from international donors, private investors, and climate finance mechanisms, such as the Green Climate Fund and the Loss and Damage Fund.
- Strengthened Regional Cooperation:
- The platform will facilitate collaboration among African countries, regional economic communities, and international partners, ensuring a unified approach to disaster risk management.

Conclusion:

- The launch of the African Disaster Risk Management and Recovery Platform represents a transformative step forward in Africa's efforts to build resilience to climate change and disasters. By mobilizing resources, fostering collaboration, and promoting sustainable development, the platform will empower African nations to tackle the growing challenges posed by a changing climate.
- The Africa Alliance for Disaster Research Institute (AADRI) commends AUDA-NEPAD, the African Risk Capacity, and the World Food Programme for their leadership in this initiative. AADRI remains committed to supporting the platform's implementation through research, advocacy, and capacity-building efforts, ensuring that Africa is better equipped to face the challenges of the future.

Prepared by: Prof Desmond Manatsa

Africa Alliance for Disaster Research Institute (AADRI)

Climate Adaptation Research Program (CARP) USAID GRANT

Principal Investigator: Prof Emmanuel Mavhura

Title of Grant Project: Enhancing Flood Resilience in Southern Africa Through Hazard and Vulnerability Mapping

Period: November 2024 to April 2026

Summary:

Flooding in Southern Africa has become increasingly frequent and severe, posing significant risks to vulnerable communities in Zimbabwe and Mozambique. This project aims to develop comprehensive flood risk maps incorporating hazard identification, exposure analysis, vulnerability assessment, and storm surge modelling. We will achieve this by integrating geospatial data on flood

hazards, exposure, and vulnerability across central and southern Mozambique and southeastern Zimbabwe, areas impacted by cyclones Eline, Dineo, Idai, Chalane, and Eloise over the past 25 years. The project will produce high-resolution flood risk maps highlighting regions at the greatest risk and model storm surges along the Mozambican coast. Additionally, we will engage local communities, policymakers, and disaster management authorities to validate these flood risk models and encourage their practical use. By leveraging advanced geospatial technologies and numerical modelling tools, the project will empower decision-makers and local stakeholders to implement targeted flood risk reduction strategies, ultimately enhancing community resilience to flooding events.

1. Zimbabwe National Anticipatory Action Framework (June 2024) (Workshop Attended by AADRI)

Zimbabwe is grappling with severe climatic challenges, primarily droughts and floods which have been exacerbated by climate change. These events pose significant threats to food security, livelihoods, and community resilience, particularly in vulnerable regions such Manicaland. as Masvingo. Matabeleland, and parts of Mashonaland. The frequency of severe droughts, typically occurring every five years, has intensified, with recent occurrences impacting millions of people and leading to widespread food insecurity.

To address these challenges, the Anticipatory Action Framework offers a proactive approach to managing the risks associated with climatic hazards. Its overarching goal is to proactively prepare for and mitigate the impacts of emerging crises, ultimately saving lives and reducing suffering. This approach empowers communities and organizations to become proactive agents of change through timely, evidence-Hence. based interventions. the framework emphasizes preparedness, community engagement, and collaboration among stakeholders to enhance resilience and protect vulnerable populations from the damaging effects of climate-related disasters. The framework is informed by global, regional and national disaster risk reduction frameworks, strategies and legislations.

Anticipatory actions (AA) are central to this framework, involving predefined measures triggered by specific weather forecasts and risk assessments. These actions are designed to be executed prior to anticipated hazards, thereby preventing or mitigating their impacts. By integrating AA into Multi-Hazard Contingency Planning, Zimbabwe aims to ensure the timely prepositioning of resources and effective early responses to climatic events. The specific objectives of AA align with the National Roadmap for Anticipatory Action, focusing on building resilience and enhancing disaster risk reduction efforts across the nation. The Anticipatory Action Roadmap is guided by four key pillars:

Coordinating Frameworks: Establishing robust national structures for multi-agency collaboration.

Trigger Methodologies: Implementing diverse triggers for anticipatory actions to enhance forecasting and response

capabilities.

Financing Mechanisms: Expanding financial resources to support anticipatory actions across sectors. Advocacy and Evidence: Promoting anticipatory approaches and generating supportive evidence for their implementation.

