# Annual Report 2021

GADRI

Global Alliance of
Disaster Research Institutes

Global Alliance of Disaster Research Institutes

Global Alliance of Disaster Research Institutes

# Global Alliance of Disaster

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.

Implementing the recommendations of the 2011 Global Summit, the Global Alliance of Disaster Research Institutes (GADRI) was launched 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 in March 2015 which

GADRI Secretariat is hosted by:

Disaster Prevention Research Institute (DPRI)

# Research Institutes (GADRI)

was held soon after the UN World Conference on Disaster Risk Reduction (WCDRR, 2015) which took place in Sendai, Japan. The 2011 Global Summit paved the way to start the Global Summit series of GADRI.

Currently, GADRI members work closed with the initiatives of UNDRR. GADRI works closely with the science and technology community collaborating in research, 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 thank and acknowledge support received by all members with their inputs to the GADRI Annual Report 2021.

GADRI Secretariat

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Edited and designed by Hirokazu Tatano and Wilma James.

# GADRI
# Annual Report
# 2021

# Message from the Secretary-General, GADRI

Dear Member of GADRI,

2021 turned out to be, yet another challenging year with the COVID-19 pandemic which continue to remind us about the unknown risks and the importance of preparedness, and cohesive risk communication shared among stakeholders and our communities. We have also witnessed how the decision makers and governments were leaning towards the science community for evidence-based and solution-driven science research. We would like to take this opportunity thank all of you for continuing your important work in this direction.

GADRI activities of 2021 are given below:

- GADRI Secretariat arranged quarterly meetings of the Board of Directors of GADRI to discuss the activities and direction of GADRI.
- 5th Global Summit of GADRI : Engaging Sciences in Action – held within 28 hours virtually and intercontinentally from 31st August and 1st September 2021. This could not have been accomplished if not for the extraordinary support and coordination received from our members and partners in North and South America, Europe, Africa, Middle East, Oceania and Asia and all other partners especially the UNDRR who were with us from the beginning to the end of the conference. We all came together to make this event a success and an one of a kind event with nearly 570 participants from over 70 economies.
- Newsletter – GADRI Actions – published the Spring 2021 and Summer and Winter versions.
- Contributions to the UN Climate Change Conference of the Parties (COP26) held in Glasgow, Scotland from 31st October to 12 November 2021. GADRI shared its contribution through UK Research and Innovation (UKRI).
- GADRI was invited by UKRI to participate in the finale event of UKRI COP26 meeting on 15th December 2021. GADRI was represented by: Prof. Paul Kovacs, Chair, Board of Directors of GADRI, Prof. Mahua Mukherjee, member, Board of Directors of GADRI, IIT, Roorkee, India, and Prof. Andrew Collins, former Chair of Board of Directors of GADRI, and member of GADRI, DDN, Northumbria University, UK.
- The Disaster Prevention Research Institute (DPRI), Kyoto University, Japan provided a research grant to GADRI to carry out a collaborative research project on the "GADRI Collection of World Disaster Databases".
- Under the Disaster and Risk Research: GADRI Book Series, two books were published – Proceedings of the 3rd Global Summit of GADRI; and the Ecosystems-Based Disaster and Climate Resilience. You may wish to visit the site to obtain further information - https://www.springer.com/series/16177
- GADRI Board of Directors is taking steps to form five working groups to work on the five major objectives of GADRI
- GADRI met with the Tohoku University, International Research Institute of Disaster Science (IRIDeS), Japan to discuss about the next World Bosai Forum

None of these activities could have been accomplished without your active and generous support.

We look forward to your continued support and cooperation.

Stay safe and healthy.

Hirokazu Tatano

Hirokazu Tatano

Secretary-General, GADRI; and

DPRI, Kyoto University, Japan

## 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

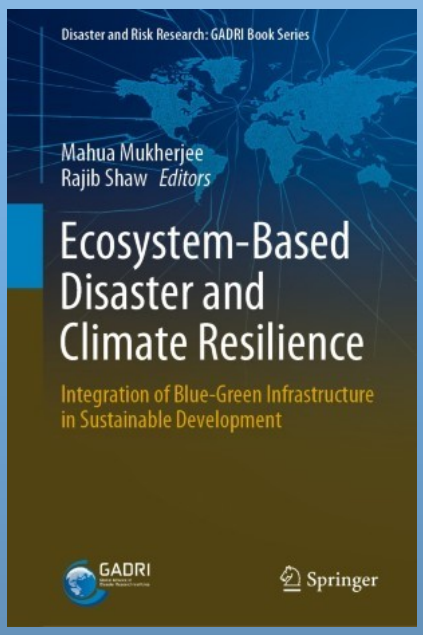
- To support the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030
- To establish a global research network that promotes and engages disaster research.
- To provide a research roadmap, with plans that help facilitate the organization of disaster research groups.
- To promote 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.

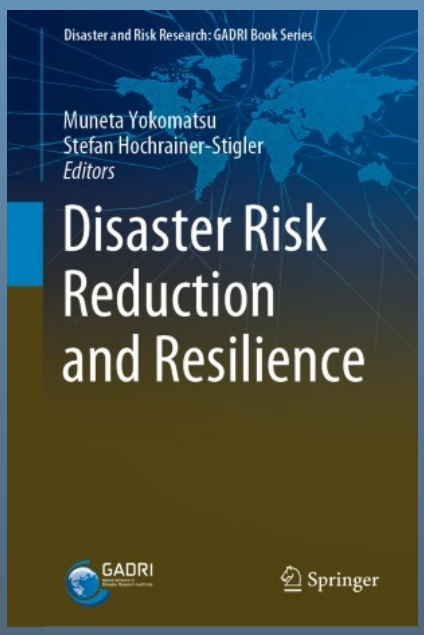
## GADRI Activities

- 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


Published Books





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 present the forefront of disaster research, including key scientific findings, methodologies, policy 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, multi-stakeholder 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 guidance with clearly identifiable roadmaps to ensure human safety and security.

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

# GADRI works closely with the UNDRR

GADRI has contributed to the Science and Technology Advisory Group (STAG); and the Expert Group on the Global Risk Assessment Framework (GRAF).

## Global Risk Assessment Framework (GRAF)

GADRI was elected as a member of the Expert Group on the Global Risk Assessment Framework (GRAF) which was established as an important global initiative to support the implementation of the Sendai Framework Agenda for 2015-2030.


GADRI will also submit its 5th Global Summit of GADRI recommendations at the at 7th Session of the Global Platform for Disaster Risk Reduction (GP22) to be held in Bali, Indonesia in May 2022.

Together will other members, GADRI will support the TS15: Early Warning Early Action part of the GP22.

Further information at: https://globalplatform.undrr.org/

# 5th Global Summit of GADRI
# Engaging Sciences with Action
# 31 August to 1 September 2021

The Global Alliance of Disaster Research Institutes (GADRI) - https://gadri.net/ organised the 5th Global Summit of GADRI under the theme of Engaging Sciences with Action virtually and regionally from 31st August to 1st September 2021. http://gadri.net/summit/

The 5th Global Summit of GADRI aimed at stock taking of progress and achievements in DRR research from its members toward the targets of the Science and Technology Roadmap to implement the goals and priorities of the Sendai Framework. The programme communicated academic science across scientific disciplines to policy makers and practitioners. It is an important aspect for academics to be aware how science can directly contribute to national and local disasters, for example, the current global pandemic COVID-19, earthquakes, volcanic eruptions, etc. Such situations prompt scientists' interventions, expertise, experience and the opportunity to share them with emergency managers in crisis situations.

The 2021 Global Summit of GADRI was organised with cooperation with its regional alliances and planned to share the outcomes and recommendations of the summit with the UN Climate Change Conference of the Parties (COP26) in the UK in November 2021; and the UNDRR Global Platform for DRR in Bali, Indonesia in May 2022. The submission of the recommendation from the summit to the COP26 was facilitated through the UK Research and Innovation (UKRI).

The 5th Global Summit of GADRI opening session was chaired by Prof. Kaoru Takara, Dean, Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University, Kyoto Japan. Prof. Paul Kovacs, Chair, Board of Directors of GADRI, in a brief message, welcomed the participants. This was followed by a video message from Ms. Mami Mizutori, Special Representative of the Secretary-General for DRR, UNDRR, Switzerland; and the greetings from the Secretary-General of GADRI, Prof. Hirokazu Tatano.

The first Plenary Session on the topic of Systemic Risk and Current Action was covered by Ms. Loretta Hieber Girardet, Chief, Risk Knowledge, Monitoring and Capacity-Development Branch, United Nations Office for Disaster Risk Reduction (UNDRR); COVID -19 and other hazards – Science into Action was delivered by Prof. Virginia Murray, Head, Global Disaster Risk Reduction, Public Health England (PHE), UK; and the Lessons of COVID-19 for Systemic Risk Governance: Recycling Sustainability and Resilience was delivered by Prof. Ortwin Renn, Scientific Director, Institute for Advanced Sustainability Studies (IASS), Germany. The session was chaired by Prof. Kaoru Takara, Professor and Dean, Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University.

The Opening Ceremony and the Plenary Session I was logged in by about 334 people from around the world.

The regional sessions took place soon after the opening plenary.

- Americas covering North and South America was on Current Situation of Science Collaborations in Hazards DRR.
- The second Plenary Session on How to Engage Science in the Decision-Making Process within National Governance and Relate Science into Action?
- Asia and Oceania regional session covered the topic on Engaging Sciences with Action: Voices from Asia and Oceania
- Europe with Africa and the Middle-East was on Exploring solutions to Bridge the Gaps for Implementation of Science in Action.
- There was parallel sessions on Networking with Institutes and an e-poster session.

The summit closed with a final wrap-up session for the regional session the closing ceremony.

An amazing number of 640 participants from 77 economies registered for the conference; and nearly 568 members from 73 economies logged in via zoom meeting to attend the 28+-hour long conference.

Prof. Kaoru Takara

Prof. Paul Kovacs

Ms. Mami Mizutori

Prof. Hirokazu Tatano

During the Closing Ceremony, on behalf of UNDRR, Dr. Jenty Kirsch-Wood congratulated the organizers of the event and thanked GADRI and each and everyone involved in the organisation for an insightful and very deep and creative Fifth Global Summit.

The Plenary Session I on Systemic Risk and Current Action was covered by:

Ms. Loretta Hieber Girardet, Chief, Risk Knowledge, Monitoring and Capacity-Development Branch, United Nations Office for Disaster Risk Reduction (UNDRR)

COVID-19 and other hazards – Science into Action by Prof. Virginia Murray, Head, Global Disaster Risk Reduction, Public Health England (PHE), UK

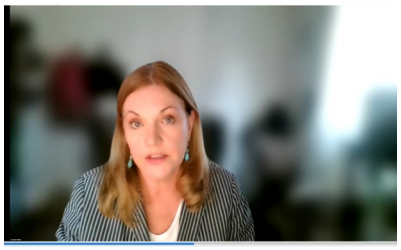
Lessons of COVID-19 for Systemic Risk Governance: Recycling Sustainability and Resilience by Prof. Ortwin Renn, Scientific Director, Institute for Advanced Sustainability Studies (IASS), Potsdam, Germany

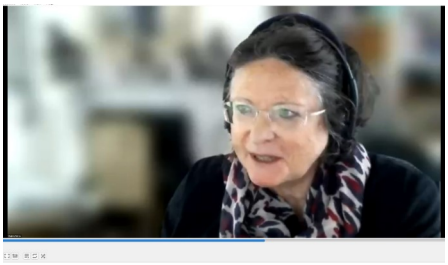
Recommendations from the session:

Ortwin—Lastly, he concluded that is also an inclusion issue, it is necessary to include the people that are affected. He also mentioned that it is a point echoed by two previous speakers. It is very important that those who are affected by risks are also part of the risk governance.

Virginia—we need to improve our data infrastructure, that we need to have implementation science taking science to inform policy and practice. need better informed decision making. We need to reduce disaster risk. We need to contribute to sustainability and we need to enhance resilience.

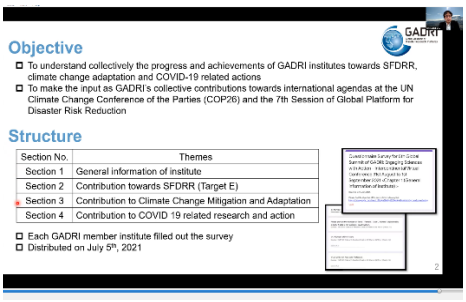
Loretta—She stated that it is quite important to improve the use of science, data and risk knowledge to transform disaster risk systems that both build and manage the situations. One very critical ingredient, achieving this transformation is the strengthening of the relationship between science and policy making.

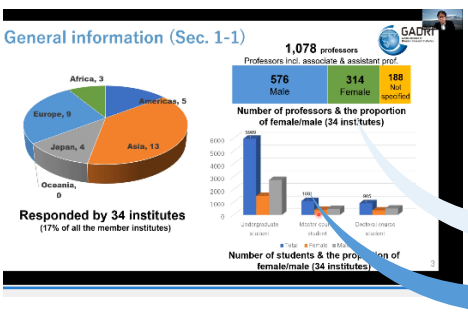




GADRI Secretariat shared results of GADRI activities:

- Voluntary Reports of Achievements contributing to the targets of S&T Roadmap for implementation of the goals and priorities of the Sendai Framework.by Dr. Subhajyoti Samaddar, DPRI, Kyoto University, Japan
- Results of the Questionnaire Survey by Dr. Genta Nakano, DPRI, Kyoto University, Japan
- Disaster and Risk Research: GADRI Book Series, Dr. Sameh Kantoush, DPRI, Kyoto University, Japan
- Book on Ecosystem-based Disaster and Climate Resilience: Integration of Blue-Green Infrastructure introduced by Prof. Mahua Mukherjee from Indian Institute of Technology (IIT), Roorkee, India
- Book on Disaster Risk Reduction and Resilience introduced by Dr. Muneta Yokomatsu, DPRI, Kyoto University, Kyoto, Japan




From the GADRI Questionnaire survey

## Americas Time Zone Session covering North and South America:

### Current Situation of Science Collaborations in Hazards DRR

The regional session on Americas covering North and South America was on **Current Situation of Science Collaborations in Hazards DRR.** The session was opened by Dr. Guirong Grace Yan, Director, Center for Hazard Mitigation and Community Resilience, Missouri University of Science and Technology.

Keynote speech on Multidisciplinary Modeling Progress and the Role of Community Engagement in Resilience Planning was delivered by Prof. John W. van de Lindt, Colorado State University & Center for Risk-Based Community Resilience Planning. USA; and Board Member, GADRI Board of Directors.

The following four topics for panel discussion sessions were selected by the North American Alliance of Hazards and Disaster Research Institutes (NAAHDRI). The four sessions were divided to two parallel sessions, i.e. I and III and II and IV.

I Enabling Resilience: Preventing Disasters in Hazard-Prone Areas

- What goal do we want to achieve? The goal is to enable resilience by preventing natural hazards from becoming disasters

II Reducing Barriers for Scientists and Engineers to Enhance Resilience

- How to achieve the goal by developing innovative approaches?

III Innovative Approaches in Disaster Resilience

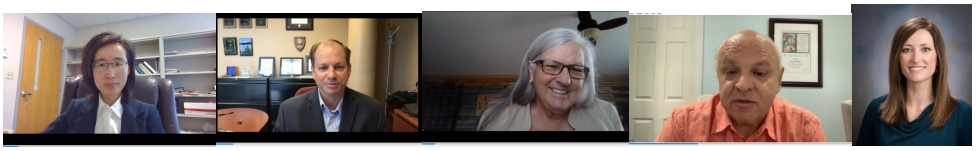
- How to reduce barriers in implementing the developed approaches?

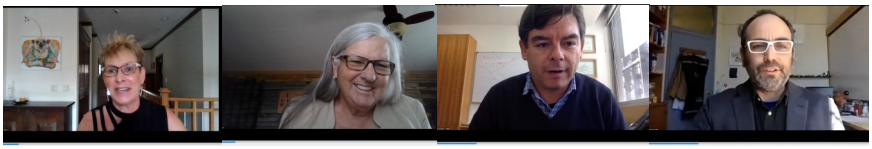
IV Equitable Resilience: Addressing Social Justice in Disasters

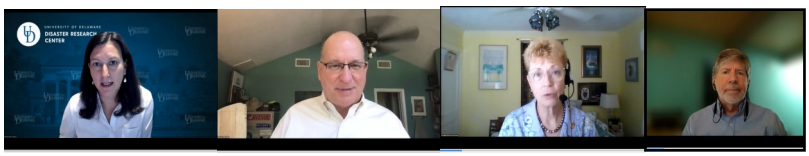
- How to upgrade “resilience” into “equitable resilience” in order to reduce hazard impacts on marginalized populations?

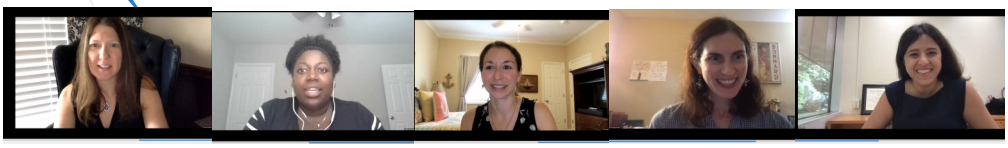
The Americas session was coordinated by Prof. John van de Lindt, Dr. Guirong (Grace) Yan, Dr. Jamie Kruse, Prof. Lori Peek, and Prof. Paul Kovacs and brought in 25 experts in various disciplines from all over the region to do a 10–15-minute presentation and engage in discussion with the audience for 30-80 minutes.

The Americas time zone session was covered within six hours and about 377 participants from all over the world logged in via zoom meeting.







**The second Plenary Session on How to Engage Science in the Decision-Making Process within National Governance and Relate Science into Action?** – was covered by four keynote speakers.

- Mobilizing science for disaster risk reduction and development safety - a decade quest of IRDR delivered by Prof. Qunli Han, Executive Director, International Programme Office of Integrated Research on Disaster Risk (IRDR-IPO), China

- Disaster Risk Reduction in Small Nations delivered by Dr. Selwyn Mahon, American University of the Caribbean School of Medicine, Sint Maartens

- Non-regret climate change adaptation with a paradigm-shift of the water-related disasters delivered by Prof. Eiichi Nakakita, Director, Disaster Prevention Research Institute (DPRI), Kyoto University, Japan; and


- Finally a video message by Ms. Emilia Saiz Carrancedo, Secretary-General, United Cities and Local Governments (UCLG), Spain

This session was chaired by Prof. Charles Scawthorn, Visiting Researcher, Univ. California at Berkeley and Principal of SPA Risk LLC.

## Asia and Oceania Time Zone Session

## Engaging Sciences with Action : Voices from Asia and Oceania

The session on Asia and Oceania, brought in diverse voices and perspectives of engaging sciences with action for effective DRR in the region.

This session started with four keynote speeches of the pioneers, stalwarts, and personalities of the region involved in engaging sciences with action. They shared their respective nations' efforts to contribute to DRR and the implementation of the goals and priorities of the Sendai Framework and highlight key issues, mechanisms, processes, and future directions for engaging science with action in the most disaster-prone region.

The session was opened by four keynote speeches.

- Science for Resilience, Haruo Hayashi, National Research Institute for Earth Science and Disaster Resilience
- An introduction of the first national comprehensive disaster risk survey project of China, Yang Saini, Beijing Normal University
- Using science to support decision-makers to reduce risk from natural hazards events: some examples from Aotearoa New Zealand, Gill Jolly, GNS Science
- Engaging Science with actions: A case for EEW in India, M. L. Sharma, SAADRI Programme Adviser

The session was chaired by Prof. Toshio Koike, Executive Director, International Centre for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO, Japan; and Member of the GADRI Board of Directors.

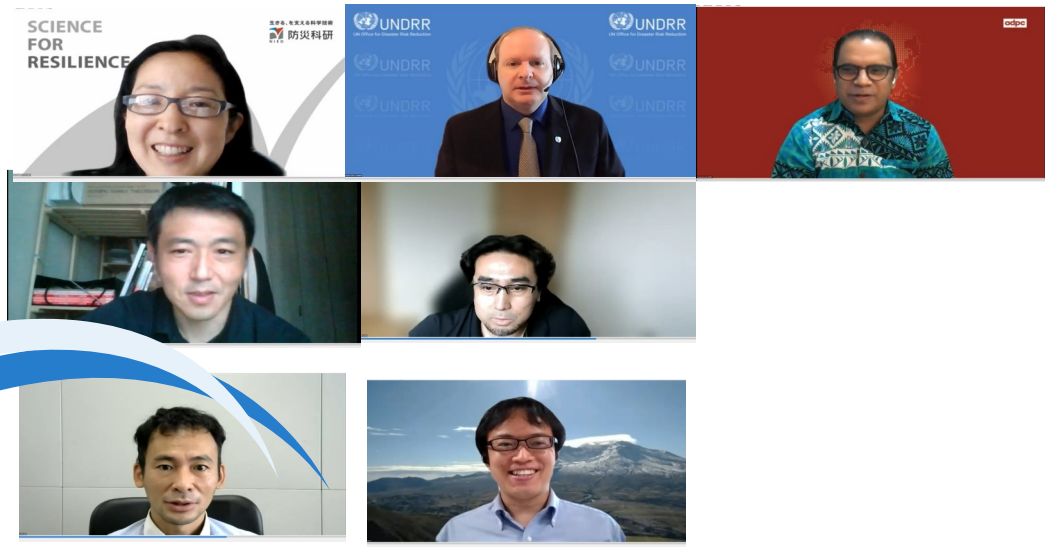
The four-panel sessions on the following topics were held in parallel in two parts.

I Regional Alliances: Improving collaboration to support global stakeholders on DRR and DRM

- Introducing current and existing alliances; and Introducing Viewpoints: Suggestions for Improvement –
- What should we do to encourage youth to engage in education?

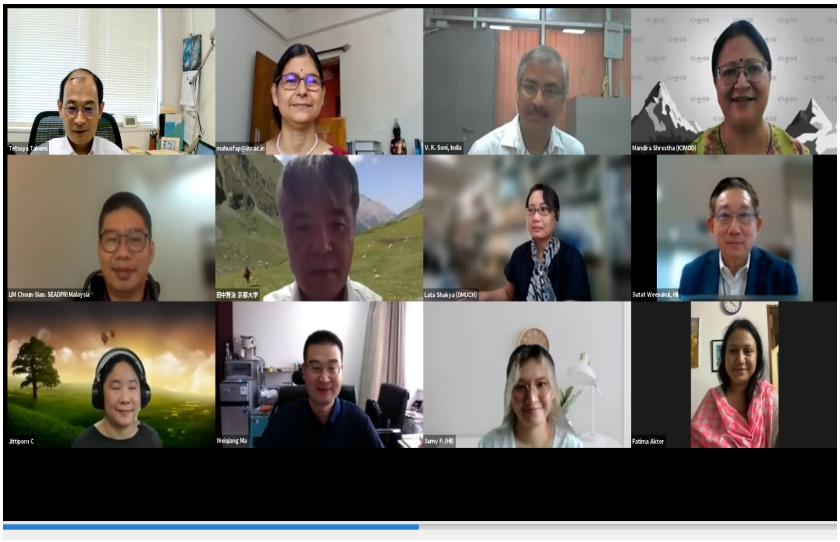

II Target E - Disaster Risk Governance and Contribution for Policy Making

- Progresses and challenges of DRR policies
- Potentials of Scientific knowledge for DRR policies



III Contributions to Climate Change Adaptation

- To create a roadmap for Universities and Research Centres in support of the climate change research agenda
- To list measurable contributions of the Asia and Oceania Region towards the COP26.



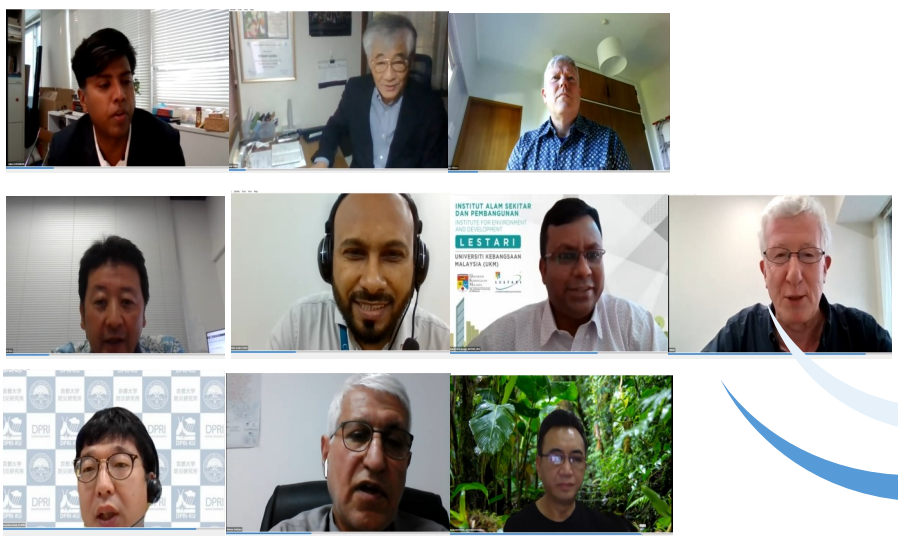
IV Implementation of Sciences in Action

- Implementation Science in DRR

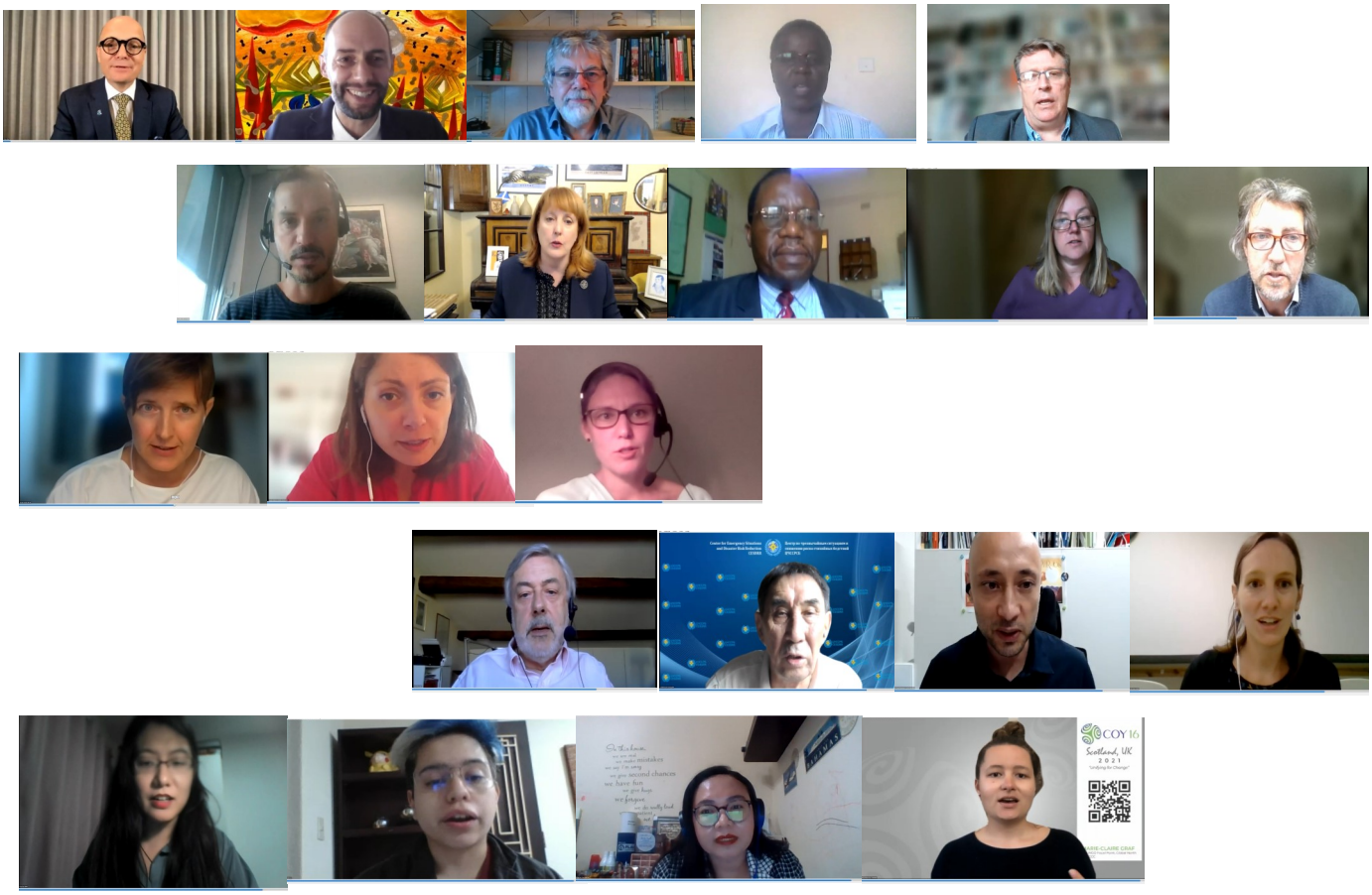
The panel discussion session brought in 32 experts in various fields of specialisation to present their arguments and to engage in discussion with the audience.

The session was closed with a final wrap-up session chaired Prof. Maki by each group chair with the session achievements and recommendations.

The Asia and Oceania time zone session was covered within six hours and was attended by nearly 140 participants from around the world.



## Europe with Africa and the Middle East Time Zone Session



The Europe, Africa and Middle East time zone session of the conference Explored Solutions to Bridge the Gaps for Implementation of Science in Action. The session discussed the urgent need to implement ideas, solutions and findings in disaster risk reduction (DRR).

The session included two keynotes by Dr. Tom De Groeve, Deputy Head of Unit, Disaster Risk Management Unit, European Commission, Joint Research Centre (EC-JRC), Italy on Engaging Sciences with Action: Results from the first five years of the Sendai Framework; and Prof. Nico Elema, Director, PeriPeri U, Stellenbosh University International, South Africa on Exploring solutions to bridge the gaps for implementation of Science in Action. Keynote session was chaired by Prof. Andrew Collins, Northumbria University, UK.

Topics of the discussion sessions included:

- Bridging the Collaboration Gaps : Integrating DRR and CCA for a Science in Action Agenda
- Bridging the knowledge Gaps: Exploring solutions for Transforming Data into Action
- Bridging the Science-Policy Gaps: Contextualising Governance to Explore Opportunities for Action
- Bridging the Generational Gap: Catalysing Science in Action by Youth Engagement

The session brought in 19 specialists including the Deputy Head, Adaptation Unit, European Directorate General for Climate Action; a Member of Parliament, Scottish Government, Shadow SNP Spokesperson for Environment, Food and Rural Affairs.

The session was closed with a final wrap-up session.

Within the six hours, nearly 150 participants from around the world attended the session.

Further details on the sessions are given in the newsletter, GADRI Actions 15—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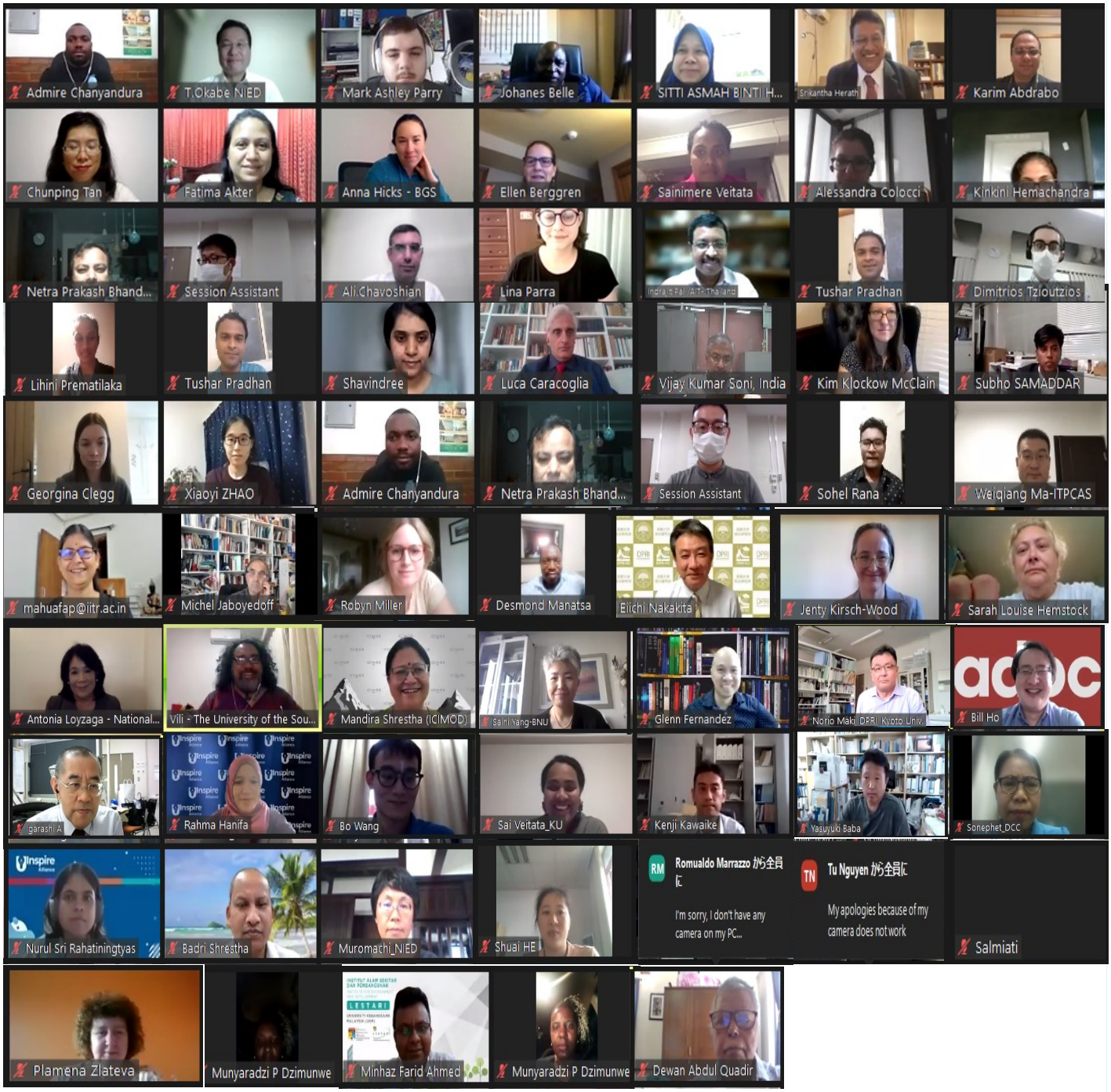
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Yasuyuki Baba
Sonephet_DCC
Nurul Sri Rahatiningtyas
Badri Shrestha
Muromachi_NIED
Shuai HE
Romualdo Marrazzo から全員に
I'm sorry, I don't have any camera on my PC...
Tu Nguyen から全員に
My apologies because of my camera does not work
Salmiati
Plamena Zlateva
Munyaradzi P Dzimunwe
Minhaz Farid Ahmed
Munyaradzi P Dzimunwe
Dewan Abdul Quadir

# Members of the GADRI Board of Directors 2020-2024

| | Name | Term | Institute |
|---|---|---|---|
| ***Europe and Africa*** | | | |
| 1 | Prof. Ortwin Renn | 1 April 2018 to 31 March 2022 | Institute for Advanced Sustainability Studies (IASS), Germany |
| 2 | Dr. Zita Sebesvari | 1 April 2020 to 31 March 2024 | United Nations University, Institute for Environment and Human Security (UNU-EHS), Bonn, Germany |
| 3 | Prof. Peter Sammonds<br>Prof. David Alexander | 1 April 2020 to 31 March 2024 | Institute for Risk and Disaster Reduction (IRDR), University College London, UK |
| ***Asia and Oceania*** | | | |
| 5 | Prof. Gretchen Kalonji | 1 April 2020 to 31 March 2024 | IDMR, Sichuan University, Chengdu. China |
| 6 | Prof. Toshio Koike | 1 April 2020 to 31 March 2024 | International Centre for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO, Tsukuba, Japan |
| 7 | Prof. Sumit Sen | 1 April 2018 to 31 March 2022 | Indian Institute of Technology (IIT) Roorkee, India |
| 8 | Dr. Indrajit Pal | 1 April 2018 to 31 March 2022 | DPMM) Asian Institute of Technology (AIT), Bangkok, Thailand |
| ***Americas*** | | | |
| 9 | Prof. Paul Kovacs<br>**(Chair of GADRI Board of Directors)** | 1 April 2018 to 31 March 20224 | Institute for Catastrophic Loss Reduction, Western University, Canada |
| 10 | Prof. Rodrigo Cienfuegos | 1 April 2018 to 31 March 2022 | Centro Nacional de Investigacion par la Gestion de Desastres Naturales (CIGIDEN), Santiago, Chile |
| 11 | Prof. John van de Lindt | 1 April 2020 to 31 March 2024 | Center for Risk-Based Community Resilience Planning, Colorado State University, USA |
| ***GADRI Secretariat*** | | | |
| 12 | Prof. Hirokazu Tatano | Secretary-General | DPRI, Kyoto University, Kyoto, Japan |

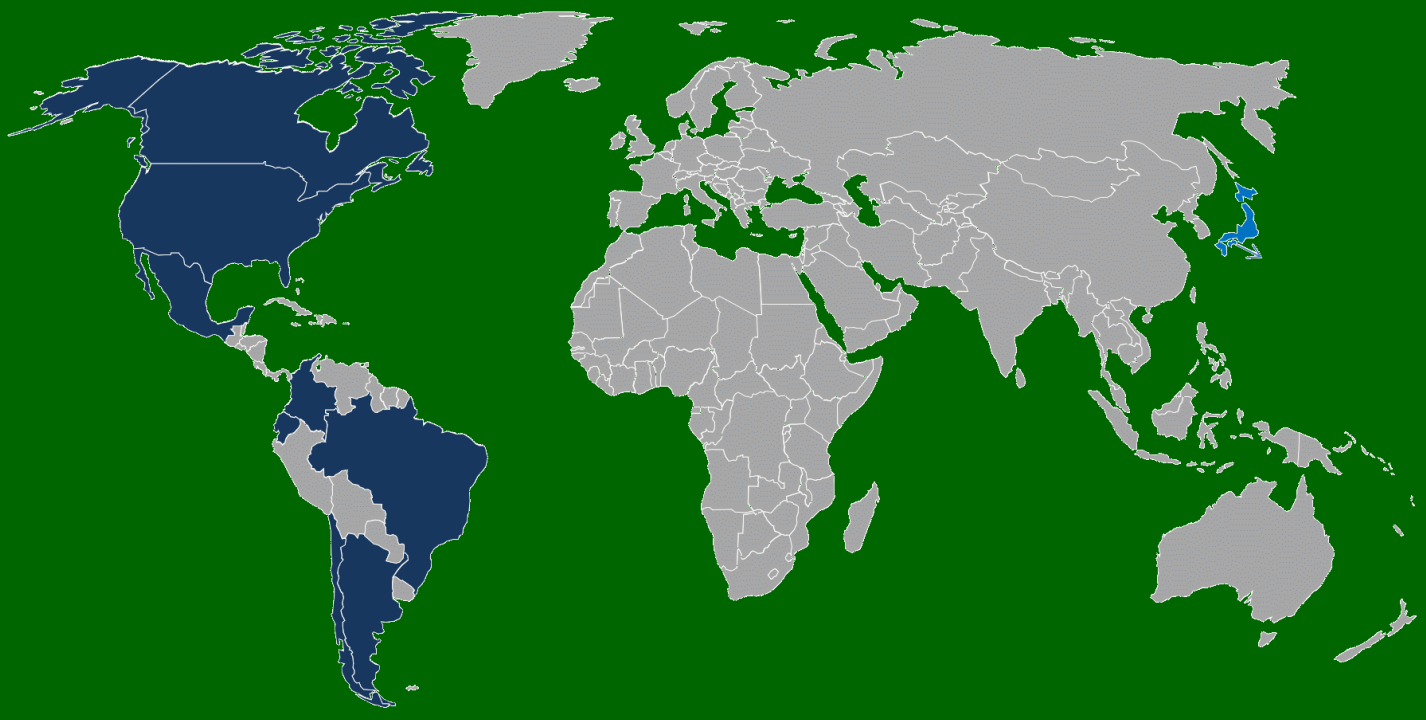
# Regional Alliance

| | | |
|---|---|---|
| 1. | Prof. Desmond Manatsa | African Alliance of Disaster Research Institutes (AADRI), Bindura University of Science Education, Zimbabwe |
| 1. | Prof. Andrew Collins<br>Co-chair UKADR) | UK Alliance of Disaster Research (UKADR), Disaster and Development Network (DDN), Northumbria University, UK |
| 2. | Prof. Paul Kovacs | North American Alliance for Hazards and Disaster Research Institutes (NAAHDRI), Natural Hazards Center (NHC), University of Colorado, Boulder, USA |
| 3. | Prof. Mahua Mukherjee | South Asian Alliance of Disaster Research Institutes (SAADRI), IIT, Roorkee, India |
| 4. | Prof. Toshio Koike | Japan Science Council |
| 5. | Prof. Jorgen Sparf | European Alliance of Disaster Research Institutes (EUADRI), Mid Sweden University, Sweden |

# Keeping in touch with members

# Keeping in touch with members

# 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 | American Society of Civil Engineers (ASCE) |
| 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 | Center for Wind Hazard and Infrastructure Performance, Texas Tech |
| 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 | Geologic Hazards Science Center, U.S. Geological Survey |
| USA | Department of Environmental Studies, Resilience Institute, Western Washington University |

# Federal University of Campina Grande（UFCG), Brazil

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

The Federal University of Campina Grande (UFCG) conducts studies, research and intervention on environmental disasters in a broad sense, spanning several areas. This is partly motivated by the institution's location in the semiarid region of Brazil, high populated and socially and economically vulnerable to environmental hazards, such as droughts, desertification, land degradation, flash floods, health vulnerability, leading to social inequality. Our present interests are on understanding local and regional needs and the social aspects of Disaster Risk Reduction (DRR).

UFCG's students with the Municipal Civil Defence officials during fieldwork for surveying and risk communication activities in disaster-prone communities

Prof. Carlos de Oliveira Galvao

E-mail: carlos.galvao@ufcg.edu.br

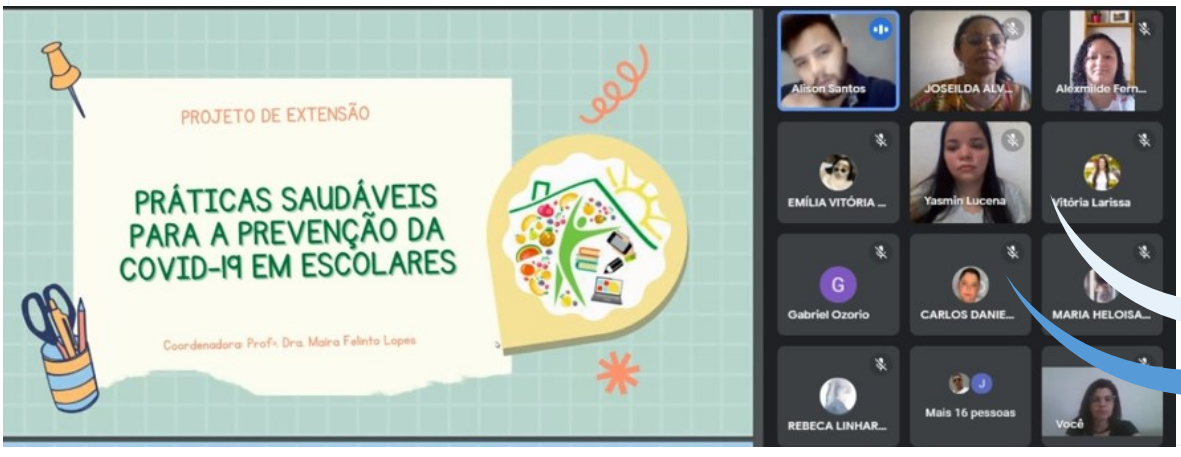
Water reuse technologies for reducing Covid-19-driven water scarcity in small rural communities

In 2021, great emphasis was given to initiatives towards disaster awareness, through appropriate risk communication, preparedness and mitigation. Social media and online communication platforms were extensively used to support knowledge transfer and dissemination, as well as for improving scientific and technological cooperation with local, regional and national governmental and non-governmental organisations. UFCG's online learning systems were extended and adapted to better support remote education, research, and development.

2021 was marked by the continuity of the Covid-19 pandemics. States and municipal governments, public and private health services, as well as organisations of the civil society, universities and research institutes took the lead to convey the best management of the crisis and support to the population to deal with the disaster.

UFCG prompted its infrastructure and personal to be part of this collective front. The university hospital, laboratories and research groups adapted their facilities to support studies, produce materials and products to combat the pandemics. This included initiatives to mitigate and manage the pandemic risk, mostly in the areas of Health, Biosecurity, Psychology, Mental Health, Education, Social Protection, Environment, Sanitation, Housing, Agriculture, Food and Nutrition, Human Rights, Information Technology, and Data Science. Many of these projects were implemented in cooperation and coordination with other Brazilian and international institutes and organisations.


Capacity-building program for activists and social agents on The Right to the City, the SDGs and the Covid-19




Outreach initiative on Covid-19 awareness and prevention in

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

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


CAPES Prize of the Best Dissertation of the Year 2021

In December, 2020, several mass movements and flash floods due to heavy rainfalls occurred in three municipalities, Santa Catarina state, and caused 21 deaths and the destruction of 80 houses, and 172homeless people, and also damaged public infrastructure. A team of researchers from the Research Group on Natural Disasters (GPDEN), of IPH/UFRGS, carried out the field survey and laboratorial analyses, and published one technical report of this disaster: Michel et al. (2021) Technical report of the December 2020 disasters in the municipalities of Presidente Getúlio, Ibirama and Rio do Sul - SC. Porto Alegre: GPDEN/IPH/UFRGS, 53p. Available in https://www.ufrgs.br/gpden/wordpress/wp-content/uploads/2021/01/Relatorio-Desastre-do-Alto-Vale-do-Itajai-Dezmbro-de-2020.pdf

Some Master's and PhD students in the Graduate Program of Water Resources and Environmental Sanitation (PPGRHSA) of IPH organized one commemorative and scientific seminar (on-line mode) “Student Seminar on Water Sciences” on March 22nd (World Water Day).

The PhD dissertation “Mapping and characterization of the central Amazon river -plain system via remote sensing and hydraulic modeling” of Alice Cesar Fassoni de Andrade of PPGRHSA of IPH/ UFRGS won the CAPES Prize of Best Dissertation of the Year 2021.

A PhD student of PPGRHSA, Cleber Gama wont the Young Research Award (PhD student category) in XXIV SBRH - Brazilian Symposium on Water Resources, in Belo Horizonte, in November.

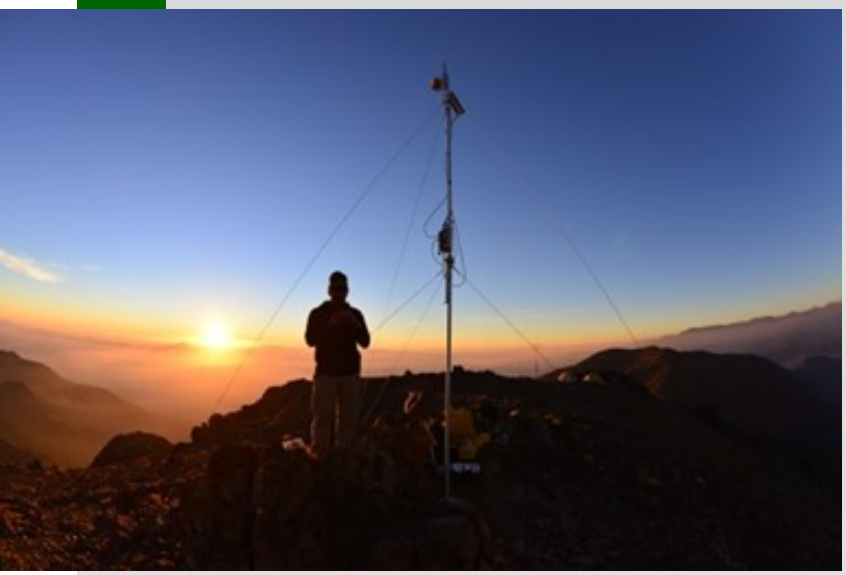
The Research Group on Natural Disasters (GPDEN) organized one in-person event “V Seminar on Catchment Monitoring and Assessment of the Southern Cone” with 40 participants during the period December 1st to 3rd, 2021. The field excursion of the event demonstrated various disasters occurrences to the participants.

Prof. Masato Kobiyama

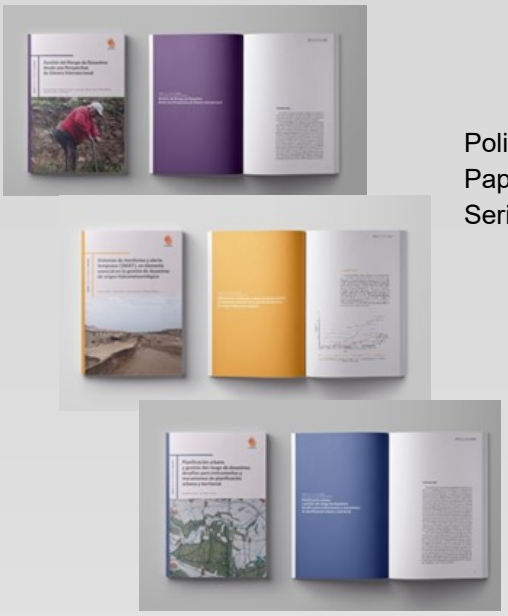
E-mail: ma-sato.kobiyama@ufrgs.br

# Centro de Investigación para la Gestión Integrada del Riesgo de Desastres (CIGIDEN), Chile

https://www.cigiden.cl/



Alluvium early warning system



Policy Paper Series

The 2021 CIGIDEN activities were again mainly virtual and on-line. We were able to consolidate last year experience and expand the reach of our talks, seminars, online meetings, a 3D virtual exhibition of natural hazard and disaster risks; similarly, we edited and published six additional public policy reference documents bringing together different audiences: school communities, experts and researchers, decision makers, government agents and the general public. We enjoyed the presence of "attendees" from different Chilean regions and from Latin America and the Caribbean countries, including Colombia, Mexico, Ecuador, Venezuela, Dominican Republic, Guatemala, Argentina, and Peru, among others, to discuss relevant topics in DRM, such as urban planning, coastal occupation, natural hazards, disasters and communities, heritage, cities, and public policy associated with risk management in Latin American countries.

**1. Series of seminars and dialogues: Science with impact for the development and resilience of coastal zones**

In 2021, we co-organized with other Chilean excellence research centers and public institutions, a series of seminars and dialogues to foster transdisciplinary discussions around topics such as coastal sustainable development, coastal protection, climate change, increased extreme events, resilient cities, etc.

Besides CIGIDEN, the Center for Climate Science and Resilience (CR2), the Center for Sustainable Urban Development (CEDEUS), and the Millennium Institute in Coastal Socio-Ecology (SECOS) joined the effort; active participation and sponsorships from the Chilean Navy's Hydrographic and Oceanographic Service (SHOA), the National Oceanographic Committee (CONA), and the UNESCO Decade of the Oceans. More than 5,000 attendants were counted, including panelists, zoom attendees, and YouTube and Facebook visualizations.

**2. The International Conference "Resilient Cities from the Global South"**

The International Conference "Resilient Cities from the Global South", was a joint initiative from three Chilean excellence research centers: CEDEUS, CIGIDEN, and CR2. The conference was held in virtual mode on November 30$^{th}$, December 1$^{st}$ and December 2$^{nd}$; The venue was designed to share the latest scientific advancements or implementation experiences aiming at strengthening sustainable and resilient cities in Latin America and the Caribbean.

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

The different sessions and discussion panels were organized around three main axes: (1) Urban Trajectory, (2) Urban Risks, and (3) Urban Governance.

https://www.conferenciaciudadesresilientes.cl/

Opening ceremony with the participation of the Minister of Sciences and Technology.

https://www.youtube.com/watch?v=biauoSv5gZs

### 3. World seminar: "Our World Heritage"

CIGIDEN participated in the world seminar: "Our World Heritage" held in May 2021, organized by the "Our World Heritage" initiative and the Pontificia Universidad Católica de Chile - Cultural Heritage Center. The event brought together researchers and experts, decision maker and authorities, and civil society and local communities' representatives, around the challenges we face for the conservation of World Heritage sites. Case studies of World Heritage sites affected or related in some way to Disasters and Pandemics were presented. This venue hosted 22 sessions, each one lasting 2 hours.

CIGIDEN researchers produced four activities within the World Seminar. The first one, called "Interdisciplinary research in disaster risk reduction: an uncomfortable understanding", was moderated by CIGIDEN researcher and PhD in communication studies, Karla Palma, together with international experts from Afghanistan, Italy, Mexico, and Peru. In addition, CIGIDEN produced other 3 side events: 1. "Is it possible to think of disasters as heritage? A transdisciplinary conversation", organized by CIGIDEN's research line in "Disaster Culture and Risk Governance" and moderated by the PhD in Anthropology, Marcelo Gonzalez; 2. "Landscape as heritage, a look from the Chilean coast", moderated by the PhD in Sociology, Francisco Molina; and the panel discussion "Desert, heritage and disasters", moderated by the CIGIDEN researcher, Nuria Chiara Palazzi, PhD in architecture.

You can access these side events here;

- https://www.facebook.com/CIGIDEN/videos/1143520129476696
- https://www.facebook.com/CIGIDEN/videos/780216419525741
- https://www.facebook.com/CIGIDEN/videos/937574830311047

### 4. Virtual exhibition "Chile, territory in action" and the "Kay Kay" project

In 2021 the virtual exhibition "Chile, territory in action" toured six cities, with regional launches and panel discussions, with a reach of more than 20,000 people. The latter includes those who visited the web platform www.chileterritorioenmovimiento.cl , and the attendees of the events in Talcahuano, Iquique, Puerto Ideas in Antofagasta, the educational community in Cartagena, Santiago, and Valdivia. Each event was sponsored by national and regional institutions such as municipalities, universities, NGOs and public services.

We also highlight the launch of the educational animation series "Kay Kay", where school children learn about tsunami risk.

www.chileterritorioenmovimiento.cl

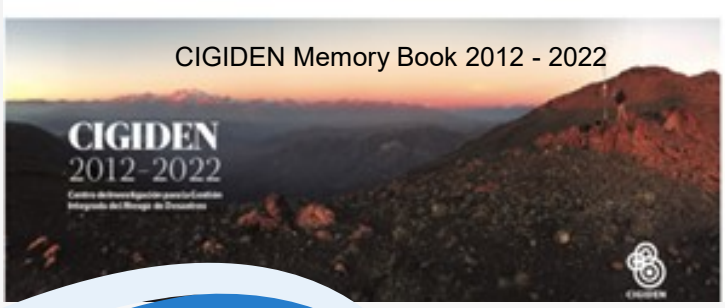
https://www.youtube.com/watch?v=XieonPs4Rsg

### 5. Policy Paper Series 2021

In the framework of the CIGIDEN policy paper series, the center edited and published six new documents which are becoming references for the transitioning from scientific and applied research, towards public policy implementation in DRM.

In 2021 the following topics were covered: i) Risk management and gender perspective, ii) social narratives and post-disaster recovery, iii) flash flood early warning systems, iv) urban planning and disaster risk management, v) new coastal legal framework and the experience of implementing a Lafkenche law, and vi) collective mapping and risk studies.

https://www.cigiden.cl/policy-papers/



CIGIDEN Memory Book 2012 - 2022

The International Conference 2021 "Resilient Cities from the Global South"

Centro Internacional del Pacífico para la Reducción del Riesgo de Desastres

# Pacific International Center for Disaster Risk Reduction, Ecuador

www.cip-rrd.espol.edu.ec

During 2021, PIC-DRR finished the design of three Community Based Early Warning Systems (EWS) for floods in Ecuador, for different size locations: a small rural parish (Salima); a small area of an informal settlement in a medium size city (Esmeraldas, 200.000 inhabitants); and in a medium size city (Duran, 300,000 inhabitants). The EWS included: i) the use of low-cost equipment for monitoring and transmission; ii) community risk management committees; iii) environmental community observers, and iv) protocols for communication, and responses between the community, local and national authorities. These EWS were funded by the German Cooperation Agency (GIZ), UNDP and the Duran Municipality with an in-kind contribution from PIC-DRR/ESPOL.