Additionally, the Anticipatory Action Community of Practice (CoP) serves as a national platform for sharing knowledge and best practices among policymakers, practitioners, and researchers, fostering collaboration and innovation in disaster risk reduction. This framework outlines the hazard risk and impact timeline for floods and droughts, emphasising that while floods primarily affect Regions 1, 2, and 3, droughts are more common in Regions 4 and 5. The ongoing climate crisis has heightened the vulnerability of communities across all ecological regions. This framework recommends a multi-trigger approach to enhance flexibility and effectiveness, with ongoing efforts to develop and validate trigger models for drought and flood scenarios.

In conclusion, the Anticipatory Action Framework represents a vital strategy for Zimbabwe to manage the risks associated with climatic hazards proactively, ultimately fostering resilience and safeguarding development progress.

2. Symposium on the State of Food Security in the SADC Region in the Face of Climate Change (8 and 9 May 2024) (Attended by AADRI)

The Bindura University of Science Education, Centre of Excellence in Agroecology, Food Security and Climate Change organized a two-day symposium to address the food insecurity situation the in SADC region, particularly in light of the El Niño-induced drought. The symposium aimed to provide a platform for experts. researchers, policymakers, and stakeholders to share knowledge, discuss trends, and propose strategies to mitigate the effects of climate change-induced food insecurity. The symposium focused on understanding the current food insecurity situation in the region and explored ways to minimize and prevent such events in the future.



3. MEETING OF SADC MINISTERS RESPONSIBLE FOR DISASTER RISK MANAGEMENT, 25-28 NOVEMBER 2024, VICTORIA FALLS, ZIMBABWE

Ministers were invited to note that in July 2023, the Committee of Ministers responsible for Disaster Risk Management made eighteen (18) decisions. Seven (7) decisions were specifically for noting or approval of documents by Ministers, three (3) were for implementation jointly by the Secretariat and the Member States while two (2) were for implementation by the Secretariat alone. All the two decisions for implementation by the Secretariat and those for joint implementation by the Secretariat and Member States were fully implemented representing a 100% implementation rate. The decisions for implementation by Member States were shared with Member States.

4. FLOOD ANTICIPATORY ACTION (AA) SIMULATION EXERCISE (SIMEX) IN ZIMBABWE

The Government of Zimbabwe, through the Department of Civil Protection (DCP), with support from Bindura University, FAO, IFRC, and WFP, is coordinating a Flood Simulation Exercise in Chipinge District from 28 October to 27 November 2024. Participation from government ministries, academics, non-governmental and civil society organisations, and the private sector will be essential to the success of implementing a multiactor flood simulation. The overarching goal of the Anticipatory Action (AA) Simulation Exercise (SimEx) in Zimbabwe is to enhance the effectiveness and timeliness of anticipatory action for flood events by evaluating and strengthening coordination mechanisms and operational alignment. This ambitious objective is grounded in the recognition that effective anticipatory action requires a well-coordinated, efficient, and aligned

system that can quickly and adequately respond to early warning signals, thereby mitigating the impacts of floods on communities and infrastructure. The Specific Simulation Objectives included:

- Evaluate Existing Early Warning Systems and Triggers: Assess the accuracy and timeliness of early warning systems and the appropriateness of triggers for flood-related anticipatory action.
- Assess Coordination Structures: Evaluate the functionality and effectiveness of current coordination structures, including national and sub-national platforms and clusters.
- Test Operational Readiness and Alignment: Ensure pre-identified anticipatory actions align with pre-agreed triggers and resources are deployed effectively.
- Identify Bottlenecks and Gaps: Highlight areas where the current AA system is inefficient or lacking.
- Develop Recommendations for Improvement: Provide actionable recommendations to enhance the efficiency and impact of floodrelated AA in Zimbabwe.
- Strengthen Stakeholder Capacity: Build the capacity of stakeholders to implement AA effectively.









Area	Members	Economies
Africa	12	7
Americas	34	8
Asia (Excluding Japan)	87	24
Europe	42	15
Japan	31	1
Oceania	11	2
Total Institutes	217	57
	57 economies	



Japan, 31, 14%

Americas, 34, 16%

Europe, 42, 19%

Asia (Excluding Japan), 87, 40%

Geographical Distribution of



Members of GADRI as of 31 December 2024





GADRI Secretariat, Disaster Prevention Research Institute (DPRI), Kyoto University, Japan



GADRI SECRETARIAT

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