Also, during 2021, PIC-DRR worked with the National Service for Risk and Emergency Management, to set up the tools and required elements for an EWS for Pandemics. This project will be finished by mid-December. Also, PIC-DRR is working in a consultancy for PAHO to analyze the non-pharmacological actions taken in lieu of COVID19; final results by end of December.

Prof. Maria del Pilar Cornejo-Rodríguez

Director

E-mail: pcornejo@espol.edu.ec


PIC-DRR foster mentoring for undergraduate, and recently graduate ESPOL alumni, hiring them to work on its research projects. Currently, there are four graduate and over ten undergraduate students participating in the projects.

One of PIC-DRR collaborators is working with coastal local community to enhance their resilient capabilities to disaster risk; during 2021 over 10 capacity building workshops have been held with community involvement as well as the local authorities and responders (firefighters, rescue groups, policemen, and others).

PIC-DRR members actively participate within the Group on Earth Observations (https://earthobservations.org/index.php) in different committees and working groups such as the Programme Board, the Capacity Building WG, the AmeriGEO Coordination WG and others.

Publications in 2021

Litardo, J., Palme, M., Borbor-Cordova, M., Caiza, R., Hidalgo-Leon, R., del Pilar Cornejo-Rodriguez, M., & Soriano, G. (2021). Urban heat island simulation and monitoring in the hot and humid climate cities of Guayaquil and Durán, ecuador doi:10.1007/978-981-33-4050-3_7

# Natural Hazards Center
# University of Colorado, Boulder, USA

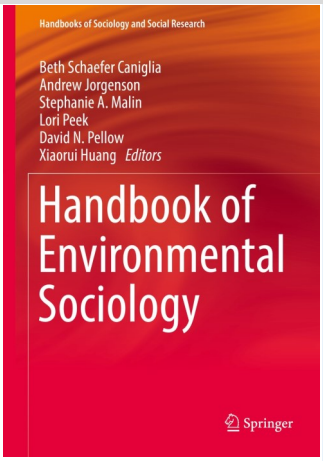
https://hazards.colorado.edu/
https://converge.colorado.edu/

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, policy makers, and local, state, and federal officials;
- Advance social science and interdisciplinary knowledge, with a special emphasis on the most 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). https://naahdri.org/
- 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: https://hazards.colorado.edu/resources/research-centers
- Hosted the 46th annual Natural Hazards Research and Applications Workshop, which involved more than 850 researchers, local/state/federal practitioners, policymakers, private and non-profit sector representatives, journalists, and students. The theme of the 2021 Workshop was "The Hazards and Disaster Workforce: Preparing to Meet 21st Century Challenges." https://hazards.colorado.edu/workshop/2021
- Co-facilitated the annual Researchers Meeting, which involved more than 450 hazards and disaster researchers from across the U.S. and around the world. The theme of the 2021 Researchers Meeting was "Advances in Longitudinal Disaster Recovery Research." https://hazards.colorado.edu/workshop/2021/researchers-meeting/overview
- Hosted the monthly Making Mitigation Work webinar series. https://hazards.colorado.edu/training/webinars/making-mitigation-work
- Publishing the *Research Counts* series https://hazards.colorado.edu/news/research-counts
- Publishing *Disaster Research—News You Can Use.* https://hazards.colorado.edu/disaster-research/current
- Hosted the Disaster Grads listserve for undergraduate and graduate students in the hazards and disaster field. https://hazards.colorado.edu/signup




- Published and hosted webinars for three new CONVERGE Training Modules: "Collecting and Sharing Perishable Data," "Broader Ethical Considerations for Hazards and Disaster Research," and "Understanding and Ending Gender-Based Violence in Fieldwork." https://converge.colorado.edu/resources/training-modules
- Created CONVERGE Training Modules Assignment Bank. https://converge.colorado.edu/resources/training-modules/assignment-bank/. Includes an introductory webinar.
- Published "Extreme Events Research Check Sheets Series." https://converge.colorado.edu/resources/check-sheets/. Includes an introductory webinar.
- Maintained database of resources by CONVERGE Data Ambassadors (https://converge.colorado.edu/data/data-ambassadors/) and hosted webinar introducing this service: "Publish Your Data! Learn How to Use DesignSafe and Meet the CONVERGE Data Ambassadors" (https://converge.colorado.edu/webinars/publish-your-data/).
- Director Lori Peek was appointed by President Joseph R. Biden and Approved by the U.S. Senate to serve on the Board of Directors of the National Institute of Building Sciences

Prof. Lori Peek
Director
E-mail: Lori.Peek@colorado.edu

Researchers affiliated with the Natural Hazards Center and the CONVERGE facility produced the following edited books, book chapters, and journal article publications in 2021:

2021 Caniglia, Elizabeth, Andrew Jorgenson, Stephanie Malin, Lori Peek, David Pellow, and Xiaorui Huang, eds. *Handbook of Environmental Sociology.* Cham, Switzerland: Springer.

2021 Caniglia, Beth Schaefer, Andrew Jorgenson, Stephanie A. Malin, Lori Peek, and David N. Pellow. "Introduction: A Twenty-First Century Public Environmental Sociology." Pp. 1-11 in *Handbook of Environmental Sociology,* edited by B. S. Caniglia, A. Jorgenson, S. A. Malin, L. Peek, D. N. Pellow, and X. Huang. Cham, Switzerland: Springer.

2021 Evans, Candace, Rachel M. Adams, and Lori Peek. 2021. "Incorporating Mental Health Research into Disaster Risk Reduction: An Online Training Module for the Hazards and Disaster Workforce." *International Journal of Environmental Research and Public Health* 18, 1244, **https://doi.org/10.3390/ijerph18031244**.

2021 Merdjanoff, Alexis A., David M. Abramson, Rachael Piltch-Loeb, Patricia Findley, Lori Peek, Jaishree Beedasy, Yoon Soo Park, Jonathan Sury, and Gabriella Meltzer. "Examining the Dose -Response Relationship: Applying the Disaster Exposure Matrix to Understand the Mental Health Impacts of Hurricane Sandy." Clinical Social Work Journal, **https://doi.org/10.1007/s10615-021-00814-y**.

2021 Moezzi, Mithra and Lori Peek. 2021. "Stories for Interdisciplinary Disaster Research Collaboration." *Risk Analysis: An International Journal* 41(7): 1178-1186, **https://doi.org/10.1111/risa.13424**

2021 Peek, Lori and Seth Guikema. 2021. "Interdisciplinary Theory, Methods, and Approaches for Hazards and Disaster Research: An Introduction to the Special Issue." *Risk Analysis: An International Journal* 41(7): 1066-1071, **https://doi.org/10.1111/risa.13777**.

2021 Peek, Lori, Jennifer Tobin, John van de Lindt, and Anne Andrews. 2021. "Getting Interdisciplinary Teams into the Field: Institutional Review Board Pre-Approval and Multi-Institution Authorization Agreements for Rapid Response Disaster Research." *Risk Analysis: An International Journal* 41(7): 1204-1212, **https://doi.org/10.1111/risa.13740**.

2021 Peek, Lori, Tricia Wachtendorf, and Michelle Annette Meyer. "Sociology of Disasters." Pp. 219-241 in Handbook of Environmental Sociology, edited by B. S. Caniglia, A. Jorgenson, S. A. Malin, L. Peek, D. N. Pellow, and X. Huang. Cham, Switzerland: Springer.

2021 West, Jocelyn, Lindsay Davis, Raquel Lugo Bendezú, Yahaira D. Álvarez Gandia, K. Stephen Hughes, Jonathan Godt, and Lori Peek. 2021. "Principles for Collaborative Risk Communication: Reducing Landslide Losses in Puerto Rico." *Journal of Emergency Management* 19(8): 41-61. **https://www.wmpllc.org/ojs/index.php/jem/article/view/3044**.

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

2018-23 Lori Peek, Principal Investigator, "CONVERGE: Coordinated Social Science, Engineering, and Interdisciplinary Extreme Events Reconnaissance Research." Funded by the National Science Foundation, Award #1841338. ($4,116,826)

2017-23 Lori Peek, Principal Investigator, "A Clearinghouse on Natural Hazards Applications." Funded by the National Science Foundation, Award #1635593. ($4,858,318)

2021-23 Lori Peek, Principal Investigator, "Reducing Social Vulnerability in Disaster: An Assessment of What Works." Funded by the Margaret A. Cargill Philanthropies. ($340,000)

2020-21 Lori Peek, Principal Investigator, "Disaster and Public Policy Reporting Fellowship." Funded by Direct Relief. ($168,850)

2019-21 Lori Peek, Principal Investigator, "Mobilizing the Social Science Extreme Events Research Network." Funded by the Crown Family Foundation. ($160,000)

2019-21 Lori Peek, Principal Investigator, "Earthquake Early Warning and Schools." Funded by the U.S. Geological Survey. ($156,500)

Awards received in 2021 include:

2021 Lori Peek: Fred Buttel Distinguished Contribution Award, Section on Environmental Sociology, American Sociological Association

2021 Mithra Moezzi and Lori Peek: Best Paper Award for "Stories for Interdisciplinary Disaster Research Collaboration," *Risk Analysis: An International Journal,* The Society for Risk Analysis.

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

http://resilience.colostate.edu

The year 2021 was very active for the Center for Risk-Based Community Resilience Planning. There were a large number of accomplishments over the 14-university partnership headquartered at Colorado State University, but the three major events are highlighted here: (1) The latest release of the Interdependent Networked Community Resilience Modeling Environment (IN-CORE); (2) the IN-CORE lifelines workshop; and (3) the Midwest Tornado Field Study. Details for these achievements within the Center are provided below.

IN-CORE Release Information

After several years of development as part of the NIST -funded Center for Risk-Based Community Resilience Planning (CoE), the **Interdependent Networked Community Resilience Modeling Environment (IN-CORE) is available for your use** in research, development, and modeling of communities. It is open source and available on GitHub (https://github.com/IN-CORE).

IN-CORE consists of multiple components as shown below:

**pyIncore** is a Python package consisting of three primary components: 1) a set of service classes to interact with the IN-CORE web services described below, 2) IN-CORE analyses and 3) visualization. The pyIncore allows users to apply various hazards to infrastructure in selected areas, propagating the effect of physical infrastructure damage and loss of functionality to social and economic impacts. Refer to pyIncore section for detailed information.

- **IN-CORE Web Services** are written in Java with JAX-RS specification and are comprised of a Hazard Service, DFR3 (Damage, Functionality, Repair, Recovery, Restoration) Service, Data Service, Geospatial Visualization Service, Semantic Service, and Space Service. These services allow users to create and access hazards, fragilities and data. Users can access and utilize these services via pyIncore and IN-CORE Web Tools. For detailed information, please refer to the technical reference document.

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- **IN-CORE Web Tools** is a set of web viewers for interacting with the different IN-CORE web services. The viewers enable users to browse, search **Datasets**, **Hazards**, **Fragility curves**, **Repair curves**, etc., view the metadata and visualizations, and download items allowed. For detailed information, please refer to the IN-CORE Web Tools section..

IN-CORE v3.0.0 has been released. This release includes the following updates:

- pyIncore v1.3.0
- pyIncore-viz v1.5.0
- IN-CORE Web services v1.8.0
- IN-CORE Web Tools v1.0.0
- IN-CORE documentation v3.0.0

Please visit https://incore.ncsa.illinois.edu for detailed information on changes to each component.

IN-CORE Lifelines workshop

*Modeling Critical Lifelines and Other Infrastructure with IN-CORE: A Hands-On Workshop* took place via zoom on January 31, 2022.

Resilience is the ability to prepare for anticipated hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. In 2015, the National Institute of Standards and Technology funded the Center for Risk-Based Community Resilience Planning (CoE), consisting of 14 universities, to establish a basis for measuring community resilience with a computational environment to achieve this goal. An ever-increasing volume of resilience-focused research is being pursued worldwide, ranging from single commercial facilities seeking to maintain continuity of operations to community, regional, and national scales. The Interconnected Networked Community Resilience Modeling Environment (IN-CORE) platform developed by the CoE will provide you with powerful tools to analyze the resilience of your community and its physical, social, and economic components. IN-CORE has the ability to model lifelines, their interdependency with each other, with buildings and social and economic models of a community or region.

The goals of the workshop were to:

- Learn core concepts and technology for IN-CORE application
- Learn to use the IN-CORE platform by developing a Jupyter notebook
- Damage analysis for Water Networks and Electrical Power Facilities due to natural
- hazard including earthquakes

At the end of this workshop, the participants were able to analyze a simple lifelines network and have the tools to begin exploring on their own. The workshop was for students, faculty, industry modelers, and anyone interested in exploring the capabilities of IN-CORE and quantifying the performance of lifelines and other structures and infrastructure subject to natural hazard events.

Midwest Tornado Field Study

A field study team of 11 people successfully completed a comprehensive field study traveling several thousand miles in four vehicles to document seven communities over three days. The communities were in Arkansas, Kentucky, and Illinois with most of the heavily damaged areas in Kentucky including Mayfield, a town of 10000 where thousands of buildings were at EF3 and EF4 level damage and a significant number of fatalities occurred. GoPro360 cameras with GPS were roof mounted on all vehicles and the MapMyRun app insured all relevant streets were documented. Photos were also taken using an App that Jarrod set up to ground truth ratings post-study.

The team met immediately following the holidays to process data which is being uploaded for cloud access currently. Safety protocols and testing every 48 hours were followed by all team members and each member had one additional antigen test to take when they arrived at their home airport.


Tornado field study team for the 2021 Midwest Community Resilience field study in Kentucky, U.S.

Global Resilience Institute
at Northeastern University

# Global Resilience Institute
# Northeastern University, USA

https://globalresilience.northeastern.edu/

Events:

- Resilience Panel on Cyber Security Resilience issues of the grid
- Funding, Financing, and Delivering Resilience Infrastructure
- In Pursuit of Critical Infrastructure
- The Critical Role of Creative Expression in Achieving Preparedness and Resilience in Uncertain Times
- The Topography of Wellness: How Health and Disease Formed the American Landscape
- The Imperative and Opportunity to Invest in Resilient Infrastructure
- Trade Chat: The Fragility of the Global Supply Chain
- Civilians Under Rocket Fire: How to Enhance Their Resilience
- Restarting Economies through Tourism: Vaccine politics, Global Priorities and Destination Realities with GRI Founding Director Stephen E. Flynn
- Cuba's Emerging Economic and Socio-Environmental Alternatives to Enhance Post-Pandemic Resilience
- Perú's Response to COVID-19: Healthcare Disasters, Vaccine Logistics, Challenges Encountered and Proposed Solutions

Awards:

- Awards: The table below shows all awards activated in 2021. But only two were new – I have highlighted them, the others were already active and in 2021 GRI had money added to them.
- Award Title: COVID-19 federal disaster economic recovery planning [COVID-19]

  Award Effective Date: 4/6/2020

  Sponsor Name: MIT Lincoln Laboratory
- Award Title: COVID-19 federal disaster economic recovery planning [COVID-19]

  Award Effective Date: 5/1/2020

  Sponsor Name: MIT Lincoln Laboratory
- Award Title: OPERATIONAL ASSISTANCE TO FEMA REGION 1 TO FACILIATION COORDINATION WITH STATE, LOCAL, AND TRIBAL OFFICIALS IN UNDERTAKING COVID-19 ECONOMIC RECOVERY THAT ACHIEVES RESILIENCE OUTCOMES [COVID-19]

  Award Effective Date: 8/1/2020
- Sponsor NaAward Title: SUPPORTING THE DEVELOPMENT OF COLLABORATIVE HIGHER EDUCATION SECTOR COVID-19 ECONOMIC RECOVERY AND RESILIENCE STRATEGIC PLANNING WITHIN FEMA REGION 1 [COVID-19]

  Award Effective Date: 7/6/2020

  Sponsor Name: MIT Lincoln Laboratory
- Award Title: SUPPORTING THE DEVELOPMENT OF COLLABORATIVE HIGHER EDUCATION SECTOR COVID-19 ECONOMIC RECOVERY AND RESILIENCE STRATEGIC PLANNING WITHIN FEMA REGION 1 [COVID-19]

  Award Effective Date: 7/6/2020

  Sponsor Name: MIT Lincoln Laboratory
- Award Title: NICE: Networked Infrastructures under Compound Extremes

  Award Effective Date: 4/5/2021

  Sponsor Name: Strategic Environmental Research and Development Program
- Award Title: Assessment of the National Water Model's current and potential role in community resilience planning: A case study analysis

  Award Effective Date: 10/18/2021

  Sponsor Name: NOAA/Univ. Corporation For Atmos. Research

  me: MIT Lincoln Laboratory

Dr. Stephen Flynn

Founding Director and Professor of Political Science E-mail: s.flynn@northeastern.edu

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

https://arrc.ou.edu

1. The ARRC's research expenditures continued reaching the $10M mark in FY2021 with funding from NSF, NOAA, NASA, DARPA, ONR, AFRL, private industry, and others.
2. ARRC launched the new Strategic Partner Consortium (SPARC). The SPARC is designed to increase student support, enable new research initiatives, increase interaction between your organization and the ARRC, and improve your organization's visibility among our students. More information can be found in https://arrc.ou.edu/sparc.html.
3. ARRC faculty and students have received a number of national and international recognition and awards.

- Professor Jorge L. Salazar was awarded the first place in the 2021 IEEE Industrial Engineering Paper Award on Antenna Measurements and Applications.
- Professor Jessica Ruyle received the prestigious Presidential professorship at OU.
- Professor Hjalti Sigmarsson has received the Graddy Award from OU's Graduate College for his work as the graduate advisor for ECE.
- ARRC's interdisciplinary teams of Faculty, Engineers and Students received an award for Excellence in Research Grants at OU by bringing an external grant more than $1M USD.
- ARRC undergraduate student Lucia Torres was awarded the first place in the Oral Presentation competition at the 27th annual OK-LSAMP Research Symposium. A picture of award ceremony was provided, where Lucia is the first one on the left.
- ARRC undergraduate student Shane Flandemeyer was selected to become a member of the 2021 Class of Astronaut Scholar.
- The ARRC Ph.D. candidate Noah Brauer was awarded an FY2021 NASA Future Investigators in NASA Earth and Space Science and Technology (FINESST) research grant.
- The ARRC Ph.D. student Russell Kenney was awarded an FY2021 Department of Defense (DoD) National Defense Science and Engineering Graduate (NDSEG) Fellowship.

The ARRC Master's student Rachel Jarvis was awarded and selected into the competitive National Science Foundation Graduate Research Fellowship (GRFP).

Prof. Tian-you Yu
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# Center for Infrastructure, Transportation, and the Environment, Rensselaer Politechnic Institute, USA

https://www.rpi.edu/

To identify ways to manage the CITE team embarked on an ambitious and multifaceted data-driven research effort that entailed the deployment of multiple surveys in different countries and time periods. To a great extent, the data collection effort followed the spread of the COVID-19 pandemic as it impacted different parts of the world. Starting in China, the authors deployed three different surveys that focused on: (1) the patterns of purchasing and donations of critical supplies (April 10th-11th and June 4th-5th 2020; 1,565 observations); (2) purchasing patterns of facemasks (February 24th-March 9th; 1,061 observations); and (3) purchasing patterns of critical supplies (April 23rd-24th, May 3rd-8th, and June 23rd 2020; 574 observations). Then, the team collected data in Europe and the rest of the world; ultimately gathering 4,608 observations from 54 different countries. The third data collection effort focused on the US and encompassed three waves of about 500 observations each, collected at different stages of the crisis.

Previous research by the authors revealed that individuals who donated physical supplies to help the victims of extreme events could be influenced somewhat to change to cash donations, if the relief group they trust the most asks them to donate cash instead. To investigate if this finding holds in the case of panic buying, the team decided to collect data about the most trusted relief groups, in the opinion of respondents, and how respondents would react if representatives from the group they trust the most asked them to limit their purchases. The team decided to explore this avenue because in previous research efforts the authors found that these trusted groups could be effective *trusted change agents* (TCAs) with considerable potential to influence the behaviors of the individuals that trust them.

Overall, 11% of respondents stated that they *will not pay attention to them,* 36% stated they *will try to buy less,* 27% *will buy the suggested amount* by the group they trust, while 23% *will buy only the strictly necessary* and *2% will stop purchasing* if asked by this group. These results clearly indicate that it is indeed possible to reduce panic buying.

**Publications**


- Wang, XC., W Kim, J. Holguín-Veras, J. Schmid (2021) “Adoption of delivery services in light of the COVID pandemic: Who and how long?” Transportation Research Part A: Policy and Practice 154, 270-286
- Rojas Ibarra, MX., D Valdés, J Holguín-Veras (2021) “Simulation Framework for Analysis of Relief Distribution Efforts after Hurricane Maria in Puerto Rico” Transportation Research Record, 03611981211004170
- Rossolov, A., H Rossolova, J Holguín-Veras (2021) “Online and in-store purchase behavior: shopping channel choice in a developing economy” Transportation, 1-37
- Rojas, M., DM Valdés, J Holguin-Veras (2021) “Framework for Humanitarian Logistics and Relief Distribution Efforts of Non-Established Relief Groups in the Aftermath of a Catastrophic Event: Hurricane Maria in Puerto Rico” Transportation Research Board 100th Annual Meeting



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Transportation Research Part A 154 (2021) 270–206

Contents lists available at ScienceDirect

Transportation Research Part A

journal homepage: www.elsevier.com/locate/tra

# Adoption of delivery services in light of the COVID pandemic: Who and how long?

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ARTICLE INFO

*Keywords:*
Continuance intention
COVID
Delivery
Pandemic
Technology adoption

ABSTRACT

A significant growth in demand for online shopping in light of the Coronavirus Disease (COVID) crisis has received attention from transportation practitioners, policy-makers, and researchers. However, an important question arises in this increase in online shopping and resulting deliveries: How long will this last? Very little is known whether this popularity would last a long time. To address this question, the authors conducted a survey of 915 individuals residing in the U.S. and classified them into the four distinctive consumer types (i.e., the prior adopter, temporary adopter and permanent new adopter, and non-adopter) depending on their usage of delivery services before, during, and after (expected) the COVID crisis. This research aims to gain behavioral insight by exploring the differences between the four consumer types and investigating factors affecting the initial adoption and continuance intention of using delivery services. The descriptive analysis revealed that there are clear differences not only between the four types of consumers but also between the four product types (i.e., grocery, food, home goods, and other packages) considered in the survey. The models found that factors affecting the initial adoption and continuance intention are different from the previous studies conducted before the COVID pandemic. Implications for planning and policymaking are also discussed.

Transportation (2021) 48:3143–3179
https://doi.org/10.1007/s11116-020-10163-3

# Online and in-store purchase behavior: shopping channel choice in a developing economy

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Accepted: 29 December 2020 / Published online: 12 January 2021


**Abstract**
Developing economies are still in the stage of e-commerce deployment, unlike in developed countries, where online shopping is already a common purchase channel. This research aims to assess the purchasing behaviors of end-consumers in regard to two alternative shopping channels: in-store and online, within a developing economy. A revealed-preference survey was conducted to collect the in-store and online purchase activity of households in Ukraine. The data collected presents the purchase channel choices of end-consumers for eleven commodities in two categories: experience goods and search goods. A descriptive analysis of in-store and online shopping was made, with an evaluation of average purchase cost and time expenditures for shopping, travel, and delivery processes. A pooled binomial logit model was then developed to assess the purchase channel choice based on a Random Utility Maximization Theory. The estimated values of a marginal probability effect are presented, and the significance levels of attributes influencing purchase channel choice are evaluated. The marginal probability effect is found to be greater for shopping cost than for time attributes for most of the studied commodity channel choices. The sensitivity assessment for purchase cost, delivery and travel time revealed that first-priority goods such as medicine, food, clothing and shoes depended more on the attributes' values variation than other commodities considered in the study. The comparison of this research's results with other studies has shown a higher importance of shopping cost than time attributes for channel choice decisions in the case of the developing economy.

**Keywords** Purchase behavior · E-commerce · Purchase channel choice · Discrete choice modeling

**Supplementary Information** The online version contains supplementary material available at. https://doi.org/10.1007/s11116-020-10163-3.

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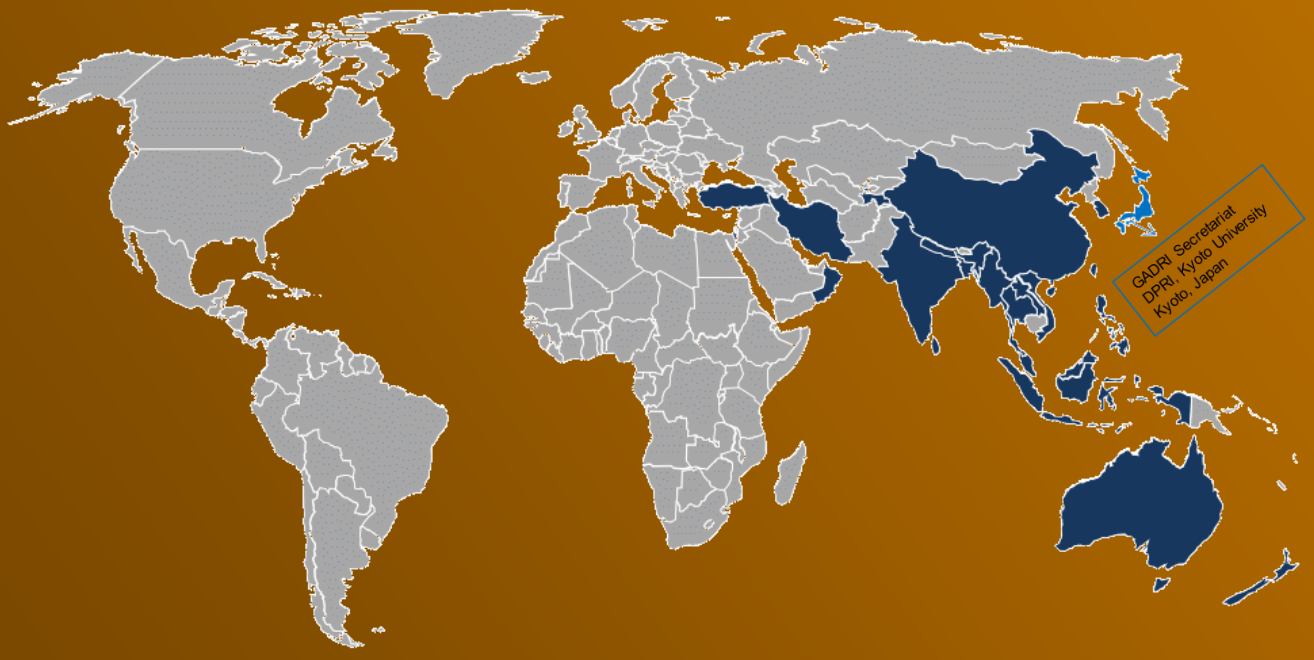
Springer

# Asia

# Japan and Oceania



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| Chinese Taipei | National Center for Research on Earthquake Engineering (NCREE), National Applied Research Laboratories |
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| Vietnam | Department of Geo-Environment, VietNam National University (VNU), Hanoi |

# Department of Meteorology, University of Dhaka

# Bangladesh

https://met.du.ac.bd/

**Achievement:**

The Satellite Ground Station at the Department of Meteorology, University of Dhaka, has been inaugurated on **11th February, 2021**. This is a milestone achievement for development and applications of satellite meteorology in Bangladesh. The Satellite Ground Station was successfully installed at the Department of Meteorology on **25th January of 2021** and is receiving the data and images of land, atmosphere, and ocean from 12 satellites from **26th January**.

**Project:**

- "Support to Capacity Building of the Department of Meteorology in the University of Dhaka" (SCBDoM-DU) under ÒStrengthening Meteorological Information Services and Early Warming Systems (Component A)" funded by World Bank. (Ongoing)
- Feasibility Study for Suitable Sites and System of Lightning Protectors to Ensure Country-wide Lightning Resistant Infrastructure. (Ongoing)

**Research Grant Project:**

- Tropical Cyclogenesis over the Bay of Bengal: Long-term variability, trends and future projections (Ongoing)
- Arrival and Withdrawal of Southwest Summer Monsoon over Bangladesh and their Impacts on Major Crops (Ongoing)

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Inauguration Ceremony of Satellite Ground Station of Department of Meteorology, University of Dhaka

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# IRG-Project, State Key Lab of Earth Surface Processes and Resource Ecology (ESPRE), Beijing Normal University China

http://irg.bnu.edu.cn

The mission of Integrated Risk Governance (IRG) Project is coordinating international risk science community group activities to better understand adverse impacts of extreme natural events in order to safely protect human society and to achieve the UN Sustainable Development Goals. IRGP has transferred most of its activities to online due to the COVID-19 since early 2020. IRGP has been working with other international research communities, such as IRDR and Risk KAN, to explore the impacts and possible solutions to deal with COVID-19 for the whole human society. The group has identified that the most urgent task is to regain the trust among all stakeholders in order to deal with emerging risks such as COVID-19 at global scale effectively and coordinately. Science in nature is an *adaptive* system in that it is constantly evolving in light of new challenges and its dynamic processes provide new opportunities for governments, businesses, scientists, and civil society in dealing with the impacts of natural disasters.

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Chinese Academy of Sciences (ITPCAS), China
http://www.itpcas.ac.cn

| 团队名称（项目编号） | 依托单位 | 团队成员（第一位为团队负责人） | 工作单位 |
|---|---|---|---|
| 造山带壳慢结构及浅部响应国际团队（编号：GJTD-2019-04） | 青藏高原研究所 | 白　玲 | 青藏高原研究所 |
| | | 裴顺平 | 青藏高原研究所 |
| | | 田小波 | 地质与地球物理研究所 |
| | | 徐　涛 | 地质与地球物理研究所 |
| | | 张　衡 | 青藏高原研究所 |
| | | 徐　强 | 青藏高原研究所 |
| | | James Mori | Kyoto University, Japan |
| | | Simon Klemperer | Stanford University, US |
| | | Paul Tapponnier | The Institut de Physique du Globe de Paris, France |
| | | Md Moklesur Rahman | Jessore University of Science and Technology, Bangladesh |

Projects

Under the cooperation agreement between ITPCAS and DPRI, the two sides carried out fruitful cooperation research activities. The international cooperative project let by Prof. Bai from ITPCAS and Prof. Mori from DPRI is ongoing. The joint research project aims to provide new information for the mitigation of geohazards occurring at the continental collision zone between the Indian and Eurasian plates. It takes advantage of advanced techniques and unique near-field data provided by each team members. Development of the comprehensive disaster mitigation theory and techniques will deepen our understanding of the lithospheric structure along the Himalayas and occurrence mechanism of various geohazards of the region, such like earthquake, landslide and possible slow slip.

**Project:**

International research project supported by CAS, International team on the study of crustal and mantle structure beneath the Himalayan Orogenic belt and its shallow response, Primary investigators: Prof. Bai, Prof. Mori (No. GJTD-2019-04), 2020.01.01~2022.12.31.

Prof. Yaoming Ma
E-mail: ymma@itpcas.ac.cn

# Disaster Risk Reduction Knowledge Service of International Knowledge Centre for Engineering Sciences and Technology under the auspices of UNESCO, Chinese Academy of Sciences (IKCEST-DRR), China

http://drr.ikcest.org

United Nations Educational, Scientific and Cultural Organization
联合国教育、科学及文化组织

IKCEST International Knowledge Centre for Engineering Sciences and Technology under the Auspices of UNESCO
国际工程科技知识中心 由教科文组织支持

Disaster Risk Reduction Knowledge Service
防灾减灾知识服务

1. IKCEST-DRR has completed the construction of 67 disaster databases (datasets), with a data volume of 347,700 records. Dataset URL: http://drr.ikcest.org/filter/2200.
2. Three new knowledge applications have been established, including the knowledge application of multi-scale assessment of heat wave disaster risk in typical region-case study in Dhaka, Bangladesh in South Asian, et al. Knowledge application URL: http://drr.ikcest.org/knowledge_service/index.html.
3. The Fifth International Workshop for DRRKS was held online. The theme of this workshop is "Open Science and Disaster Risk Reduction". This workshop was hosted by IKCEST and Section on Earth Sciences and Geo-Hazards Risk Reduction, Natural Sciences Sector, UNESCO. Workshop link: http://drr.ikcest.org/meeting202112.html.
4. International Training Workshop on Resource & Environment Scientific Data Sharing and DRRKS along the Belt and Road was held online. 31 trainees from 10 countries participated in the training, of which 9 were women. Link: http://drr.ikcest.org/post/1aed7.
5. Conducted 12 precision push to users of IKCEST-DRR by emails and News Letters. News Letters link: http://drr.ikcest.org/news_letters/list.
6. A Working Paper published in IRDR journals 《Mapping Disaster Risk Reduction Institutions Using Web-based Accessible Information》. Link: https://www.irdrinternational.org/uploads/files/W6Kd1zAzbw5PkPeRVqXzEKUreHSGQnqKLOTwb2MF.pdf.
7. IKCEST-DRR Contributed an online open course titled "Big Earth Data Management Development and Its Application for SDG15" to the World Federation of Engineering Organizations Committee on Engineering for Innovative Technologies (WFEO-CEIT). Link: http://www.wfeo.org/wfeo-ceit-online-open-courses.
8. Published a paper titled "Trend Analysis of Global Disaster Education Research Based on Scientific Knowledge Graphs". Link: https://doi.org/10.3390/su14031492.
9. Published a report titled “Scientific and Technological Research Trend Report in the Field of Disaster Risk Reduction——Bibliometric analysis of global disaster risk reduction literature and the influence of Chinese research in 2020”. Link: http://drr.ikcest.org/report/rf298.

Prof. Juanle Wang
E-mail: wangjl@igsnrr.ac.cn


Figure 1. Poster of The Fifth International Workshop for DRRKS


Figure 2. News Letter cover

# College of Architecture and Environment
# Sichuan University (SCU), China

http://www.scu.edu.cn/acem/


1. **Participated the 17th World Conference on Earthquake Engineering (17WCEE), and co-organized an invited talk session titled "Towards earthquake resilience: Recent developments in self-centering structural devices and systems".**

In 2021, we participated online at the 17th World Conference on Earthquake Engineering (17WCEE), Sendai, Japan. We submitted a total of 7 papers. These studies introduced the latest research results of our college, including seismic fragility of regional buildings considering soil-structure interaction effect, the research and development of recentering devices and components based on hyper-elastic shape memory alloy, the response analysis of isolated structures based on monitoring data from Yibin Earthquake, and the development of hybrid simulation software platform for wind turbine tower structures.

Prof. Kaoshan Dai
Chair
E-mail: kdai@scu.edu.cn

**2. Held a seismic damage investigation of buildings in Luxian Earthquake.**

On September 16, a 6.0-magnitude earthquake occurred in Luxian County, Sichuan, China, with a focal depth of 10 km. After Consultation with the local authority department, Professor Dai Kaoshan lead a seismic damage investigation team, team members including Professor Wang Bin, Dr. Wang Jianze and Dr. Li Tao who were engaged in the research of earthquake resistance, disaster prevention and reduction, and went to Luxian county to carry out the seismic damage investigation of building structures. This investigation collected rich information on the seismic damage of building structures in the Luxian M6.0 earthquake, which accumulated valuable first-hand data for the teaching and scientific research of earthquake resistance and disaster prevention of building structures.


Seismic damage investigation of buildings in the Luxian Earthquake, Sichuan, China

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

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


Dean Kalonji was honored with the National Friendship Award, September 30, 2021

IDMR professors and students at Luxian County after the 6.0 earthquake on September 16, 2021

- The "Sichuan Provincial Emergency Management Department-Sichuan University Comprehensive Disaster Reduction Research Center" was established under the leadership of IDMR and with the collaboration of multiple other colleges and schools at Sichuan University. IDMR also participate in a successful proposal to create a national level key laboratory on "Disaster Risk Warning and Prevention and Control in Mountainous Areas", under the Chinese national Ministry of Emergency Management.
- IDMR completed the first year of our undergraduate "Innovation Class for International Disaster Risk Reduction and Emergency Management", and enrolled a new group of outstanding students, who started our 3 -year research-intensive program in September 2021.
- Together with UNEP, with three Chinese ministries, and with the participation of more than 20 universities from around China, IDMR organized the first national conference on "ecosystems-based approaches" to disaster risk reduction and climate change adaptation.
- After the 6.0 earthquake occurred in Luxian County, Sichuan Province, IDMR actively organized efforts to participate in the earthquake relief work. Professors and students of IDMR were entrusted by the Sichuan Provincial Committee of Disaster Reduction as members of the expert group to visit the disaster area for many times, supporting the smooth development of the earthquake loss assessment and reconstruction work in the disaster area.
- IDMR continued its international leadership work, including with the High-Level Experts and Leaders Panel on Waters and Disasters (HELP https://www.wateranddisaster.org/), and with our co-directorship of the Chinese Academy of Sciences initiative on disaster risk reduction in Belt and Road countries.
- IDMR worked with the Hong Kong Jockey Club, and the Sichuan Provincial government, to secure funding for a new building, which will greatly enhance our experimental research capacity in water-related hazard and geohazards.
- Dean Kalonji was honored with the highest award from the Chinese national government for foreigners who have made significant contributions to the social and economic development of China.

Prof. Gretchen Kalonji
Dean
E-mail: Gretchen.kalonji@qq.com

中华人民共和国应急管理部
Ministry of Emergency Management of the People's Republic of China

对党忠诚 纪律严明
赴汤蹈火 竭诚为民

索引号：3/2021-00181　主题分类：科技和信息化　发文单位：其他
成文日期：2021年8月30日　发文字号：　发布日期：2021年8月31日
标题：关于应急管理部重点实验室候选名单的公示
公文种类：其他　效力：有效

应急管理部重点实验室拟挂牌组建名单

| 序号 | 实验室名称 | 依托单位 |
|---|---|---|
| 1 | 煤矿灾害预防与处置 | 应急管理部国家安全科学与工程研究院、重庆大学、山东科技大学 |
| 2 | 矿山边坡安全风险预警与灾害防控 | 中国科学院武汉岩土力学研究所、中国安全生产科学研究院 |
| 3 | 危险化学品安全风险预警与智能管控技术 | 应急管理部化学品登记中心、中国石油化工股份有限公司青岛安全工程研究院、沈阳化工研究院有限公司 |
| 4 | 冶金工业安全风险防控 | 北京科技大学、中国安全生产科学研究院 |
| 5 | 森林火灾监测预警 | 中国科学技术大学、应急管理部四川消防研究所 |
| 6 | 洪涝灾害风险预警与防控 | 河海大学、应急管理部国家自然灾害防治研究院、国家气象中心 |
| 7 | 滑坡灾害风险预警与防控 | 成都理工大学、应急管理部国家自然灾害防治研究院 |
| 8 | 山区灾害风险预警与防控 | 四川大学、应急管理部国家自然灾害防治研究院 |
| 9 | 电力大数据灾害监测预警 | 国网湖南省电力有限公司 |

List of the key labs by the Ministry of Emergency Management of the People's Republic of China (Source: http://www.mem.gov.cn/gk/zfxxgkpt/fdzdgknr/202108/t20210831_397292.shtml)


New enrolled undergraduate students for the "Innovation Class for International Disaster Risk Reduction and Emergency Management", September 10, 2021

As one of the collaborative activities with HELP, IDMR co-hosted the Science and Technology Panel of the 5th The Fifth UN Special Thematic Session on Water and Disasters on June 25th, 2021.


The design sketch of IDMR Building B, funded by the Hong Kong Jockey Club

# Hong Kong Jockey Club Disaster Preparedness and Response Institute (HKJCDPRI), Hong Kong

http://www.hkjcdpri.org.hk/

Disaster Preparedness Training in the Wild


Storytelling sessions in kindergarten teaching students on things to do during earthquake

Mr. Johnson Lo

Director

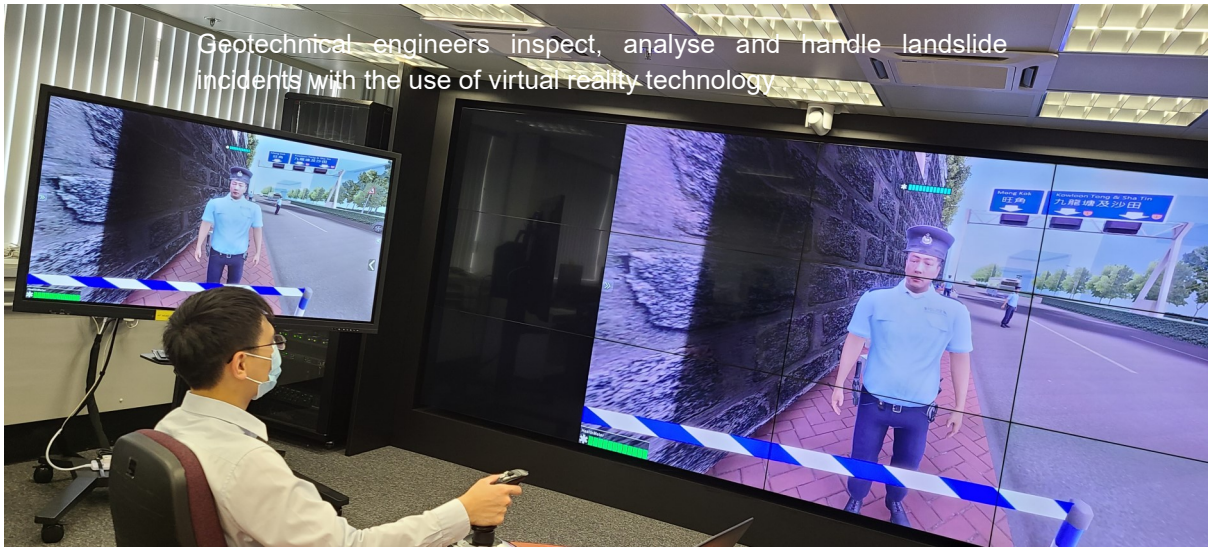
E-mail: johnson@hkam.org.hk

**Enhancing responders' capacity**

1. Since 2018, HKJCDPRI has been offering **Mass Casualty Incident Simulation Training for the Special Support Unit of the Fire Services Department (FSD).** Different virtual reality (VR) scenarios were developed in training to enhance participants' responsiveness and operational efficiency during various scenarios. For better vividness and interactivity, most scenarios were designed from actual local scenes. In past 3 years, 269 training sessions were conducted for 3,286 Special Support Unit members.
2. HKJCDPRI continued to collaborate with CEDD, providing **Landslide Inspection Simulation Training** for the Geotechnical Engineering Office in April 2021. Using VR technology, HKJCDPRI created 5 landslide scenarios. Through roleplays, young engineers' skills in handling landslide cases were strengthened. 25 sessions were conducted with 34 geotechnical engineers participated.

**Population Based Survey on Helping Behavior**

A telephone survey on people's views towards helping people with mental distress during COVID-19 was conducted in 2021 to 1,004 adult respondents. Only 36% respondents thought their help was useful to help seekers. 51% were afraid of saying something wrong when helping. Things respondents would like to: learn listening and expression skills (46%), stress/emotion management skills (37%), understanding existing community support services (27%), skills to identify emotional issues (23%) and cultivating empathy (21%).



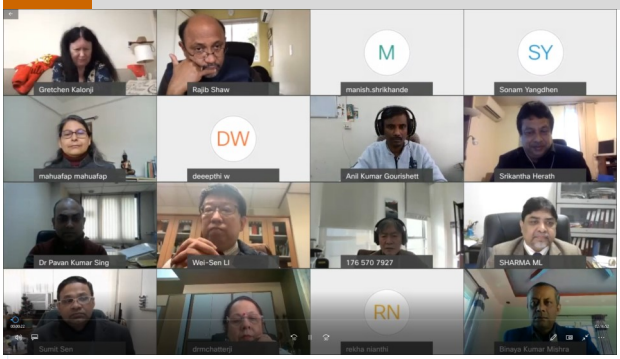
Geotechnical engineers inspect, analyse and handle landslide incidents with the use of virtual reality technology.

**Community engagement**

1. HKJCDPRI has been working with different partners on various **Disaster Education Programmes for schools**. It includes the collaboration with the Department of Early Childhood Education of the Education University of Hong Kong and 4 seed schools on a project titled "Developing Innovative Teaching and Learning Packages on Disaster Education for Kindergarten Students" since 2020 via a series of programmes such as "Disaster Education Drama" for kindergarten students, "Book Reading Training Workshop" for school teachers, "Disaster Preparedness Talks" for parents and "Teaching Plan Design Competition" for school teachers. Two signature programmes organised include "Interactive Disaster Education Drama" for primary school students and "Disaster Preparedness Training in the Wild" for secondary school students in the past academic year.
2. In response to the pandemic, HKJCDPRI launched programmes aiming at **Fighting the Virus Under the "New Normal"** to provide knowledge and updates to the public and professionals across sectors about COVID-19. Programmes included a Play Therapy Training Workshop for child-service practitioners, an online lecture on Train-the-Trainers Programme for NGOs on Mental Health, and webinars covering topics e.g. "Fact-check Skills Amid the COVID-19 Pandemic", "Mental Health During COVID-19 Pandemic" and "Business Continuity Planning for NGOs on Elderly Care During the COVID-19 Outbreak".
3. To encourage people to sustain hygiene habits developed during the pandemic, HKJCDPRI organised an **Online Voting Awareness Campaign named "Fight the Virus Under the New Normal"** during July and August 2021. Public was invited to vote for the daily habits they inclined to continue after the pandemic. Over 3,200 participants joined, with the top 3 daily habits voted - "wear a mask"(42%); "use hand sanitiser before eating"(30%) and "close the lid before flushing"(12%).

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

https://www.saadri.net/




1st SAADRI Board of Directors' Meeting, 6th January 2021

1. The First South Asian Alliance of Disaster Resilience Institute (SAADRI) **Board of Directors'** Online Meeting was held 6th January 2021. The First Board of Directors of SAADRI has representations from 5 member countries, Bangladesh, Bhutan, India, Nepal and Sri Lanka and experts from China, Japan and Taiwan. The acceptance of the **SAADRI charter** and the formation of **five Working Groups** were major decisions taken during the first BoD Meeting

2. Online SAADRI Meeting on 2nd April 2021:
   a. **The SAADRI Website** (www.saadri.net) is launched by Professor Hirokazu Tatano, DPRI, Kyoto University and GADRI, Secretary-General.
   b. The **Inaugural SAADRI Lecture** was delivered by Professor Rajib Shaw, Keio University, Japan and Co-Chair of UNDRR-APSTAG on.
   c. The **Working Group Coordinators** presented their Group objectives and members profile during the programme.

3. SAADRI members contributed through consultation to the calls from UNDRR Secretariat:
   a. Guidance note for stakeholder consultations on the **Asia-Pacific Action Plan 2021-2024 for the implementation of the Sendai Framework for Disaster Risk Reduction**
   b. Call for submission of case studies for **'Scoping study on Systemic Risk, Cascading and Compound Disaster/Risk in the Asia-Pacific'**

4. First SAADRI Technical Talk was delivered by Dr Amod Moni Dixit, on ' Earthquake Reconstruction Implementation: Experience from South Asia' as the opening part of the 1st SAADRI General Body Meeting HELD on 20th November, 2021

5. Activities held for Young Professionals
   a. Shared Class: A Pilot round of Shared Class were held on two occasions between IIT Roorkee in India; the Royal University of Bhutan and the University of Colombo, Sri Lanka. As it was successful, so it is being proposed to be taken up as a regular activity across working Group
   b. Prof Raju Sarkar organized the first SAADRI International Training program with partner organizations on 'Role of Early Warning in Geo-Meteorological Hazards Risk Reduction' from 8-10th December 2021.

The Working Group-I, South Asia Alliance of Disaster Research Institutes (SAADRI) in collaboration with a) Commission on Education and Outreach, International Association of Seismology and Physics of the Earth's Interior (IASPEI), b) National Science and Technology Center for Disaster Reduction (NCDR), Taiwan, c) Multidisciplinary Centre for Geoinformatics, Delhi Technological University (DTU) and d) National Institute of Disaster Management (NIDM, Ministry of Home Affairs, Govt. of India organised **Three-day Online International Workshop on "Role of Early Warning System in Geo- Meteorological Hazards Risk Reduction" was held from 8-10 December, 2021.**

The aim of the workshop primarily was to provide opportunities to faculty members, early career researchers, policy makers and other stake-holders to enrich their knowledge, teaching skills and research in the field of early warning and geo-meteorological hazards risk reduction. The workshop was attended by 264 early career researchers, professionals and stake-holders from 10 countries. The workshop experts were from Norway, Taiwan, Nepal, Canada, India, Italy, Mexico and United Kingdom.

Prof. Mahua Mukherjee
Secretary-General
E-mail: saadri@iitr.ac.in
mahuafap@iitr.ac.in

6. As Partner Organization, SAADRI participated in

a. 2nd International Symposium on Disaster Resilience and Sustainable Development: held at AIT Bangkok during 24-25 June 2021; and the first Conference for SAADRI as partner

b. International Conference on Disaster Management, Reconstruction and Peace: Professor Madhumita Chatterjee represented SAADRI in the Conference organization which was held at ABBS School of Management with M K Gandhi International Research Center on Conflict Resolution on August 5-6th 2021

c. GADRI 5th Summit: 31st August to 1st September, 2021; SAADRI Secretariat was organizing Asia-Oceania Group Session with GADRI-DPRI, Kyoto. It was a partner to Pre-Conference Sessions planning, Session participation, Final Report preparation. Professor M L Sharma was Plenary Speaker at the Asia-Oceania Session.

d. 5th World Congress for Disaster Management (WCDM) 24- 27 November, 2021– Knowledge Partner

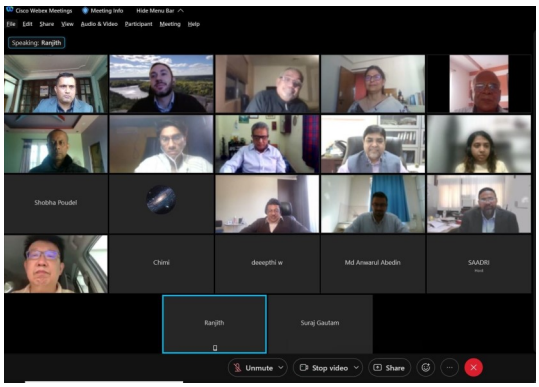
i. WCDM Pre-Conference Event held on GREEN RECOVERY OF MSMEs; ARISE-India, IIT R and SAADRI proposed the Session. The event was held on 24th September 2021. Brig. B K Khanna and Mahua Mukherjee were the co-organizers. Mr Aslam Perwaij- ADPC, Ms Selima Ahmad (MP, Bangladesh), Mr Timothy Wilcox-UNDRR, Prof Gautam Sengupta- Vice-Chancellor of the Techno-India University, Mr Arunabh Mitra from HCL and Professor Rajat Agarwal from CoEDMM, IIT Roorkee were part of the Panel Discussion. Ms Shivani Chouhan and Ms Annie Singla of CoEDMM, IIT Roorkee were the co-hosts to the programme.

ii. WCDM Special Technical Session held on 25/11/2021 on GREENING PROJECT CYCLE MANAGEMENT; UNEP, IIT R and SAADRI proposed the Session. Mr Muralee Thummarukudy and Dr Karen Sudmeier-Rieux, UNEP, Prof Rajib Shaw- Japan, Dr Animesh Kumar-UNDRR, Dr Yvonne Walz from UNU-EHS, Bonn, Dr J Elamon- KILA, Dr A Malawantantri- IUCN Sri Lanka and Mahua Mukherjee will be in the Panel.

iii. Several other members presented their Paper in the main Event 24-27 November 2021: Mr Atul Kumar, Ms Shivani Chouhan and others

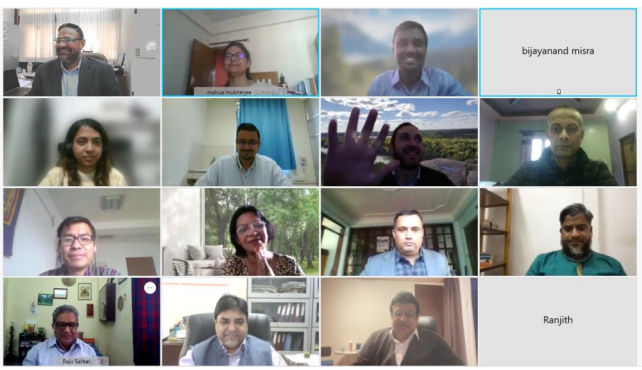
7. Conferences: Participation

UN-Habitat Innovate4Cities Conference: Professor Madhumita Chatterjee and Professor Mahua Mukherjee presented a joint research paper Participatory GeoSM-NatE for Community Adaptation of the BGI Potential Assessment and Strategic Implementation appropriately blended ideas of the WG IV and WG V focus area.



First SAADRI Technical Talk was delivered by Dr Amod Moni Dixit, on ' Earthquake Reconstruction Implementation: Experience from South Asia' in the 1st SAADRI General Body Meeting, 20th November, 2021

Three-day Online Multi-collaborators' SAADRI International Workshop on "Role of Early Warning System in Geo-Meteorological Hazards Risk Reduction" held from 8-10 December, 2021



1st SAADRI General Body Meeting held on 20th November, 2021

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

http://muchanut.haifa.ac.il

The National Knowledge and Research Center for Emergency Preparedness has 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.

Details about Center research is available on our website under "Center Research"

In 2021,four main **projects ended:**

1. Research and knowledge gaps assessment: Assessment of multi-disciplinary research and knowledge needs. See here for more details
2. Zohar, M. (2021). Geolocating tweets via spatial inspection of information inferred from tweet meta-fields
3. Towards an Israeli doctrine and legislative-regulative framework dealing with emergencies (in Hebrew).
4. Implications and Coping of Residents of Mevo Modiim with the fire event that destroyed their village in May 2019

In addition, the Center was engaged with COVID-19 research that included two major projects:

1. Can Well-being Effects of COVID-19 be Mitigated Amidst an Economic Crisis?
2. Integration of 54 short-term research projects surrounding COVID funded by the Israeli Ministry of Science: Bi-weekly reports summarizing and synthesizing research progress and surprising findings which were passed on in real-time to decision-makers in various government ministries and committees in order to encourage science-driven decisions. Upon completion selected projects were presented in an 8-part webinar series and made available on Youtube. See for example: COVID-19 Impacts and Takeaways for Policy and Planning.

**Publications 2021:**

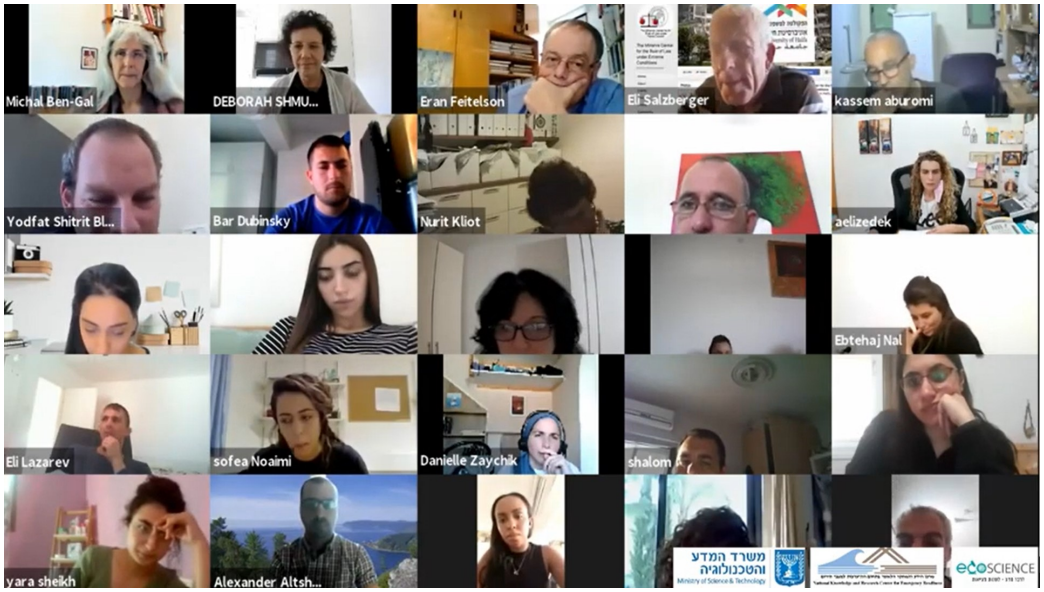

- Collins-Kreiner, N. & Ram, Y. (2020). National tourism strategies during the Covid-19 pandemic
- Ram, Y., Collins-Kreiner, N., Gozansky, E., Moscona, G. & Okon-Singer, H. (2021). Is there a COVID-19 vaccination effect? A three-wave cross-sectional study. *Current Issues in Tourism*, DOI: 10.1080/13683500.2021.1960285
- Kaplan Mintz, K, Ayalon, O., Nathan, O. and Eshet T. (2021). See or Be? Contact with nature and well-being during COVID-19 lockdown. *Journal of Environmental Psychology* 78 (December 2021),101714 https://doi.org/10.1016/j.jenvp.2021.101714
- Negev, M., Dahdal, Y., Khreis, H., Hochman, A., Shaheen, M., Jaghbir, M. T., ... & Davidovitch, N. (2021). Regional lessons from the COVID-19 outbreak in the Middle East: From infectious diseases to climate change adaptation. *Science of the Total Environment*, *768*, 144434.
- Orkibi, H., Ben-Eliyahu, A., Reiter-Palmon, R., Testoni, I., Biancalani, G., Murugavel, V., & Gu, F. (2021). Creative adaptability and emotional well-being during the COVID-19 pandemic: An international study. *Psychology of Aesthetics, Creativity, and the Arts*.



Dr. Michal Ben Gal

Research Coordinator

E-mail: bmichal@geo.haifa.ac.il




COVID-19 Impacts and Takeaways for Policy and Planning.

In addition to research, the Center conducts weekly seminar talks, all streamed on Facebook, recorded and available on YouTube. Seminar talks are conducted via Zoom and are open to participation of a wide audience (though some are in Hebrew)

**More Information on the Center website**

The Center's website include Library of emergency-readiness related scientific articles, recorded events and talks and other resources. In addition, it has two special pages on COVID-19 crisis in English and Hebrew, which include links to data sites, articles, research and recent events, as well as articles and videos of the Center's staff.

# Department of Climate Change

## Ministry of Natural Resource and Environment, Lao PDR

http://www.monre.gov.la/home/

The Lao People's Democratic Republic (Lao PDR or Laos) is a land-locked, multi-ethnic, socialist state in Southeast Asia. It enjoys social stability, and there are no serious external threats to its politicalor economic existence. These conditions have allowed the ruling Lao People's Revolutionary Party to focus on reducing poverty via development and economic expansion.

The case affectby disaster is exposed to floods, drought, tropical storms, landslides,earthquakes, epidemicsand the country remains vulnerable to agricultural shocks linked to climatic and geologic threats. While flooding is an annual and necessary phenomenon to which traditional Laotian livelihoods are adapted, the intensity and frequency of natural disasters are rising due to Mekong River development and climate change.The annual flood of the Mekong and its tributaries delivers necessary sediments and water across the River Basin, to include Lao PDR where agriculture accounts for 20% of GDP and employs 73% of the labor force.However,damming of the river systems within Laos and upstream, particularly in China, have changed the rhythm and reliability of river flows in two ways: 1) impounding of monsoon rains behind dam'sresults in man-made drought that disrupts the annual flood and undermines down-river ecosystems; and 2) unannounced or accidental releases of dammed water send unseasonal volumes of water downstream and wash away homes and crops.The Government of Laos has incorporated disaster risk reduction in strategic planning. Since 1999, the National Disaster Management Committee has been tasked with coordinating early warning, preparedness, emergency response, and recovery activities under the overall leadership of the Ministry of Labor and Social Welfare (MLSW) and with focal points at provincial and district levels.Disaster Risk Management (DRM) functions are also located within MLSW,but the DRM coordination network remains relatively new with provincial, district, and village committees all involved.The Provincial Disaster Management Committee (PDMC) is the pivotal point for implementation of disaster management resources, and PDMCs include stakeholders from the police and armed forces, the public sector, civil society, and the Lao Red Cross.

In early February 2022 was organize a meeting on annual report disaster management year 2021 in Lao PDR and the meeting was chaired by Deputy Prime Minister and Minister of National Defence, Mr. Chansamone Chanyalath. The meeting has discussion for the issues on extreme weather were the theme of the Disaster Management Committee Meeting for 2021 and a report on the Disaster Preparedness Plan for 2022

The chairman Chansamone Chanyalath stressed the need for central and local disaster management committees, to jointly work on the systematic implementation of emergency responses, as well as, incident reporting and damage assessment, including disaster analysis and research methodology. The meeting summary that since year 2021, the Lao PDR was happened a disaster case such as the COVID-19 pandemic, topical typhoon, flood, drought, landslide and earthquake. Regarding by annual report in year 2021 from MLSW said that over 70,200 people were affected by natural disasters, mostly floods, in which 17 people were injured and 19 were killed, in 15 provinces, 94 districts and 786 villages. The of COVID -19 pandemic was reduced if compared in 2020 due to the Lao Government was attentive to the Lao Peoples must be getting a vaccination and nowadays the peoples already got a vaccination more them 6 million peoples in country. Since today the peoples were affected by COVID 19 by annual report from Ministry of Public Health said that, accumulated infections are 141,301 persons and death 612 persons.

Ms. Ms. Sonephet PHOSALATH

Director

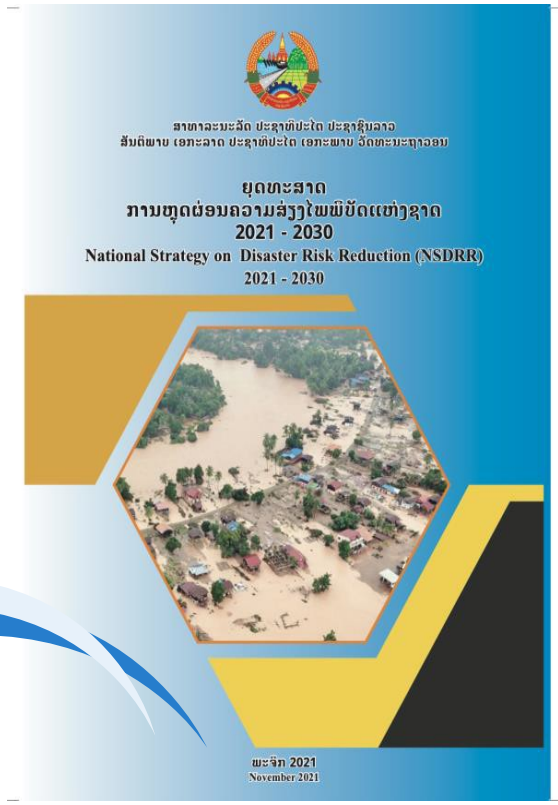
E-mail: soneph-et.9999@gmail.com

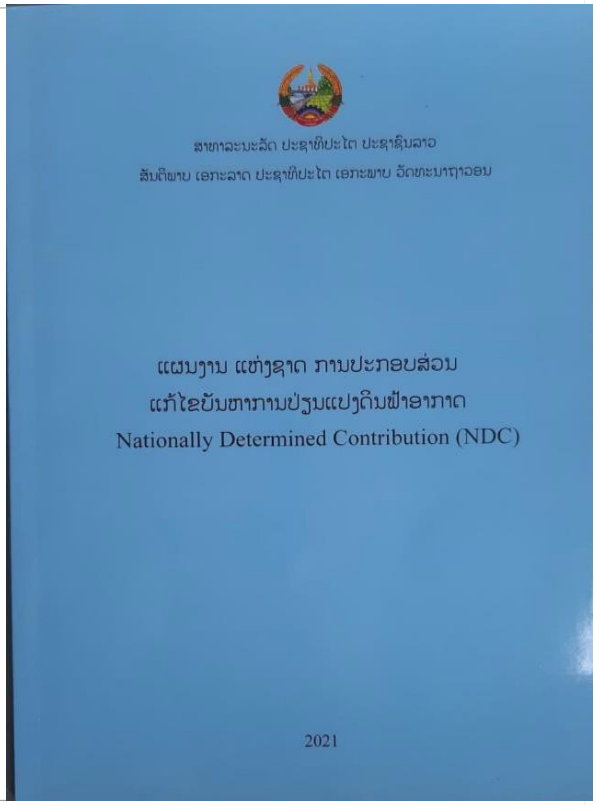
**Disaster overview and Climate Change**

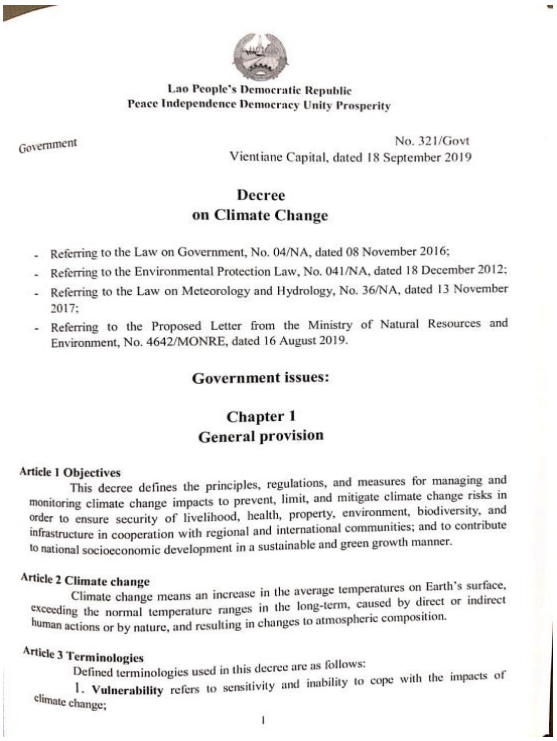
Disaster Risk Management (DRM) framework and policies have undergone changes with reallocation of roles and responsibilities. From 2013-2016, DRM functions were the responsibility of a newly-created Department of Disaster Management and Climate Change, under the Ministry of Natural Resources and Environment (MoNRE), while the role of Ministry of Labor and Social Welfare (MLSW) was limited to response and relief. Recently, at the national level, DRM mandates are reassigned to Ministry of Labor and Social Welfare (MLSW). Lead Government Agencies in Disaster Response as said the National Disaster Management Committee (NDMC) is tasked with coordinating early warning, preparedness, emergency response, and recovery activities; however, each relevant sector conducts data collection and risk inventory within their areas of responsibility and submits reports to the relevant Disaster Management Committee (Central, Provincial, District, or Village). Disaster-risk management is coordinated through a relatively new network of provincial, district, and village Disaster Prevention and Control Committees (DPPCs). The Disaster Management Committees are non-standing organizations, whose role is to assist and advise, deliberate, supervise, and coordinate with the sectors and local authorities concerned, and to elaborate and implement disaster management activities. The Disaster Management Committees consist of the:

- Central Disaster Management Committee;
- Provincial Disaster Management Committees;
- District Disaster Management Committees; and
- Village Disaster Management Committees.
- The Central Disaster Management Committee (CDMC)

The role is to support the implementation of policies, strategies, measures, laws, regulations, plans, programs, and projects related to disaster management, for which the Department of Social Welfare, under the Ministry of Labor and Social Welfare, is the Secretariat.



Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

Government

No. 321/Govt
Vientiane Capital, dated 18 September 2019

**Decree**
**on Climate Change**

- Referring to the Law on Government, No. 04/NA, dated 08 November 2016;
- Referring to the Environmental Protection Law, No. 041/NA, dated 18 December 2012;
- Referring to the Law on Meteorology and Hydrology, No. 36/NA, dated 13 November 2017;
- Referring to the Proposed Letter from the Ministry of Natural Resources and Environment, No. 4642/MONRE, dated 16 August 2019.

**Government issues:**

**Chapter 1**
**General provision**

**Article 1 Objectives**
This decree defines the principles, regulations, and measures for managing and monitoring climate change impacts to prevent, limit, and mitigate climate change risks in order to ensure security of livelihood, health, property, environment, biodiversity, and infrastructure in cooperation with regional and international communities; and to contribute to national socioeconomic development in a sustainable and green growth manner.

**Article 2 Climate change**
Climate change means an increase in the average temperatures on Earth's surface, exceeding the normal temperature ranges in the long-term, caused by direct or indirect human actions or by nature, and resulting in changes to atmospheric composition.

**Article 3 Terminologies**
Defined terminologies used in this decree are as follows:
1. **Vulnerability** refers to sensitivity and inability to cope with the impacts of climate change;

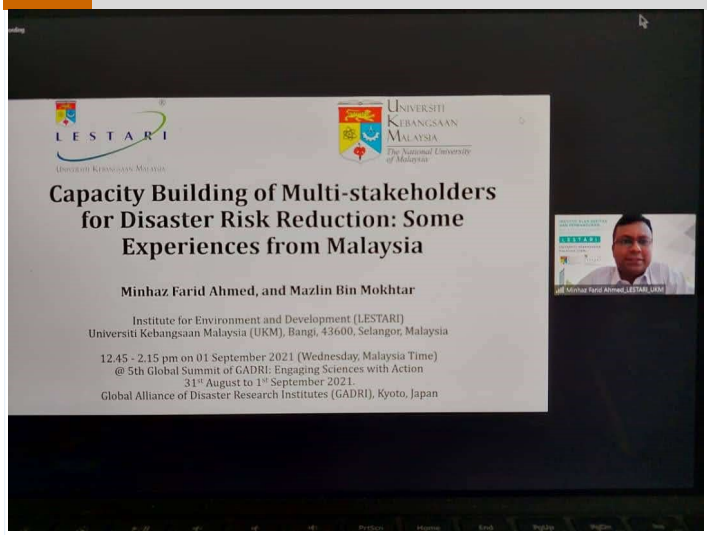
1

The Central, Provincial, and District Disaster Management Committees have the following rights and duties within their areas of responsibility: 1. Issue disaster emergency warnings; 2. Propose to the Government, or the relevant provincial Governor, Mayor of Vientiane Capital, District Governor, Head of Prefecture, or City-Mayor for consideration and announcement of the area or locality affected by a disaster; 3. Issue orders to all stakeholders to be prepared for implement their duties in a timely manner; 4. Give an order to pay money directly out of the relevant level of Disaster Management Fund for the purpose of controlling a disaster; 5. Organize ad-hoc units for responding to disasters that have occurred or may occur; 6. Collaborate with line ministries, organizations, local authorities, all sectors, and parties for disaster management; 7. Raise funds for disaster management through various means that are consistent with the Constitution and the law; 8. Receive monetary donations, materials and assets donated by individuals, domestic and foreign legal entities, and organizations for use in disaster management activities; 9. Participate in meetings to discuss disaster management; 10. Participate in regional and international conferences related to disaster management; 11. Finalize reports related to their activities on implementation and submit them to the Government, or the relevant Provincial Governor, Mayor of Vientiane Capital, District Governor, Head of prefecture, or City-Mayor on a regular basis; 12. Exercise other rights and duties according to the law and assigned by higher authorities. However, to particularly and support implementing the Sendai Framework for Disaster Risk Reduction 2015-2030 and UNFCC (Paris Agreement), in year 2021 the Lao Government has been approval a new updated on the National Strategic Plan for Disaster Risk Reduction 2021-2030, follow up using the Law on Disaster Management. Hence, the Ministry of Natural Resource and Environment is a key sector to support policy, strategy, legislation and early warning system organize the implementation of the Paris Agreement and UNFCC framework and therefore has been completed a degree on Climate Change (issue on 18 September 2019 by the Prime Ministry of Lao PDR), the National Determined Contribution (NDC, issue on 9 March 2021), National Adaptation Plan on Climate Change, and nowadays this ministry is trying to update on the Strategy on Climate Change of the Lao PDR (2010) into a new strategy version to year 2030.

# Institute for Environment and Development (LESTARI-UKM)

## University of Kabangsaan Malaysia, Malaysia

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




Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia (UKM) is actively involved in the climate change adaptation and mitigation studies, projects and strategies at local, national and international levels.

Prof. Dr. Joy Jacqueline Pereira is the Vice-Chair of Working Group II of the Intergovernmental Panel on Climate Change (IPCC) for the Sixth Assessment Report. Previously she has served as a Coordinating Lead Author for Chapter 24 on Asia of the IPCC Fifth Assessment Report (AR5), Lead Author for the IPCC AR5 Synthesis Report and a Review Editor for the 2012 IPCC Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (IPCC SREX). (Detail from Prof. Dr Joy Jacqueline Pereira, Email: joy@ukm.edu.my)

Dr. Sharina Abdul Halim is actively involved as part of the Scientific and Technical Team for Langkawi UNESCO Global Geopark since 2007 and involved directly during the UNESCO Global Geopark Revalidation Assessment in 2011, 2015 and 2019. She is also assigned as one of the Intergovernmental Panel for Climate Change (IPCC) Lead Authors for Chapter 5 on the Special 1.5 degrees Report (2017-2018) and Chapter 10: Asia for the Working Group II contribution to the IPCC Sixth Assessment Report (AR6-WG2) (2019-2021). (Detail from Dr. Sharina Abdul Halim, Email: sharinahalim@ukm.edu.my)

Dr. Minhaz Farid Ahmed and Prof. Dato´ Dr. Mazlin Bin Mokhtar have actively participated at the entire online "5th Global Summit of GADRI: Engaging Sciences with Action" from 31st August to 1st September 2021 and via as a panelist to the "Panel Discussion Session 4: Implementation Sciences in DRR, A new way of evaluation system for DRR researchers" as well as E-poster presenter (i.e. P1_07). Dr. Lim Choun-Sian has also participated as a panelist to the "Panel Discussion 3: Contributions to Climate Change Adaptation".

Prof. Dato´ Dr. Mazlin Bin Mokhtar has led the "Advocacy, Awareness, Capacity Building and Public Participatory Platform (AACB)" study to prepare training modules on integrated water resources management (IWRM) from the disaster risk reduction perspective under the National Water Sector Transformation 2040 (WST 2040) Study of Economic Planning Unit Malaysia (EPU) and the Academy of Sciences Malaysia (ASM). (Detail from Prof. Dato' Dr. Mazlin Bin Mokhtar, Email: mazlin@ukm.edu.my)

Dr Minhaz Farid Ahmed and Prof. Dato´ Dr. Mazlin Bin Mokhtar have recently published a book chapter 'Drought Management Practices in South and South-East Asia' under the prestigious Sage Publication. (Detail from Dr Minhaz Farid Ahmed, Email: minhaz@ukm.edu.my). Other Lestarians are also active via their respective projects and expertise too on various platforms at national and local levels, trying to bring in disaster risk reduction (DRR) efforts for sustainable development.

Prof. Dato' Dr. Mazlin Bin Mokhtar

Director

E-mail: mazlin@ukm.edu.my


The *Ocean Malaysia* partnership has been initiated by Prof. Dato' ChM. Dr. Mazlin bin Mokhtar, the Director of the Institute for Environment and Development (LESTARI) of the National University of Malaysia, in collaboration with Prof. Rashid Sumaila, the Scientific Director of Ocean Canada, to address emerging pressures linked to Malaysia's coastal and ocean region. The members of *Ocean Malaysia* have significantly contributed to a letter in Science (IF 47.7) entitled "WTO must ban harmful fisheries subsidies". The letter was presented to the Director-General of World Trade Organization (WTO) by the lead co-authors, Dr. Rashid Sumaila and Dr. Anna Shuhbauer of the University of British Columbia, on behalf of the group of scientists from 46 countries spanning six continents.

The signatories' views on what a potential WTO agreement should achieve are outlined in the letter's text, which includes prohibiting support that lowers the cost of fuel and vessel construction and stimulates distant-water fishing, as well as decoupling overfishing incentives from special and differential treatment for small-scale fishers who use low-impact gear or fish for subsistence.

According to the researchers, the agreement should also create accountability by supporting low-income nations' efforts to meet their commitments and transition to sustainable management, which are underpinned by transparent data documentation and enforcement measures. "WTO members must harness their political mandate to protect the health of the ocean and the well-being of society," the letter concludes.

"Science has spoken: reaching an agreement on fisheries subsidies at MC12 would help protect the oceans and, in turn, uphold the long-term food security and livelihoods of millions of people," DG Okonjo-Iweala said after receiving the letter addressed to the full WTO membership. The DG also added that "this letter is a strong reminder to WTO members of why they are in these negotiations, and what the consequences will be if they do not reach an agreement. The message to our political leaders is clear: they have already committed to concluding these negotiations in Sustainable Development Goal 14.6. They must not delay any further."

The letter can be found here: https://www.science.org/doi/pdf/10.1126/science.abm1680

WTO News link: https://www.wto.org/english/news_e/news21_e/fish_05nov21_e.htm

Dr. Lubna Alam
Fellow/Senior Lecturer
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LETTERS

Global fishing subsidies can contribute to overfishing.

*Edited by* **Jennifer Sills**

## WTO must ban harmful fisheries subsidies

Sustainably managed wild fisheries support food and nutritional security, livelihoods, and cultures (*1*). Harmful fisheries subsidies—government payments that incentivize overcapacity and lead to overfishing—undermine these benefits yet are increasing globally (*2*). World Trade Organization (WTO) members have a unique opportunity at their ministerial meeting in November to reach an agreement that eliminates harmful subsidies (*3*). We—a group of scientists spanning 46 countries and 6 continents—urge the WTO to make this commitment.

To curb overfishing, biodiversity degradation and loss, and $CO_2$ emissions, and to safeguard food and livelihoods, WTO members must prohibit fisheries subsidies that cause harm, such as those that lower the cost of fuel and vessel construction and those that provide price support to keep market prices artificially high (*2*). Subsidies to distant-water fishing fleets must be eliminated to prevent overfishing on the high seas and in waters under national jurisdiction. Such subsidies threaten low-income countries that rely on fish for food sovereignty (*4*, *5*). Exceptions to the rules—known as special and differential treatment—should be considered for small-scale fishers that use low-impact gears or that fish for subsistence, but only if decoupled from incentivizing overfishing (*6*).

An effective agreement must eliminate subsidies for fuel (*7*), distant-water and destructive fishing fleets (*4*, *5*), and illegal and unregulated vessels in line with the aims of Sustainable Development Goal 14.6 (*8*). To ensure accountability, it should also support low-income countries' efforts to meet their commitments and transition to sustainable management. Finally, the agreement should require transparent data documentation and enforcement measures (*9*).

We call on the heads of state of the High Level Panel for a Sustainable Ocean Economy, the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, and the United States–Mexico–Canada Agreement—who have already committed to eliminating harmful subsidies (*10*–*12*)—as well as other trade blocs and individual countries, to declare their support now for an agreement that enshrines these recommendations. WTO members must harness their political mandate to protect the health of the ocean and the well-being of society.

**U. Rashid Sumaila[1,2]*, Daniel Skerritt[1], Anna Schuhbauer[1], Sebastian Villasante[3], Andres. M. Cisneros-Montemayor[4], Hussain Sinan[5], Duncan Burnside[1], and 289 additional authors†**

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†Full list of authors and affiliations can be found at www.science.org/doi/10.1126/science.abm1680.

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**COMPETING INTERESTS**

U.R.S. is an unpaid member of the board of directors of Oceana and science advisory board member of the Pew Charitable Trusts' Global Ocean Legacy project and has received funding from the High Level Panel for a Sustainable Ocean Economy and Oceana. S.V. has received funding from the "EQUALSEA—Transformative adaptation towards Ocean Equity" Project, under the European Horizon 2020 Program.

10.1126/science.abm1680

## Alzheimer's drugs: Does reducing amyloid work?

In his Perspective "Treatments for Alzheimer's disease emerge" (6 August, p. 624), D. J. Selkoe asserts that some trials testing potential treatments for Alzheimer's disease have shown "evidence of disease modification." He cites reductions in amyloid plaques (hypothesized to cause cognitive decline) and some modest reductions in cognitive decline shown in four potential drugs that target amyloid. However, hardly any trials have shown an effect, and even the trials with statistically significant results show effects that are too small to be clinically significant or to justify moving forward with the treatments. β-amyloid antibodies can lower amyloid plaques (extracellular aggregated insoluble β-amyloid), but available data show that decreasing amyloid plaques does not in itself lead to reduction in cognitive decline.



PHOTO: XIE MINGFEI/VCG/GETTY IMAGES



# Southeast Asia Disaster Prevention Research Initiative (SEADPRI-UKM), University of Kabangsaan Malaysia, Bangi, Malaysia

http://www.ukm.my/seadpri/

Since 2016, SEADPRI-UKM was awarded as Integrated Research on Disaster Risk (IRDR) International Centre of Excellence (ICoE) for Disaster Risk and Climate Extremes. Hence SEADPRI-UKM is now one of the 17 ICoEs at the global level, which aims to promote DRR activities and programmes within the respective regions. The ICoE represents, in this case of SEADPRI-UKM, the South East Asian region, focusing on strengthening localised inputs to address regional DRR related matters. SEADPRI-UKM will continue to capitalise on this partnership framework to further advance work related on DRR.

Since 2019, SEADPRI-UKM hosted the U-INSPIRE Malaysia Chapter, under the auspices of the Asian Network for Climate Science and Technology (ANCST), with supports from the National Disaster Management Agency Malaysia (NADMA) and Malaysian National Commission for UNESCO. This platform involved an alliance of youth and young professionals in Malaysia, who shared an interest in DRR and climate change.

An ongoing project on “Promotion of Social Entrepreneurship in Disaster Risk Reduction to Build Community Resilience” funded by the International Development Research Centre (IDRC) for a duration of 3-years was officially launched on 21 Jan 2020. The Project aims to foster long-term community climate resilience in Malaysia and Cambodia by empowering young female social entrepreneurs to develop disaster resilience plans supported by community engagement and citizen science on an open-access digital platform. The project is led by SEADPRI-UKM, and the key partners include the Royal University of Phnom Pehn (RUPP), Geological Society of Malaysia (GSM) and Malaysian DRR Service Organization (MDRRSO).

SEADPRI-UKM in collaboration with Resilience Innovation Academy (RIKA) India and Global Resilience Innovation Laboratory (GRIL) of Keio University, Japan, is undertaking the project on enhancing the role of the Joint Task Force on Humanitarian Assistance and Disaster Relief Mechanism to promote a whole-of-ASEAN approach towards supporting disaster management. The project aims to identify the current and potential roles of each relevant sector bodies, centres and, entities in disaster management alongside mapping the technical expertise, capabilities and resources from each relevant sector which could be made available at ASEAN’s disposal for Humanitarian Assistance and Disaster Relief (HADR) activities.

**Prof. Dr. Sharifah Zarina Syed Zakaria** Head, SEADPRI, UKM

E-mail: seadpri@ukm.edu.my

A research grant by the Collaborative Research Programme-International Centre for Genetic Engineering and Biotechnology (CRP-ICGEB) on "Nanomaterials-based Genosensor (Nano-GS) for improved detection method of SARS-CoV-2 RNA as rapid COVID-19 diagnosis strategy" has been positively evaluated and is thus eligible for funding in the context of the CRP-ICGEB Research Grants Programme 2020. The Evaluation Committee proposed that the ICGEB awards a grant of Euro 8,000 for one year from 1 January 2021 to 31 December 2021 (XX-2020-011) to the Technological Hazards Programme, SEADPRI-UKM. Depending on the progress in this first year, funding for a further period may be considered by ICGEB

At the launch event of the project on “Promotion of Social Entrepreneurship in Disaster Risk Reduction to Build Community Resilience” funded by the International Development Research Centre (IDRC): Project Advisor and Vice President of the Academy of Sciences Malaysia, YM Tengku Mohd Azzman Shariffadeen (far right) presented a token of appreciation to Her Excellency Julia Bentley, the High Commissioner of Canada in Malaysia, with Tuan Ahmad Fairuz representing the Selangor Chief Minister.

# University of Management and Technology

# Pakistan

ttp://cdm.umt.edu.pk/Home.aspx

The purpose of the Center for Disaster Management (CDM) at the University of Management and Technology (UMT) is to support the public sector, emergency services, industry, and communities by providing capacity building, specialized knowledge, skill development and conducting collaborative research in disaster management to meet the targets under the UN SDGs / Sendai Framework and build a more resilient society.

In pursuance of this purpose, the Center for Disaster Management achieved and continued working on the following highlights this year:

- An ongoing World Bank assisted project titled "Training program design and delivery under Sindh Resilience Project (SRP)" in collaboration with the Asian Institute of Technology. The project involves various Disaster Risk Management (DRM) curriculum development for the Sindh government officials. The CDM's objectives through this project are to conduct research, create training manuals and to conduct extensive capacity building on DRM which is tailored to the needs of PDMA Sindh and other departments. This project involves engagement of every tier of government of Sindh, from local to provincial. So far, we have successfully conducted extensive capacity building exercises which makes our project one of the few in the region in terms of scope and impact.
- Working alongside the Sindh Government on Flood Modelling for the lower Indus Basin and for assistance in the establishment of a decision support system for flood managers at provincial level.


DRM Training curriculum co-developed by Center for Disaster Management, University of Management and Technology with project partners, and translated in local languages

Dr. Ahmad Ali Gul

E-mail: dir.cdm@umt.edu.pk

- Partnered with the Avoidable Deaths Network (ADN) for knowledge sharing and collaborations on DRR and DRM related initiatives in the region.
- Hosted a webinar on 'Disaster Risk Management – Discourses from Asia and Latin America' for the students and faculty of UMT. The event featured insightful, engaging, and interesting short lectures by various experts from Japan, UK and Columbia working both in academia and professionally in the field of Disaster Management. https://www.youtube.com/watch?v=q8vT7voOkNI&t=386s
- Hosted a lecture by Dr. Karina Vink from the University of Twente on 'Green Infrastructure for Urban Resilience and SDGs' for the students and faculty of the School of Governance and Society in UMT. https://www.youtube.com/watch?v=YNgK0LzwDno&t=311s
- Hosted a webinar on 'Seismic Vulnerability Assessment for Urban Resilience' for the students and faculty of UMT. The guest speaker at this event was Dr. Md Faiz Shah from the CQ University, Australia. https://www.youtube.com/watch?v=Q-RZ9KFhTt4
- Delivered a lecture on 'International Disaster Risk Management – Preparedness and Response' to the participants of the 41st batch of the Foreign Services Academy's Specialized Diplomatic Course at the Ministry of Foreign Affairs, Pakistan. http://www.fsa.gov.pk/Events/41SDC/048-7Oct2021.html
- Served as a panelist and delivered a presentation titled 'Towards Resilient Communities' at a governmental seminar hosted by the National Disaster Management Authority (NDMA), Pakistan to commemorate victims of the 2005 Kashmir Earthquake.


Pictures of Disaster Risk Management training exercises under the collaborative World Bank assisted project with AIT


Dr. Ahmad Ali Gul (Director CDM, University of Management & Technology) delivering a talk titled 'Towards resilient communities' on 7th October 2021 at NDMA's event "Towards


Webinar on Seismic Vulnerability Assessment for Urban Resilience by Dr. Md Faiz Shah

# Disaster Risk Management (DRM) Unit, Graduate School of Business (GSB), Philippine School of Business Administration (PSBA) – Manila Philippines

https://www.psba.edu


The 5th International Research Symposium (5thIRS) (July, 2021)



The 6th International Research Colloquium and Training Program (December, 2021)

The Disaster Risk Management Unit (DRM-Unit) and Research Center of Graduate School of Business (GSB), Philippine School of Business Administration (PSBA) along with its partners organized the 5th International Research Colloquium Webinar entitled “Mitigate the Financial and Operational Risks and the Disruption to Business Continuity” held on January 23, 2021. Further, the DRM-Unit, GSB, initiated and participated in a training course on Basic Incident Command System (BICS) held on February 19–21, 2021 at UP-SURP, Quezon City. The training was organized by QCG through the QCDRRMC in collaboration with PSBA, its partner institution, UP-SURP, Office of Civil Defense (OCD), and United States Forest Service (USFS). The training was attended by around 40 participants out of whom 16 were from the GSB Fellowship Program. The 5th International Research Symposium (5thIRS) was also held on Jul 3, 2021. The symposium was on Business Continuity Models and Disaster Risk Management Trends in the New Normal with focus on the theme “Challenges and Opportunities for Micro, Small, and Medium-Sized Enterprises During the COVID-19 Pandemic; New Normal”.

The DRM Unit also participated as one of the organizing partner of Asian Institute of Technology (AIT) in the 2nd International Symposium on Disaster Resilience & Sustainable Development 2021. The following researches were presented during the symposium:

- Business Continuity Level of Quezon City in the Advent of Environmental Catastrophe towards Business Sustainability Development
- Primary and Secondary Data Collection for Thesis or Dissertation Writing in the Advent of COVID-19 Pandemic: A Guidepost
- Mainstreaming Capacity Development Short Courses and Training Programs on Disaster Risk Management in Higher Education Institutions: A Hybrid Ladderized Learning Model

Prof. Tabassam Raza

Director, DRM Unit & Dean, External Education, GSB

E-mail: tabassamr@psba.edu


The 5th International Research Colloquium Webinar (5th IRC) (January, 2021)

The DRM Unit also participated in the 5th Global Summit of GADRI: Engaging Science with Action 2021. An eposter entitled "Quezon City DRM Framework for COVID-19: Inclusive Unified Response, Recovery, and Rehabilitation Action Plan 2020-2030, Philippines" was presented during the Summit. The Unit conducted a Webinar Series on Public Health System Resilience Scorecard for the Quezon City Disaster Risk Reduction and Management Office (QCDRRMO) on September 15, 2021.

On September 21, the School moderated in 9th Annual International Conference on Sustainable Development (ICSD) 2021 Virtual Webinar by introducing a session entitled "Mainstreaming Disaster Risk Reduction and Climate Change Adaptation in Land Use and Development Planning".

In adherence to the International Day for Disaster Risk Reduction (IDDRR), the DRM Unit, in coordination with the UP-SURP, and Department of City and Regional Planning, University of Engineering and Technology (DCRP-UET), Lahore Pakistan hosted an Expert Lecture Series on DRM virtually on October 24, 2021. The DRM Unit joined its partner, the Office of Civil Defense (OCD) in celebration of the International Day for Disaster Risk Reduction (IDDRR) which coincided with the ASEAN Day for Disaster Management (ADDM). Prof. Dr. Raza gave a lecture entitled "Mainstreaming DRR and CCA in Local Development Planning Process". The Unit will be organizing the 6th International Research Colloquium and Training Program from December 4 to 5, 2021.


Training Course on Basic Incident Command System (BICS) (February 2021)


The 2nd International Symposium on Disaster Resilience and Sustainable Development (June 2021)

# National Science and Technology Center for Disaster Reduction (NCDR), Chinese Taipei

https://www.ncdr.nat.gov.tw/


The nine speakers and moderator (up), and more than 135 participants (down) attended the GCTF in September 2021

**2021 Global Cooperation and Training Framework (GCTF) - Building Disaster Resilience at Global, National and Communities Levels**

Taiwan (NCDR and MOFA), the U.S., Japan, Australian, and the U.K. co-held the Global Cooperation and Training Framework (GCTF) events in March and September of 2021, to commemorate the 10 anniversary of the Great Japan Tohoku Earthquake and Tsunami and the 22nd anniversary of the Taiwan Chichi Earthquake. The two humanitarian assistance and disaster relief (HA/DR) events under GCTF in 2021 aimed at building disaster resilience by cross-boundary synergies among global multiple stakeholders and international aid agencies that reflects the importance of the whole society involvement in disaster risk reduction.

Since launching GCTF in 2015, the GCTF (full partners currently are Taiwan, the U.S., Japan, and Australia) has held over 40 international workshops for capacity building on such topics as public health, law enforcement cooperation, women's empowerment, energy efficiency, e-commerce, cybersecurity, HA/DR, media literacy and other regional issues, benefiting participants from about 100 countries.

March 2021, it was the third GCTF event that focused on the HA/DR issue, and also the second time that NCDR helped to deliver GCTF HA/DR agenda. There were 200 officials and DRR experts from 35 countries participated online, including Japan, the Philippines, Vietnam, Israel, the United Arab Emirates, Nepal, Thailand, and so on.

On behalf of Taiwan, NCDR Director Hongey Chen delivered a keynote speeches in topic on "Smart and Intelligence-based Information System to Build Disaster Resilience", to show how science and technology applied for emergency preparedness and to offer knowledge on building up resilience in Taiwan. There were in total nine speakers from Taiwan, the U.S., Japan, Australian, and the U.K., sharing their experiences on disaster resilience that topics including international assistance, capacity building, and best practice by cross-boundary synergies.

Taiwan 2030 Vision highlights Innovation, Inclusion, and Sustainability with development of science and technology. NCDR follows these core values to build up cross-agency collaboration on disaster risk management. NCDR and its global partners can work together to co-design, co-work, and co-implement, to engage all partners to create opportunities for global collaborations on integrated disaster risk management which paves the basis for better disaster resilience.

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# Asian Disaster Preparedness Center (ADPC) Thailand

https://www.adpc.net/igo/?

Image: Overnight Fires in Thailand's Chiang Rai Province. Image Credit: Forest Fire Control, Protected Areas Regional Office 15 (Chiang Rai)

ADPC has implemented over 10 projects and programs throughout the Asia and the Pacific region in 2021 and here is a short summary of some highlighted project achievements. You can find the detail information on www.adpc.net

1. **Project name:** SERVIR-Mekong

**Brief description:** The project aims to enhance climate change adaptation and landscape management in the Lower Mekong countries through the increased application of geospatial analysis to critical, urgent, or common policy and planning needs, especially in the context of climate change adaptation, disaster risk reduction and response, Mekong basin development, water security, food security, and landscape management to reduce greenhouse gas emissions. This project is implemented in collaboration with Spatial Informatics Group, USA; Stockholm Environment Institute (SEI), Thailand; Deltares, Netherlands.

**Achievements:**

i. SERVIR-Mekong's Air Quality Explorer was used by an authority in Thailand for regulating agricultural burning.

ii. During FY 2021, SERVIR-Mekong operationalized the Crop Yield Information module within the Mekong Drought and Crop Watch tool

**2. Project name:** Building resilience through inclusive and climate-adaptive disaster risk reduction in Asia-Pacific (BRDR)

**Brief description:** This project aims to improve regional cooperation in disaster risk reduction and climate resilience by sharing best practices and tested approaches among countries in the region. It places gender equality, rights-based and pro-poor approaches at the forefront of DRR. This project is implemented in collaboration with the Swedish Civil Contingencies Agency, the SEI, and the Raoul Wallenberg Institute.

**Achievements:**

i. In Nepal, the Local Disaster and Climate Resilience Plan (LDCRP) was supported from a gender-equal and rights-based perspective

ii. In the Philippines, the BRDR started to apply GE/ RBA into Itogon's municipal Comprehensive Land-use Plan (CLUP)

Dr. Sunil Kumar Prashar

Project Officer

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**3. Project name:** Climate Adaptation and Resilience (CARE) for South Asia – Planning, Policy, and Finance Sector

**Brief description:** The overall objective of the project is to contribute to an enabling environment for climate resilience policies and investments in agriculture, transport, water, policy & planning, and finance sectors in South Asia. This project is implemented in collaboration with Regional Integrated Multi Hazard Early Warning Systems for Africa and Asia (RIMES).

**Achievements:**

i. The project brought all the relevant stakeholders on board to implement the activities of the project.

ii. Capacity Needs Assessment on climate resilience was completed in Nepal

**4. Project name:** Urban Resilience to Climate Extremes in Southeast Asia

**Brief description:** The project goal is to build 'resilient communities in deltaic and coastal urban areas' and strengthening resilience of the urban systems and urban communities to the current and emerging climate extremes, disasters and emergencies that are anticipated in the deltaic and coastal cities in Southeast Asia.

**Achievements:**

i. Developed a Training Package on Mental Health and Psychosocial Support (MHPSS) in Myanmar during COVID-19

ii. Conducted a webinar on Nutrition in Emergencies (NIE) with over 290 attendees

**5. Project name:** Asian Preparedness Partnership (APP) Program Support to Countries during COVID-19

**Brief description:** The project aims to achieve safer and well-prepared communities through locally-led DRM actions, so that disaster impacts on at-risk communities of Asia will be reduced.

Achievements:

i. 2 self-assessment tools on Core Humanitarian Standards were developed (i.e., Core Humanitarian Standards Assessment Tool and Institutional Capacity Assessment Tool)

ii. 1 self-assessment tool on engagement and action of local humanitarian actors before, during, and after disasters was developed

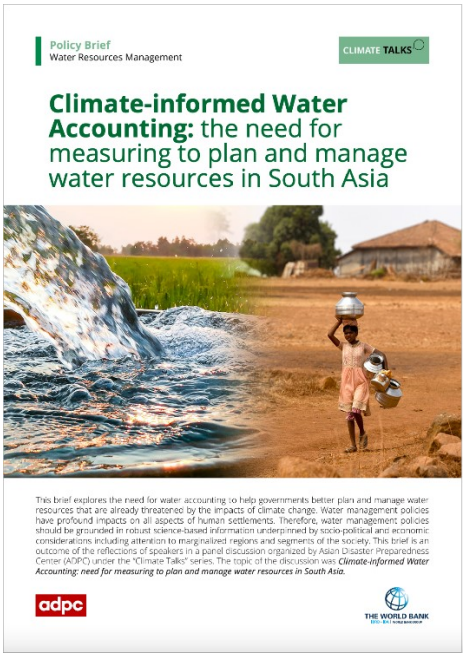
**6. Project name:** Training and Capacity Building Service for Disaster Risk Management Mainstreamed in Government Institutions

**Brief description:** The project overall goal was to enhance the institutional capacity of ministries and line agencies in Tajikistan on disaster resilience and climate change. This project was implemented in collaboration with the Center for Emergency Situation and Disaster Risk Reduction.

**Achievements:**

i. Conducted 10 trainings for governments officials in Tajikistan on disaster and climate risk management

ii. Created an online database of trainings materials in Russian and English on disaster and climate risk management in Central Asia




**Water Resources Management Brief**

Published on: 02/12/2021

Language: English

Author(s): Asian Disaster Preparedness Center

Department: Risk Governance

Access link:

https://www.adpc.net/igo/category/ID1660/doc/2021-jne5Hu-ADPC-ADPC-Water_Management_Brief.pdf


**Gender Mainstreaming Policy Brief**

Published on: 05/08/2021

Language: English

Author(s): Asian Disaster Preparedness Center

Department: Risk Governance

Access link:

https://www.adpc.net/igo/category/ID1700/doc/2021-q74Xpc-ADPC-Gender_Mainstreaming_Policy_Brief-ADPC.pdf


**Lessons learnt from implementing training on Ecosystems Resilience in a Changing Climate for sectoral development in South and Southeast Asia**

Published on: 02/22/2021

Language: English

Author(s): Senaka Basnayake, Susantha Jayasinghe, Niladri Gupta

Department: Climate Change and Climate Risk Management

Access link:

https://www.adpc.net/igo/category/ID1663/doc/2021-m52Skw-ADPC-APN_Science_Bulletin_ADPC_2021.pdf

**White Paper on Thailand's New Normal Solutions for Building Resilience for Emerging Infectious Disease (EID) in Healthcare Facilities**

Published on: March 2021

Language: English

Author(s): Asian Disaster Preparedness Center

Department:

ADPC Academy; and Health Risk Management (HRM)

Access link:

https://pubhtml5.com/jdhb/azoq/basic



**Local Action in a Global Pandemic**

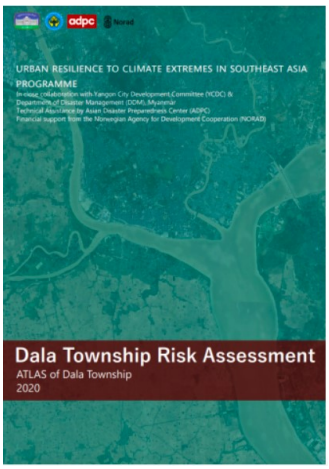
Published on: December 2021

Language: English

Author(s): Asian Disaster Preparedness Center

Department: 5. Preparedness for Response and Recovery (PRR)

Access Link: https://app.adpc.net/resources/local-action-in-a-global-pandemic/




**Dala Township Risk Assessment Atlas of Dala Township**

Published on: DRAFT version [waiting for approaval]

Language: English

Author(s): Asian Disaster Preparedness Center

Department: Risk Governance

**Humanitarian Work:**

**Empowering One Community at a Time: SERVIR-Mekong's Air Quality Explorer Helps Combat Forest Fires in Chiang Rai, Thailand.**

During the hot and dry season in Thailand, dry vegetation coupled with small human-made fires often result in uncontrolled forest fires. Agricultural burning and forest fires, including transboundary haze, contribute to high levels of pollution. Forest fires release particulate matter (PM) into the atmosphere, including PM2.5 which are microscopic particles with a diameter of 2.5 microns or less – 30 times smaller than the diameter of the human hair.

Chronic exposure to PM2.5 increases the risk of developing cardiovascular and respiratory diseases, as well as of lung cancer. A recent research paper published by The Energy Policy Institute at the University of Chicago, concludes that long-term exposure to fine particulate pollution is shortening the average life expectancy in Thailand by more than two years.

SERVIR-Mekong – a unique partnership between the U.S. Agency for International Development (USAID) and the U.S. National Aeronautics and Space Administration (NASA) combined satellite data with ground-sensor data and machine-learning analytics to enable monitoring and forecasting of air quality in Thailand. This information helps authorities devise data-driven policies and strategies to tackle air pollution.

Implemented by the Asian Disaster Preparedness Center (ADPC), Thailand, SERVIR-Mekong uses geospatial data to enhance climate change adaptation and help address the regional challenge of managing shared natural resources.

Data from SERVIR-Mekong's Air Quality Explorer tool is empowering local communities to manage forest fires in collaboration with first responders and the government. Dr. Nion Sirimongkonlertkul and her team from Rajamangala University of Technology, Thailand developed the SmokeWatch App that is used by officials to monitor and manage forest fires in Chiang Rai Province in Northern Thailand. The Smoke Watch App uses data from SERVIR-Mekong's Air Quality Explorer tool to pin-point forest fires in near real-time. The App was recently awarded the National Innovation Award, 2021 by the Government of Thailand.

"Previously, it was very difficult and time-consuming for the Forest Fire Department to filter and localize fire hotspots. They would rely on notifications from the community informing them about the exact location of the fires" said Dr. Nion. "Near real-time fire hotspot data from the SERVIR-Mekong Air Quality Explorer tool is instrumental in pinpointing fire hotspots. The faster we identify the fire hotspots, the quicker we can respond to the fires, as a result, less PM 2.5 pollution is released into the atmosphere."

Scaling up on the success from the Chiang Rai, the app is being upgraded to cover the whole of Thailand and neighboring countries with new features such as top ten hotspot provinces, wind direction, and PM2.5 data.

Image: Dr. Nion (left) with Governor Prachon Pratsakul of Chiang Rai Province (center) during the launch of the Smoke Watch App in February. Image Credit: Fulfill Social Enterprise Limited Partnership.

## Geospatial Technologies Empower Local Communities to Transform Forest Conservation in Cambodia

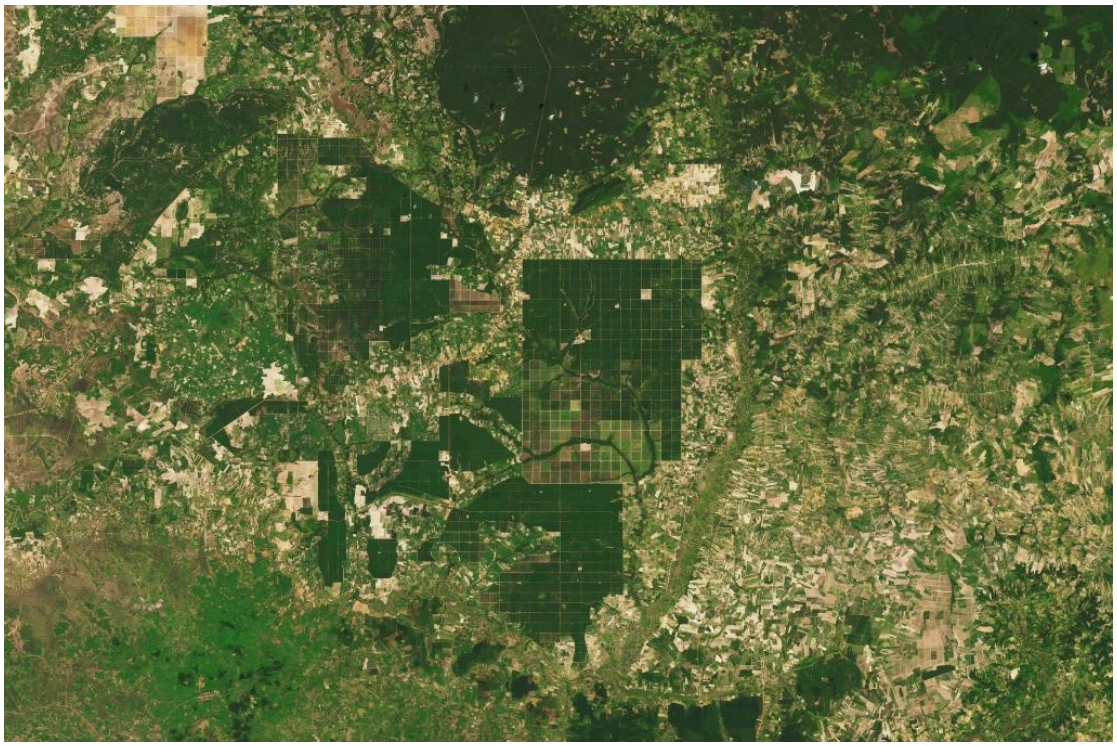


Image: Birds' Eye View of Cambodian Forests. Image credit: *NASA Earth Observatory images by Joshua Stevens, using Landsat data from the U.S. Geological Survey and Global Forest Watch*

SERVIR-Mekong's Forest Alert Tool helps monitor near real-time forest changes and external threats such as forest fires within the Prey Lang Extended Landscape in Cambodia. Community patrol teams and forest rangers use this information to prioritize their scarce resources for more efficient patrol planning and better protection of the 3.3-million-hectares Prey Lang protected area.

*"We obtain tree cover loss alerts using SAR technology, which alerts community patrol teams to investigate areas of tree loss and take action, in real-time" says* Kong Sophalrachana, Conservation Technology Specialist, USAID-Greening Prey Lang project. *"SERVIR-Mekong has been providing a number of trainings such as remote sensing for forest change detection and how to use the SAR alert tool. Nearly every major conservation partner in Cambodia has been engaged in these trainings"*

Cambodia has grappled with deforestation for many years. The country experienced a significant reduction in forest cover from 73 percent in 1965 to 47 percent in 2018. A recent USAID-funded report on Commodity-driven Forest Loss in Southeast Asia found that the primary drivers of deforestation in Cambodia are legal and illegal logging, charcoal production, mining, and economic land concessions for commodity crop plantations.

Monitoring forest loss remotely is needed for formulating policies and strategies to address deforestation. Currently, rangers spend long periods of time patrolling forests to monitor forest health and checking for illegal logging and land clearances.

**Contact:**

Ankit Joshi

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Ankit Joshi is a development professional with extensive experience in programme administration, strategic communication, stakeholder engagement and fundraising within climate change, disaster management and sustainability. Prior to joining the Asian Disaster Preparedness Center, Ankit led strategic sustainability initiatives at National University of Singapore. At Nanyang Technological University's Earth Observatory of Singapore, Ankit served as a core member of the Applied Projects Group with a mandate to translate natural hazards research into practical applications on the ground. He has also worked with the United Nations Office for Disaster Risk Reduction (UNDRR) to develop frameworks to analyze Sendai Framework Commitments of Countries in Central Asia. Ankit received an undergraduate degree in English Literature from University of Mumbai, India. Ankit has also received master's degrees in Public Administration from Nanyang Technological University, Singapore; Environmental Policy from Roskilde University, Denmark where he received the prestigious COP15 Climate Change Scholarship by the Government of Denmark and Social Development from University of Delhi, India.

**Local Representatives advocate for integrating rights and equality in Mainstreaming Disaster Risk Reduction**

Narayan Ban, Mayor, Ratnanagar Municipality – In the past year we have allocated the budget for disaster management, however we used that budget only for the response part only. We did not consider the different stages of the cycle of disaster management pertaining to risk management and crisis management. We used the allocated budget of disaster haphazardly which did not make any significant positive changes. After several interactions and meetings with ADPC's team, now we are aware that it is necessary to make a plan incorporating all aspects. Now, we have developed the Local Disaster Climate Resilience Plan (LDCRP) with technical support from ADPC and soon it is going to be endorsed. The issues of rights and equality of women, children, elderly, differently abled people and people from poor, vulnerable and socially excluded groups, were also considered during the preparation of the plan with insights for better preparation and planning for next time.

Shishir Poudel, Chief Administrative Officer, Ratnanagar Municipality – "Providing fishing skills is better than giving the fish to the people". People can use that skill and catch the fish as per need. ADPC is doing the same thing. ADPC is providing the skill to fight against the disaster. After participating in this training, it would be best if every training participant could disseminate the knowledge in their community. Nobody will do it for us, so we need to prepare and fight against the disaster.

Deepa Ghimire, Chief of Women, Children and Senior citizen Section, Ratnanagar Municipality – My department is working for the women, children, senior citizen, differently abled people for a long time. Although we were working with this group, we never thought about this group of people linking with disaster. After participating in the training provided by ADPC, I have realized the importance of meaningful participation of these people in the disaster management cycle.

Ambika Gautam, Education Section, Ratnanagar Municipality – I thought that education and disaster management are not interlinked with each other. This training module made it clear to me that not only education, but all sectors must also be interlinked with disaster risk reduction and management. If we do our sectoral plan by keeping disaster risk reduction as an essential part, that sector will become sustainable.

Anju Joshi, NDR Net member, training participant – NDR Net conducted many trainings on disaster management at the local, provincial and national level too within networks, however we rarely talked about the integration of human rights and gender equality approaches into DRRM mainstreaming. From today onwards, our advocacy will focus not alone DRRM but also inclusive DRRM.

**Contact:**

Ms. Serena Amatya

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Serena Amatya, Project Officer is working under Risk Governance Department in Asian Disaster Preparedness Center (ADPC), Bangkok, Thailand. Within building resilience through inclusive and climate adaptive disaster risk reduction (BRDR) program, she is supporting the workstream on mainstreaming disaster risk reduction (DRR) into development plans, technical support in other workstreams, and technical and operational Nationally Determined Contributions project. She completed master's degree in Disaster Preparedness Mitigation and Management from Asian Institute of Technology (AIT), Thailand. Prior to joining ADPC, she worked in International Centre for Integrated Mountain Development (ICIMOD) as a Research Associate.

Ms. Premuka Rai

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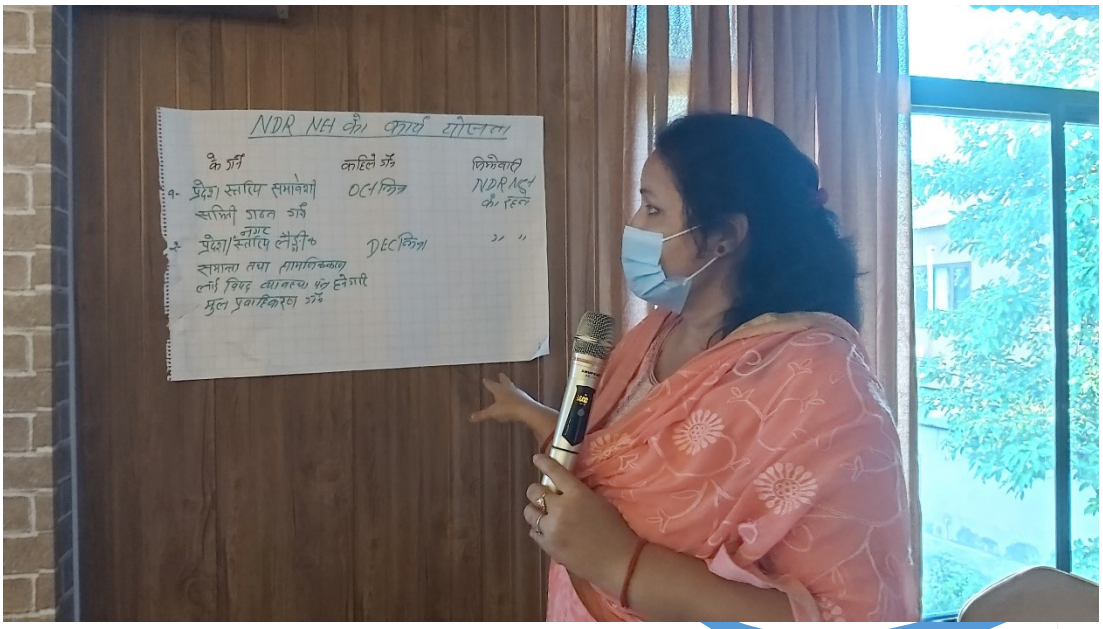
Premuka Rai is working as a program coordinator under Risk Governance department of ADPC based in Nepal since June, 2019 and working for Building Resilience through inclusive and climate adaptive Disaster Risk Reduction (BRDR) program. Before this role, she worked as a program coordinator in Human Rights and Environment Development Center (HURENDEC), Udaypur, Nepal and has more than 7 years of working experience in the field of Inclusive Disaster Risk Reduction/Management. In ADPC, she is taking care of all implementing partners, consultants of BRDR program and supporting them from planning to activities implementation phases and continuously updating the progress to the Bangkok team. Beside these, she has important role on coordination with stakeholders form national to local. She completed her master's degree in Environmental Science and Sociology form Tribhuvan University, Nepal. Her interest is to continuously work in the field of inclusive disaster risk reduction and management in future.

Group Photo taken after completion of Module 2 training



Narayan Ban, Mayor of Ratnanagar Municipality sharing his experience of joint collaboration with ADPC at closing ceremony of Module 2 training




Anju Joshi, NDR Net member, training participant presenting as a [art of group work during module 2 training


Shishir Poudel, Chief Administrative Officer, Ratnanagar Municipality delivering his remarks on the closing ceremony of Module – 2 training

Deepa Ghimire, Chief of Women, Children and Senior citizen Section, Ratnanagar Municipality leading the group discussion during Module 1 training

# Disaster and Risk Management Information Systems Research Unit, Chulalongkorn University, Thailand

http://drmis.eng.chula.ac.th


https://seed-net.org/seminar-supported-by-jica-project-for-aun-seed-net-covid-19-data-analysis-using-mobile-services-data-and-satellite-geospatial-data-towards-sustainable-tourism-business/

In 2021, the Disaster and Risk Management Information System Research Unit (DRMIS) has done the research activities and the other related activities through the year. Our research unit received the awards through the year, such as the Best Paper Award from the article “Government COVID-19 Responses and Subsequent Influences on $NO_2$ Variation in Ayutthaya, Thailand” [1] published in the Proceedings of the 2nd International Symposium on Instrumentation, Control, Artificial Intelligence, and Robotics. Ms. Sansanee Sapapthai, our team member, also won the Best Presentation Certificate from the presentation “Success Factors of Business Continuity Management Implementation Using Analytic Hierarchy Process-A case of an automotive part company in Ayutthaya Province, Thailand” [2] presented in the 3rd International Conference on Management Science and Industrial Engineering (MSIE 2021), Japan.

We developed the research articles and publications in the various fields of study under the scope of disaster, risk, and information systems. In the field of disaster management with the information systems in Thailand [3,4,5,6], in Japan [7], in both Thailand and Japan [8] and in the wider area [9,10]. The article topics also contain the disaster management with the social network analysis [11] as well as the topic of disaster management working under the other knowledge fields. For example, the public healthcare system [12,13], the business continuity management (BCM) [14,15,16], and smart farming [17].

DRMIS also received research grants both from domestic and overseas. For example, the Fundamental Fund (FF) of the Thailand Science Research and Innovation Fund, Chulalongkorn University [18]; and the Collaborative Research with External Partners (CRX) (CU CRX 2102), JICA Project for AUN/SEED-Net in the title of research project as "Sustainable Healthcare System through Business Continuity Management" [19]. According to these research grants, the team has the opportunity to organize the events to spreading the idea and knowledge to the public. In the previous year, we organized the events such as the online seminar in “BCM Concept towards Public Healthcare System during the Disaster” supported by CU CRX 2102 [20]; the “Data Analysis using Mobile Services Data and Satellite Geospatial Data towards Sustainable Tourism Business” supported by JICA Project for AUN/SEED-Net through the Special Program for Research Against COVID-19 (CU SPRAC 2101) [21]. Moreover, our team also cooperated with other organization such as the Center of Safety and Environment of Chulalongkorn University (SHECU) to organize the online seminar in the topic of “BCP for Young Generation” [22].

Dr. Natt Leelawat

Assistant Professor

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21. https://seed-net.org/seminar-supported-by-jica-project-for-aun-seed-net-covid-19-data-analysis-using-mobile-services-data-and-satellite-geospatial-data-towards-sustainable-tourism-business/
22. https://www.facebook.com/SHECU2560/posts/4174643522622078

https://www.facebook.com/SHECU2560/posts/4174643522622078

# Japan

# Japan

# Japan and Oceania

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

# Asian Disaster Reduction Center (ADRC)

## Japan

https://www.adrc.asia/

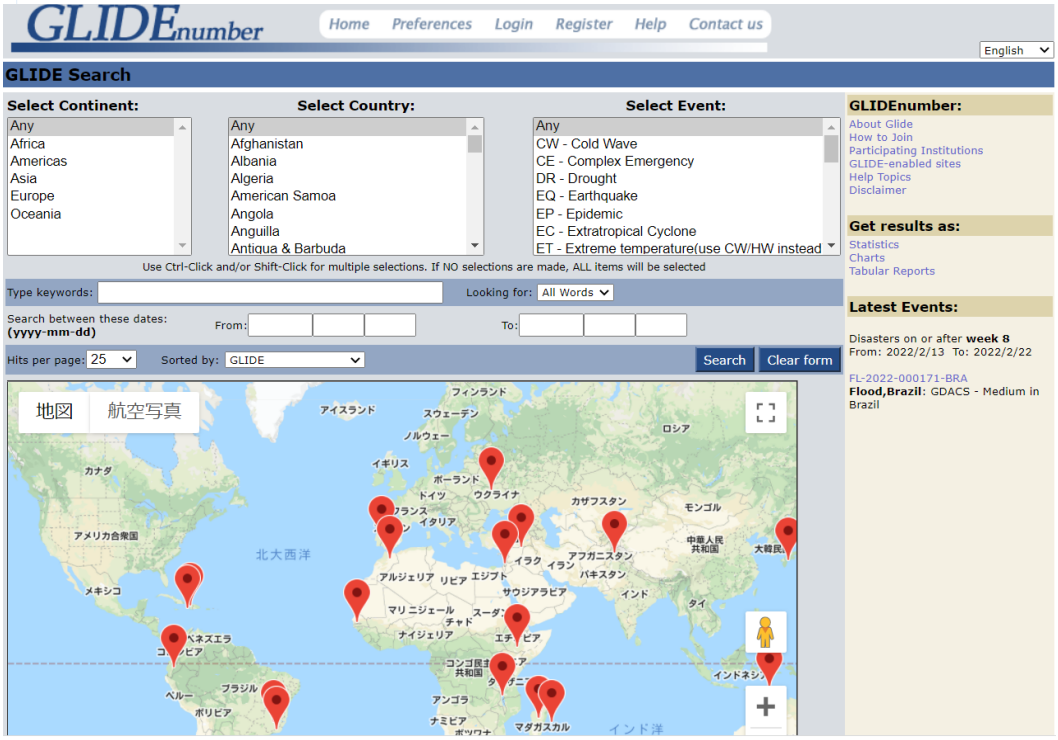


Figure 1: GLIDE Website

### Renewal of GLIDE Initiative

### Background

Accessing disaster information can be a time consuming and laborious task. Not only is data scattered but frequently identification of the disaster can be confusing in countries with many disaster events. To address these issues, Asian Disaster Reduction Center (ADRC) proposed a globally common Unique ID code for disasters. This idea was shared and promoted by OCHA/ReliefWeb, OCHA/FSCC, UNDRR, UNDP, WMO, IFRC, OFDA-USAID, FAO, La Red, the World Bank, the European Commission and the Centre for Research on the Epidemiology of Disasters (CRED), and was jointly launched as a new initiative "GLIDE". Since its launch in 2001, GLIDE has been used by DRR stakeholders and experts.

### Overview

Once a disaster occurs, an operator issues a GLIDEnumber at GLIDE website and automatically the GLIDEnumber is distributed to some 2,000 subscribers by email and also on the website. The issued GLIDE numbers are utilized in databases and products by DRR organizations and experts. For example, Tropical Storm Auring in the Philippines in 2020 is called as Tropical Cyclone Dujuan by international name while Typhoon No.1 in Japan. The GLIDEnumber of this disaster is expressed as TC-2021-000017-PHL, namely hazard code, year, serial number and country code. The GLIDEnumber can identify a disaster that are named differently across the countries. Also, it can integrate data in different organizations such as affected local governments, meteorological department, welfare department, international donors and so on.

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**Activities and Achievements in 2021**

After repeated conversations and arrangements among partner organizations, GLIDE members agreed to establish the Steering Committee (SC) in 2021. It aims to promote upgrading the governance, system and functions so that GLIDE can further contribute to data management, achieving global initiatives, SFDRR and SDGs.

At the first SC meeting in June 2021, Prof. Ono Yuichi, IRIDeS, Tohoku University was selected as the first chair, and ADRC to serve as the Secretariat. Then SC members agreed to set us three Subcommittees to address more specific areas of SOP, API and Product Development.

The second SC meeting took place in December 2021. After reporting annual activities by the Secretariat, three Subcommittees presented on their discussions and recommendations to SC members. Review of GLIDE SOP and GLIDE API development are in progress, Product Development Subcommittee submitted a list of recommendations.

The SC members will continue to collaborate for GLIDE updates and welcome new members who are committed to working for disaster information.

**Reference:**


- GLIDE https://glidenumber.net/glide/public/search/search.jsp


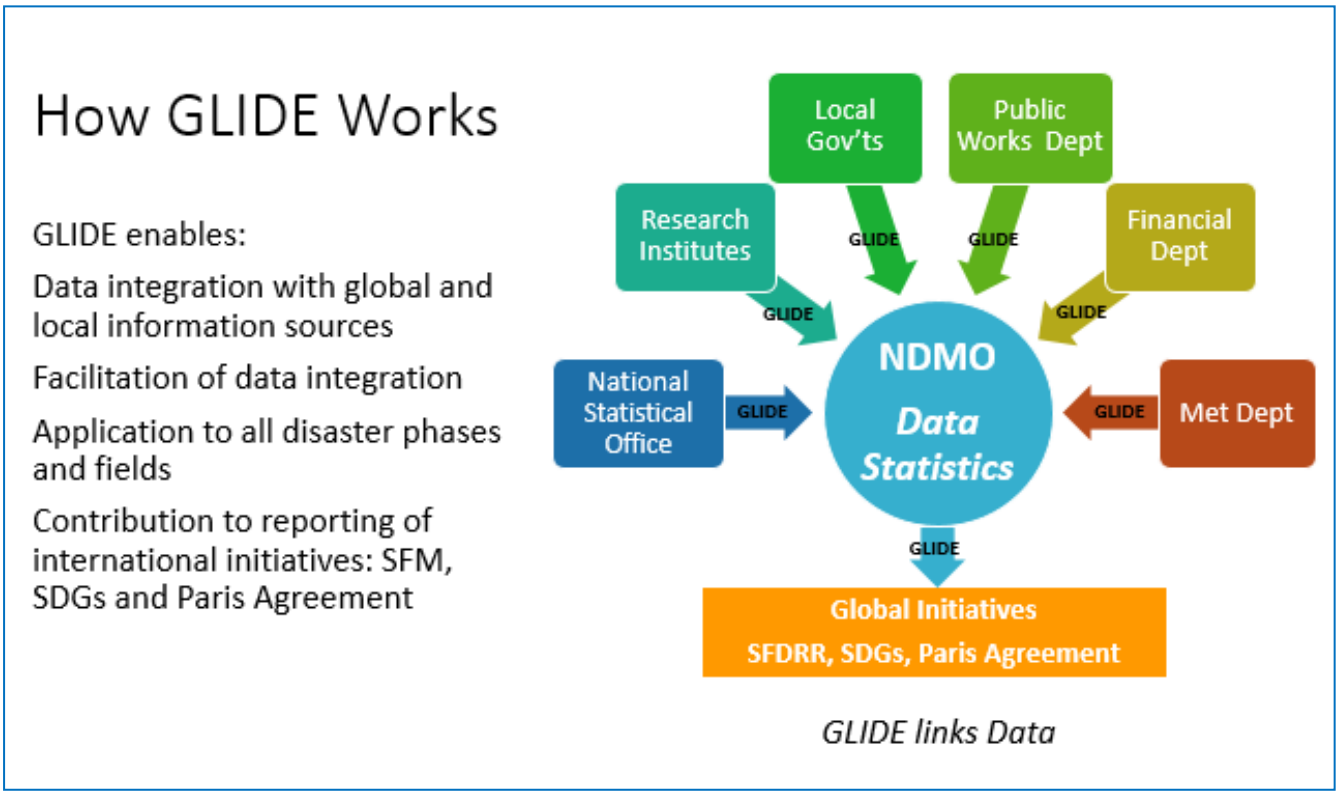


Fig. 2: How GLIDE Works

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

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


Online lecture by Fire and Disaster Management Bureau

Center for Disaster Countermeasures has helped organizing a lecture course in the University of Kitakyushu for sharing knowledge of local DRR experts with students from various disciplines since 2015. Both local academics and practitioners act as lecturers for this course and the lecture topics are diverse as shown in Fig. 1. This is a good example of creating opportunities for students to meet local DRR experts.

This lecture course also features a one-day student workshop on DRR organized by the Kitakyushu City government. The 2021 workshop consisted of online lectures by Prof. Katada Toshitaka, the University of Kitakyushu and a Kitakyushu City government official who had helped infrastructure reconstruction of Kamaishi City that was severely damaged by the 2011 Great East Japan Earthquake and Tsunami Disaster.

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

Online lecture by Fire and Disaster Management Bureau

| | Topics | Providers |
|---|---|---|
| 1 | Introduction | University of Kitakyushu, Prof. Kato Takaaki |
| 2 | Emergency exercise | Prof. Kato Takaaki |
| 3 | Weather and earthquake | Crisis Management Department, Kitakyushu City |
| 4 | Flood prevention | Construction Bureau, Kitakyushu City |
| 5 | Disaster and firefighters | Fire and Disaster Management Bureau, Kitakyushu City |
| 6 | School education and DRR | Board of Education, Kitakyushu City |
| 7 | Coping with disaster stress | Public Health and Welfare Bureau, Kitakyushu City |
| 8 | Earthquake resistant architecture | University of Kitakyushu, Prof. Kido Masae |
| 9 | Gender and DRR | University of Kitakyushu, Prof. Ninomiya Masato |
| 10 | Firefighting innovation through government-academics-business cooperation | University of Kitakyushu, Prof. Uezu Kazuya |
| 11 | Emergency management and DRR in Kitakyushu | Crisis Management Department, Kitakyushu City |
| 12 | Student volunteers | University of Kitakyushu, Prof. Murae Fumitoshi |
| 13 | Stakeholder involvement in disaster risk reduction | DRR volunteer, Mr. Suma Wataru, and Prof. Murae Fumitoshi |

Figure 1: Course contents

# International Centre for Water Hazard and Risk Management under the auspices of UNESCO (ICHARM), Japan

http://www.icharm.pwri.go.jp/

United Nations Educational, Scientific and Cultural Organization

International Centre for Water Hazard and Risk Management under the auspices of UNESCO

Public Works Research Institute, National Research and Development Agency, Japan

International Centre for Water Hazard and Risk Management (ICHARM) under the auspices of UNESCO was established as a UNESCO category II center and a part of the Public Works Research Institute of Japan on 6th March, 2006.

The mission is to serve as the Global Centre of Excellence for Water Hazard and Risk Management by observing and analyzing natural and social phenomena, developing methodologies and tools, building capacities, creating knowledge networks, and disseminating lessons and information in order to help governments and all stakeholders manage risks of water related hazards at global, national, and community levels.

To achieve the mission, ICHARM has conducted various activities based on its three pillars, i) innovative research, ii) effective capacity building, and iii) efficient information networking, including following special topics;

i) Innovative research

ICHARM has been studying a dam operation method to achieve both flood risk reduction and effective use of water resources by applying dam water pre-releases based on inflow predictions. Koike et al. (2021) proposed a dam operation method using ensemble inflow prediction and performed simulations to look into the practicality of the method at the Hatanagi Daiichi Dam in Japan.

ICHARM Newsletter, No.63 (January 2022) Volume 16 No.4, pp.10-12.

- https://www.pwri.go.jp/icharm/publication/index.html

ii) Effective capacity building

ICHARM, in cooperation with UNESCO/IHP, AGRHYMET Regional Center, the Niger Basin Authority and the Volta Basin Authority, established a regional Flood Early Warning (FEW) prototype on Data Integration and Analysis System (DIAS) platform, and increased flood risk awareness and education through e-Learning training, including 4 sessions of the training of experts up to 300 professionals and 2 sessions of the one-week training of trainers up to 40 leader candidates in 11 countries.

ICHARM Newsletter, No.59 (January 2021) Volume 15 No.4, pp.5-7.

- https://www.pwri.go.jp/icharm/publication/index.html

Prof. Toshio Koike

Executive Director

E-mail: t-koike@pwri.go.jp

ICHARM provided e-learning & workshops for Indonesian government officers. The training program lasted for about a month from October 5 to November 5, 2021, in the framework of "Strengthening Water-related Disaster Resilience and Achieving Sustainable Development under Climate Change by ALL." The aims of the e-learning & workshops were providing capacity building training for government officers and strengthening the collaboration among water-related ministries to increase water-related disaster resilience and achieve sustainable development under climate change. The participants were 35 government officers from six ministries.

ICHARM Newsletter, No.63 (January 2022) Volume 16 No.4, pp.3-52.

- https://www.pwri.go.jp/icharm/publication/index.html
- https://www.pwri.go.jp/icharm/special_topic/20211117_indonesia_e-learning_workshop.html

iii) Efficient information networking

ICHARM was given the Dr. Roman L. Kintanar Award 2020 with the other joint team members, the Japan Aerospace Exploration Agency (JAXA) and the Infrastructure Development Institute (IDI), at the 53rd Annual Session of the Typhoon Committee (TC), held online on February 23-25, 2021. ICHARM was praised for its contribution to enhancing the flood forecasting and management capacity in the region through the support for the flood hazard mapping (FHM) project of TC and the utilization of the Global Satellite Mapping of Precipitation (GSMaP) product developed and provided by JAXA.

ICHARM Newsletter, No.60 (April 2021) Volume 16 No.1, pp.19-20.

- https://www.pwri.go.jp/icharm/publication/index.html
- https://www.pwri.go.jp/icharm/special_topic/20210226_KintanarAward.html

Disaster Prevention Research Institute
(DPRI) Kyoto University, Japan
http://www.dpri.kyoto-u.ac.jp/en/

**Discussions for Sustainable Futures held on 13 April 2021**

The main idea of this discussion series is to invite early-career researchers, practitioners (e.g., civil society, NGOs, government), senior faculty and students from different university schools to join in an hourly, casual 'coffee' talk. Our purpose is to initiate an on-going, informal dialogue on an equal basis among people from various disciplines and perspectives to think together about the processes needed to move towards more just and equitable sustainable futures in different contexts, cultures, and communities in the world. Through our discussions over the past few months, an overarching theme developed: *emergent social innovation and adaptive governance for coping with the systemic risk of unsustainability*.

In our latest discussion session, we approached the subject of 'emergent social innovation in the face of crises'. We began by exploring how the concepts of 'innovation' and 'crisis' are broadly understood nowadays, looking at their relationship with environmental sustainability or even the pandemic. From the perspective of resilience, innovation is regarded as a process of combining available skills and resources. It is not only an invention but also a social adaptation process in a broader sense.

Our talk highlighted the need to establish mechanisms to nurture and implement social innovation by enabling the communities to identify themselves the problems they face, something that still remains quite challenging. In this regard, it is important to promote critical thinking in education through encouraging new learners to ask questions, re-evaluate our assumptions and contemplate on what might still be missing from the analysis framework.

Furthermore, we must foster social innovation by supporting social communication. New 'communicative spaces' are thus required to facilitate community members in meeting, discussing and collaborating together. We should bear in mind going forward that social changes can start at a small, manageable scale, without being large and disruptive projects. Ideas can develop in size and mature gradually through the continuous innovation process, given our communication and collaboration networks.

Another challenge ahead for innovation is bringing equality in communities with limited resources. There are issues related to power dynamics within our society, and so we need to make sure that the communities act having all people in mind. In this regard teaching and preparing the future generations is key, and —perhaps more importantly— we have to start considering them not only as students, but as partners and educators in the social innovation process.

Finally, looking towards mainstreaming social innovation, we need to research and highlight successful examples without disregarding, however, the less successful cases that can provide equally valuable lessons in realizing and fostering social innovation.

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**The 5th International Symposium on Natural and Technological Accident Risk Reduction at Large Industrial Parks (5th Natech Symposium / Natech 2021)**

On March 10 to 11, 2021, we held the 5th International Symposium on Natural and Technological Accident Risk Reduction at Large Industrial Parks (5th Natech Symposium - Natech 2021). This international event was hosted by Prof. Shin-ichi Aoki, Osaka University, and Prof. Ana Maria Cruz, Kyoto University.

The consequences of past natural hazard triggered technological accidents (known as Natechs) have highlighted the vulnerability of modern societies to these complex accident risks. Addressing the risk posed by Natechs requires comprehensive, area-wide efforts that go beyond one plant, or a single industrial park to the wider community of stakeholders in which industries carry out their production, processing, distribution, and operations. But this “ideal” state, requires a paradigm shift, and not only on behalf of industrial facility managers and operators, but all relevant stakeholders towards comprehensive, territory-wide risk assessment and management. This requires new, proactive approaches with a broader scope. Therefore, by bringing in knowledge and methods from different disciplines, new points of view and approaches will support a clearer understanding of Natech complexities, and improved ways to manage the challenges they entail.

Thus, the 5th Natech Symposium aimed to promote scientific exchange from interdisciplinary fields to share experiences on risk management and risk governance of Natech hazards, and risk assessment methods and innovative risk reduction measures on various accident hazards triggered by large-scale natural disasters at industrial parks. The symposium brought together more than 100 participants from academia, local, national and international government organizations, industry and local community leaders from 26 countries from all over the world. The two-day event was held online with plenary and research sessions, as well as panel and discussion sessions organized in a way that allowed participants from different time zones to actively engage. In total, thirty-five oral presentations regarding current research advances, as well as challenges regarding all aspects of Natech risk management and risk governance were presented. The symposium also offered a space for multistakeholder discussion and cooperation regarding Natech risk reduction.

The 5th Natech Symposium followed a series of international events. The first, second and third Natech symposia were hosted by Osaka University in cooperation with the Disaster Prevention Research Institute of Kyoto University, Japan, in 2015, 2016, and 2017. The 4th Natech symposium was hosted at the Joint Research Centre, European Commission, Italy in September 2018. The 2019 event, which was to be held in Kyoto in March 2020 (as part of the 2019 academic year in Japan) had to be postponed due to the ongoing coronavirus pandemic. This year’s symposium, held virtually on 10-11 March, offered new possibilities to reach out to stakeholders who would otherwise not be able to attend due to time and resource constraints. We hope that the symposium may contribute to collaboration among researchers, administrative bodies, industries and communities, which we hope can ultimately lead to safer and more resilient territories.

For more information, please visit the following URL: https://www.natech.dpri.kyoto-u.ac.jp/

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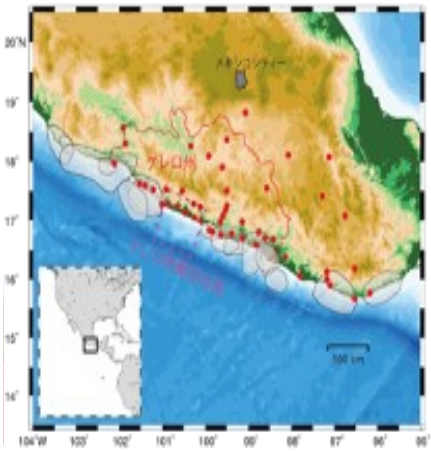
**Research Article on the Short-term Interaction Between Slow-slip Events and Devastating Earthquakes in Mexico**



Associate Professor Yoshihiro Ito, Associate Professor Takuya Nishimura, Disaster Prevention Research Institute, Kyoto University and their colleagues in National Autonomous University of Mexico, University of Rhode Island, and University of California, Santa Cruz, analyzed crustal deformation from GNSS stations in Mexico, as an international collaborative research project to identify slip distribution of slow slip events and interpolate coupling on the plate interface between Cocos and North America plates. As a result, it was clarified that an interaction among three large earthquakes with magnitude larger than 7 and slow slip events occurred in Mexico from 2017 to 2019. Slow slip events sometimes trigger a large earthquake, and a large earthquake conversely triggers slow slip. These triggering of large earthquakes by the slow slip events and those of slow slip by large earthquakes have been individually reported in several regions. There have been, however, few studies that have investigated the interaction among some of the large earthquakes and slow slip events in detail.

Part of this international collaborative research between Japan and Mexico was supported by JST and JICA with SATREP "Integrated Research for Mitigating Mega-Earthquake and Tsunami Hazards in Coastal Mexico" (PIs: Y. Ito, Kyoto University and V.M. Cruz-Atienza, UNAM).

These results were published in Nature Communications on 12 April 2021.

Abstract of the Article: https://www.nature.com/articles/s41467-021-22326-6

“Either the triggering of large earthquakes on a fault hosting aseismic slip or the triggering of slow slip events (SSE) by passing seismic waves involve seismological questions with important hazard implications. Just a few observations plausibly suggest that such interactions actually happen in nature. In this study we show that three recent devastating earthquakes in Mexico are likely related to SSEs, describing a cascade of events interacting with each other on a regional scale via quasi-static and/or dynamic perturbations across the states of Guerrero and Oaxaca. Such interaction seems to be conditioned by the transient memory of Earth materials subject to the “traumatic” stress produced by seismic waves of the great 2017 (Mw8.2) Tehuantepec earthquake, which strongly disturbed the SSE cycles over a 650 km long segment of the subduction plate interface. Our results imply that seismic hazard in large populated areas is a short-term evolving function of seismotectonic processes that are often observable.”

- Nature Communications - https://www.nature.com/articles/s41467-021-22326-6

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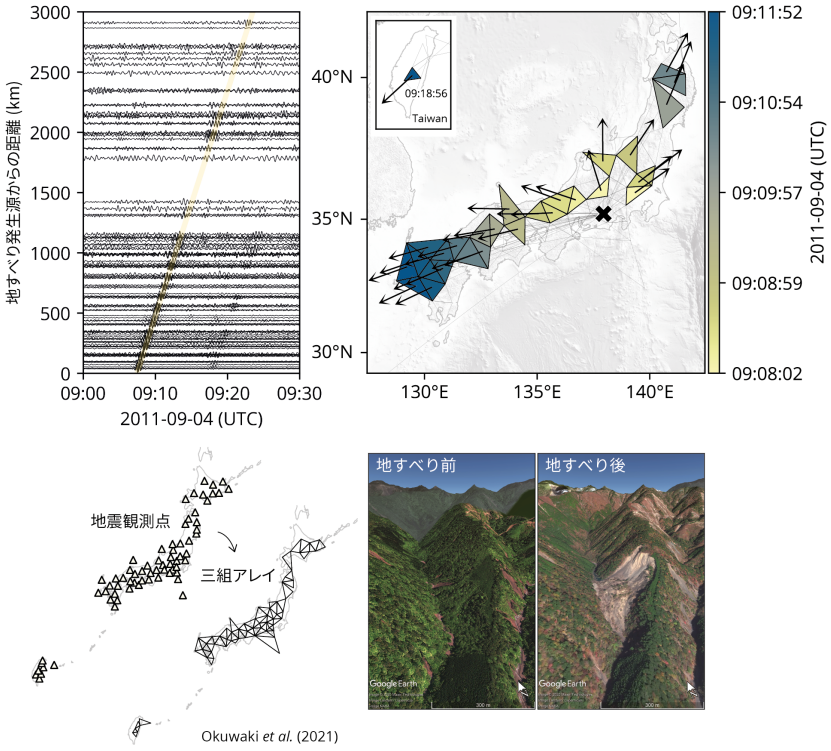
**Research Paper on Identifying landslides from continuous seismic surface waves: a case study of multiple small-scale landslides triggered by Typhoon Talas, 2011**




The research paper on “Identifying Landslides from Continuous Seismic Surface Waves: A Case Study of Multiple Small-scale Landslides Triggered by Typhoon Talas, 2011” was published in the Geophysical Journal International (Oxford Academic) on 1st April 2021.

The summary of the paper is as follows:

- https://academic.oup.com/gji/advance-article-abstract/doi/10.1093/gji/ggab129/6207938?redirectedFrom=fulltext#233608559


“Landslides can cause devastating damage. In particular, heavy rainfall-triggered landslides pose a chain of natural hazards. However, such events are often difficult to detect, leaving the physical processes poorly understood. Here we apply a novel surface -wave detector to detect and locate landslides during the transit of Typhoon Talas 2011. We identify multiple landslides triggered by Typhoon Talas, including a landslide in the Tenryu Ward, Shizuoka prefecture, Japan, 400 km east from the typhoon track. The Tenryu landslide displaced a total volume of 1.2-1.5 × $10^{\wedge 6}$ m. The landslide is much smaller than those detected by using globally recorded surface waves, yet the event generated coherent seismic signals propagating up to 3000 km away. Our observations show that attributes of small and large landslides may follow the same empirical scaling relationships, indicating possible invariant failure mechanisms. Our results also suggest an alerting technology to detect and locate landslides with a sparse seismic network.”

- Geophysical Journal International, (Oxford Academic) - https://academic.oup.com/gji/advance-article-abstract/doi/10.1093/gji/ggab129/6207938?redirectedFrom=fulltext#233608559
- https://academic.oup.com/gji/advance-article/doi/10.1093/gji/ggab129/6207938?login=true#233608559

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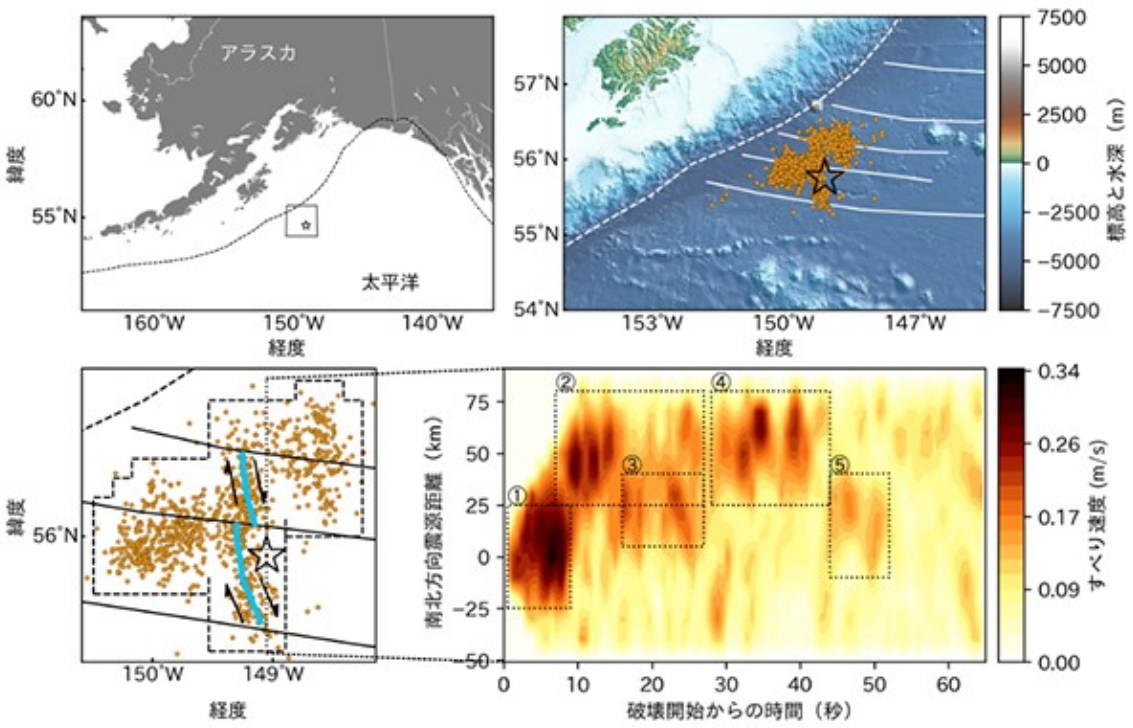
# Scientific Report on Consecutive Ruptures on a Complex Conjugate Fault System During the 2018 Gulf of Alaska Earthquake

**By:** Prof. Yukitoshi Fukahata et.al.




Paper on the “Consecutive ruptures on a complex conjugate fault system during the 2018 Gulf of Alaska Earthquake” was published in the Scientific Reports volume 11 on 16 March 2021.

**Abstract**

We developed a flexible finite-fault inversion method for teleseismic *P* waveforms to obtain a detailed rupture process of a complex multiple-fault earthquake. We estimate the distribution of potency-rate density tensors on an assumed model plane to clarify rupture evolution processes, including variations of fault geometry. We applied our method to the 23 January 2018 Gulf of Alaska earthquake by representing slip on a projected horizontal model plane at a depth of 33.6 km to fit the distribution of aftershocks occurring within one week of the mainshock.

The obtained source model, which successfully explained the complex teleseismic *P* waveforms, shows that the 2018 earthquake ruptured a conjugate system of N-S and E-W faults. The spatiotemporal rupture evolution indicates irregular rupture behavior involving a multiple-shock sequence, which is likely associated with discontinuities in the fault geometry that originated from E-W sea-floor fracture zones and N-S plate-bending faults.

Link to the abstract:

- https://www.nature.com/articles/s41598-021-85522-w

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# Institute of Disaster Area Revitalization, Regrowth and Governance, Kwansei Gakuin University, Japan

https://www.kwansei.ac.jp/fukkou/about/index_en.html


Institute organizes various study groups for discussing the following issues. Each group cooperates with academics, government officers, and NGO/NPO workers for cross sectoral learning.

**Project activities;**

- International comparative study on disaster recovery and revitalization policies.
- The study group published “COVID-19: policies and volunteers in Italy, USA, New Zealand, and Taiwan” (in Japanese).
- International study group on sustainable regional revitalization since 2020. Recovery from catastrophic disasters need a long-term, sustained community effort. It is important to pass on the experience of past major disasters as systematic wisdom and knowledge, and to conduct policy research to prepare for future major disasters. The group brought together researchers, practitioners, and administrators from Japan and abroad for exchanging knowledge.
- Study group on revitalization and housing support. In Japan, The Nankai Trough earthquake is expected to occur in the near future. The study group started discussions with Kushimoto, Wakayama Prefecture on pre-reconstruction measures.

**Events;**

<u>An annual network meeting and forum</u>

The institute organized an annual network meeting of disaster-affected areas in Japan from January 9-10, 2021. There are various types of “recovery and revitalization knowledge” which emerge after a disaster. They serve as a useful policy and help us to design a new social system for supporting the affected people who are struggling in this disaster-prone country. These valuable pieces of knowledge, however, tend to be shared only within the affected area, and often fails to transfer to other areas. We organize a network meeting once a year to mutually share these lessons from various disaster affected areas in Japan.

In 2020, The theme was: “Disasters with COVID-19; how can we create a new-normal?” We started first round discussion with high school, and university students, who are struggling to support affected areas, especially the 2020 typhoon in Kyusyu area during COVID-19. Then, the second round with the specialists from various disaster-affected areas and the volunteers who are engaging in disaster recovery activities in the 2020 typhoon. The second day was a symposium and panel discussion. There were more than 200 on-line participants at the meeting and forum.

<u>International Seminar on “Thinking about new collaboration in East Asia”</u>

An international symposium and joint study group on the theme of "Thinking about new collaboration in East Asia" is held every year. On March 19, 2021, a study group was held jointly with the Institute of Japanese Studies of Kookmin University, a leading Japanese research institute in Korea, entitled "Exploring Japan-Korea Relations in the Post-Coronavirus Era: Sharing 'Reconstruction knowledge' in the COVID-19 Disaster."

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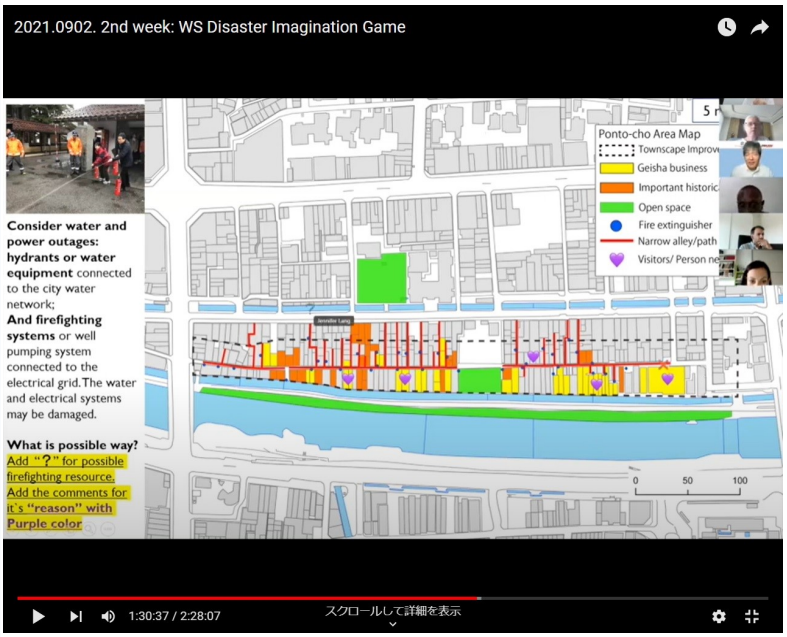
# Institute of Disaster Mitigation for Urban Cultural Heritage (R-DMUCH), Ritsumeikan University Japan

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




Pic1 Workshop on Disaster imagination game

The Institute of Disaster Mitigation for Urban Cultural Heritage at Ritsumeikan University

(R-DMUCH) has been acting as a focal point for organizing international research, training

and information network in the field of cultural heritage risk management and disaster mitigation. The UNESCO Chair Programme on Cultural Heritage and Risk Management - 15th INTERNATIONAL TRAINING COURSE (ITC) on DISASTER RISK MANAGEMENT of CULTURAL HERITAGE 2021 was held for seven weeks from 23rd of August to 7th October 2021 with 13 participants and observers from Colombia, Croatia, Egypt, Japan, Kenya, Kosovo, Latvia, North Macedonia, Philippines, Portugal, Switzerland, United States of America, and Italy. They were selected through a competitive selection process which had 124 applicants from various regions of the world. This years' participants had diverse backgrounds, including cultural heritage managers, disaster risk management experts, decision-makers, and government officials involved in cultural heritage conservation and disaster management.

This year the theme of ITC was Disaster Risk Management of Cultural Heritage: Learning from the Japanese Experiences. It was focused on Japanese experiences in each of the phases of DRM cycle: risk assessment, mitigation, preparedness, emergency response, recovery, and policies and frameworks including the international perspectives on policies and frameworks. The related videos of lectures and site visits, interactive live sessions with group works and workshops, and mentoring sessions aimed at developing participants' individual projects. We also provided an informal communication channel via SNS. These all were prepared to meet the learning contents of the online course as close to face to face courses that we have organized since 2006.

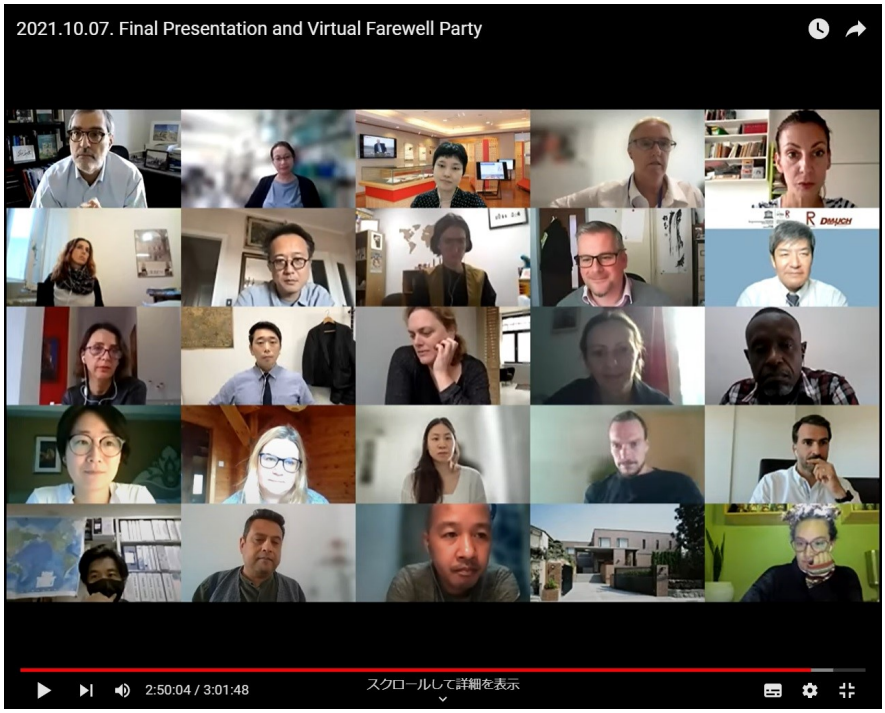
The course focused on experiences in Japan and how those relate to the institutional structure and legal framework as well as the implementation and practical efforts. It was challenging for us to prepare to conduct fieldwork given the COVID-19 pandemic. Site visits have always been an important part of our course. With the cooperation of the heritage site owners and the local community in the city of Kyoto, we created alternative video tours of local sites. Our video Ponto-Cho showed how a local neighborhood approaches disaster preparedness and evacuation in a traditional townscape in Kyoto. At Kiyomizu Temple we were able to show countermeasures against floods, landslides, and fires in wooden cultural properties on steep hillsides. At Higashi Hongan-Ji we viewed the fire prevention measures for large wooden buildings, including high technologies such as sprinklers, drenchers.

Prof. Takeyuki Okubo
Director
E-mail: rekibou@st.ritsumei.ac.jp

The outcomes were remarkable although the training was short period and virtual. Some of the participants have already begun to implement their pilot project on their sites. Participants have highly evaluated the interaction with the resource persons, pre-videos, and live sessions. However, the issue remained that the participants were not able to interact with each other sufficiently. We are planning to work on this issue in next ITC course.

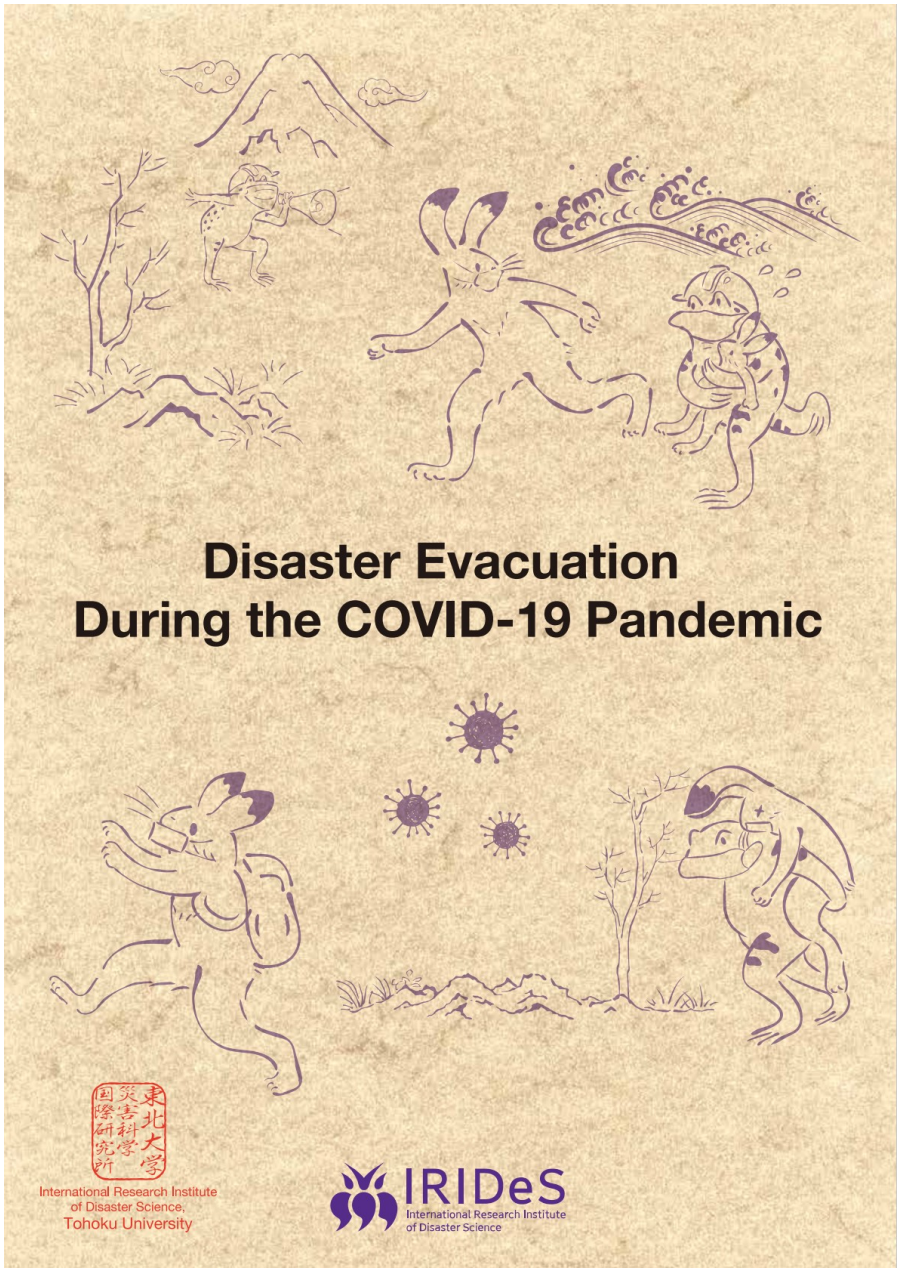
The online training course is organized by the Institute of Disaster Mitigation for Urban Cultural Heritage, Ritsumeikan University in collaboration with ICCROM, contributed by UNESCO, ICOM & ICOMOS/ICORP, and relevant institutions of the government of Japan. We will continue these outreach activities and dissemination of our research outcomes to the international society.

https://rdmuch-itc.com/4072/




Pic2 Participants and some of the resource persons of the training course

International Research Institute of Disaster Science (IRIDeS)Tohoku University,Japan
http://www.r-dmuch.jp/en/




Implementation of evacuation measures during natural disasters under conditions of the novel coronavirus (COVID-19) pandemic based on a review of previous responses to complex disasters in Japanby Masashi Sakamoto[1], Daisuke Sasaki[1], Yuichi Ono[1], Yuko Makino[2], Eiichi N.Kodama[1 2 3]

1 : International Research Institute of Disaster Science (IRIDeS), Tohoku University, Japan

2 : Graduate school of Medicine, Tohoku University, Japan

3 : Tohoku Medical Megabank Organization, Tohoku University, Japan

Progress in Disaster Science

Volume 8, December 2020, 100127

Prof. Yuichi Ona
E-mail: yono@irides.tohoku.ac.jp

We aimed to investigate how evacuation measures could be effectively implemented in the event of multiple disasters caused by natural hazards under conditions of the novel coronavirus infection (COVID-19) pandemic, which is rapidly spreading worldwide. We conducted a review of literature focusing on complex disasters, entailing natural disasters in combination of outbreaks or endemics of infectious diseases. Using the Google Scholar search engine, we identified and reviewed 24 papers sourced from academia, governments, and concerned organizations, and associated data on such disasters, commencing with the Great Hanshin-Awaji Earthquake, which occurred in 1995. In light of our review, we developed a summary of correspondences and problems linked to compound disasters involving conjunctions of outbreaks/ endemics and natural disasters that could offer insights for developing measures to deal with natural disasters that occur in the context of the COVID-19 pandemic. We subsequently attempted to differentiate the characteristics of evacuation measures relating to COVID-19 from those relating to other infectious diseases using three sets of extracted keywords: (1) surveillance and information sharing, (2) evacuation center environment and stockpiled supplies, and (3) community disaster risk reduction and community leadership. We identified issues relating to evacuation measures that would need to be explored further to improve disaster management and preparedness in the future.

Followed by the above-mentioned review, we completed a guidebook called the Disaster Evacuation During the COVID-19 Pandemic. This summarized the points that evacuees and evacuation shelter staff should keep in mind regarding evacuation in the event of multiple disasters caused by natural hazards during the current worldwide COVID-19 pandemic. Government agencies have compiled and published evacuation manuals and evacuation shelter management guidelines. In the event of a disaster, it is necessary to respond promptly and efficiently using the evacuation manuals and evacuation shelter management guidelines prepared for the government agencies and volunteers. However, government officials are not the only ones who will provide assistance at an evacuation shelter, for example. The understanding and cooperation of the general public taking shelter at the evacuation shelter is essential. This is especially true during the COVID-19 pandemic, which caused increased anxiety. This guidebook was created to provide points to keep in mind with the aim of helping the general public to understand and cooperate with each other if a natural disaster occurs during the COVID-19 pandemic. Many diagrams and illustrations are used for ease of understanding. Also this guidebook has been translated into English languages disaster managers to Japanese. We hope that the information provided here will not only spread among policy makers and disaster managers in various countries, but also among the general public.

# Earthquake Research Institute (ERI)
# The University of Tokyo, Japan

http://www.eri.u-tokyo.ac.jp/en/

The mission of Earthquake Research Institute, the University of Tokyo, since its beginning in 1925, is to promote scientific research on earthquakes and volcanic eruptions and to develop methods for mitigating related disasters. To achieve this goal, about 80 faculty members with other staff of ERI conduct wide variety of research such as studies on the basis of geophysical observations in Japan and abroad, structure and dynamics of the Earth's interior which drive earthquakes and volcanic eruptions, multidisciplinary research of science and literature on historical earthquakes with Historiographical Institute, real-time delivery and analysis of large amount of seismic data using Science Information Network, earthquake hazard assessment by merging big data and high performance computation.

Regarding the international collaboration, ERI has signed agreements with about 20 foreign organizations, and conducts or participates collaborative research projects such as International Muography Cooperative Research Organization, Next generation Neutrino Science Organization, international marine geophysical observation networks such as Pacific Array. ERI invites foreign researchers as visiting faculty or researcher, educates graduate or internship students from countries outside Japan, and organizes international summer schools for both undergraduate and graduate students. In normal year before COVID-19 pandemic, more than 100 international researchers and students studied in ERI.

Research highlights in 2021 include the SATREPS project with the Development of Integrated Expert System for Estimation and Observation of Damage Level of Infrastructure in Lima Metropolitan Area in the Republic of Peru. The project aims to develop a system that can grasp the whole picture of the scope of the damage as quickly as possible by making full use of modern sensor technology after the occurrence of a disaster and rapidly integrating the findings into geographical information system with display capability. The integrated information is displayed to the people in charge of implementing disaster countermeasures. The system will contribute to a significant reduction in the number of people harmed or killed because they failed to flee in time. The developed system would likely be adopted in earthquake-prone countries around the world.

Prof. Kenji Satake
Director
E-mail: director@eri.u-tokyo.ac.jp

# Oceania

| | |
|---|---|
| Australia | Fenner School of Environment & Society, Australian National University (ANU) |
| Australia | College of Health & Human Sciences, Charles Darwin University |
| Australia | Humanitarian, Emergency and Disaster Management, College of Indigenous Futures, Arts and Society, Charles Darwin University |
| Australia | Centre for Disaster Studies, College of Science and Engineering, James Cook 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 |

# Centre for Disaster Studies (CDS)
# James Cook University, Australia

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

With COVID continuing to limit fieldwork and conference opportunities in 2021, the staff at the Centre of Disaster Studies had a stronger emphasis on research output. Published research included reference to pets in disasters, tourism, social impacts, and research methodologies for post-disaster research. PhD candidates in the Centre have also presented their evolving research in search and rescue and tornado awareness and preparedness. There were 2 awards in 2021 based on curriculum development and support for teaching disaster resilience at the secondary school level and a poster presentation.

**Publications**

- Gurtner, Y & Parison, S (2021) Promoting owner responsibility for pets in disasters. *Australian Journal of Emergency Management* Vol 36 (3) pp. 37 – 43
- Gurtner Y and King D (2021) Chapter 9. Travelling Safely in an Unsafe World – A Shared Responsibility, in Jeff Wilks, Donna Pendergast, Peter Leggat and Damian Morgan (Eds*) Tourist Health, Safety and Wellbeing* in the New Normal, Springer, New York
- Gurtner Y & King D (2021) Socio-economic vulnerabilities to natural disasters and social justice. In: *Economic Effects of natural Disasters: theoretical foundations, methods and tools.* Academic Press, an imprint of Elsevier, London, UK, pp. 493-509
- King D (2021). Recipe 14: Evaluation of Potential Social Impacts. Pages 159-162 In Morrison-Saunders A and Pope J. Editors; *Teaching Environmental Impact Assessment*. Edward Elgar, Cheltenham UK, Northampton, USA
- King D & Gurtner Y (2021) Focusing post-disaster research methodology: reflecting on 50 years of post-disaster research. *Australian Journal of Emergency Management*, October issue pp.32-39

Dr. Yetta Gurtner
Coordinator
E-mail: yetta.gurtner@jcu.edu.au

**Conference Presentations**

- MacLean, V. (2021, November 8-11) The Twisted Tales of Tornadoes in Australia: understanding dynamic community perspectives [Poster Presentation]

- *Australian Bureau of Meteorology Annual Research and Development Workshop* (online). ***Awarded :Best Poster***

- Schwartz, S. C. (2021, September 2-3) Preventative Search and Rescue for Recreational Wilderness Users [Conference Presentation]. *DEMC Conference*, Gold Coast, QLD, Australia.

**Awards**

- **2020** Winner (awarded 2021) – Resilient Australia National School Award – Disaster Resilience for a Changing Climate Grand Challenge. A Queensland Virtual STEM Academy – Thuringowa High collaboration with Townsville City Council and James Cook University (development and delivery of subject content)

**Grants**

- Gurtner, Y (2020-2021) *What does a bushfire prepared community look like*? Queensland Fire and Emergency Services Contract Research. $15000


# GNS Science New Zealand

https://www.gns.cri.nz/

GNS Science is a New Zealand Government-owned research organisation that unlocks environmental, social, cultural, and economic benefits through its works across four science themes. They are - Natural Hazards and Risks; Environment and Climate, Energy Futures; and Land and Marine Geoscience. GNS Science employs 450 staff at five sites in New Zealand and we can draw on a heritage of 150 years of excellence in Earth sciences.

With New Zealand sitting astride an active plate boundary, GNS Science has a national leadership role for monitoring and research on the causes, risks, and impacts of geological hazards.

We have extensive scientific knowledge in Earth processes, and globally and nationally recognised expertise in hazard and risk modelling, forecasting socio-economic impacts of events, and system modelling of consequences and resilience options. We apply our social science capability to increase community resilience, improve risk communication and develop tools for hazard preparedness.

Natural hazards and their consequences are part of the 'DNA' of New Zealand. Increasingly the risks imposed by earthquakes, volcanoes, tsunami and landslides are compounded by weather events and the additional stresses of climate change. At the same time, the impacts of hazard events are intensifying through population growth, urbanisation, and business vulnerabilities of fast-moving consumer goods and just-in-time supply chains. Risk is increasing and New Zealand's ability to manage future impacts from natural hazards is being tested.

Through its GeoNet project, GNS Science operates a national network of instruments to monitor earthquakes, tsunami, volcanoes, and landslides. This world-class operation is paired with our National Geohazards Monitoring Centre, which provides 24/7 active monitoring of New Zealand's geological hazards.

Our research aims to generate critical scientific knowledge for the benefit of New Zealand and drive its uptake and use to improve resilience to natural hazards at national, regional, business, community and individual levels. Our five outcome-oriented programmes span the full value chain of information, from underpinning knowledge to better understanding New Zealand's natural hazards, through to risk management options to help communities mitigate their destructive effects and advise on policy and regulation.

We are currently revising and updating our National Seismic Hazard Model which assesses the likelihood and strength of earthquake shaking occurring in various parts of New Zealand over given time spans. We are also part of a cross-government initiative that is deploying 12 DART buoys to the north and east of New Zealand. They are significantly boosting New Zealand's end-to-end arrangements for monitoring and detecting tsunamis and issuing warnings about them.

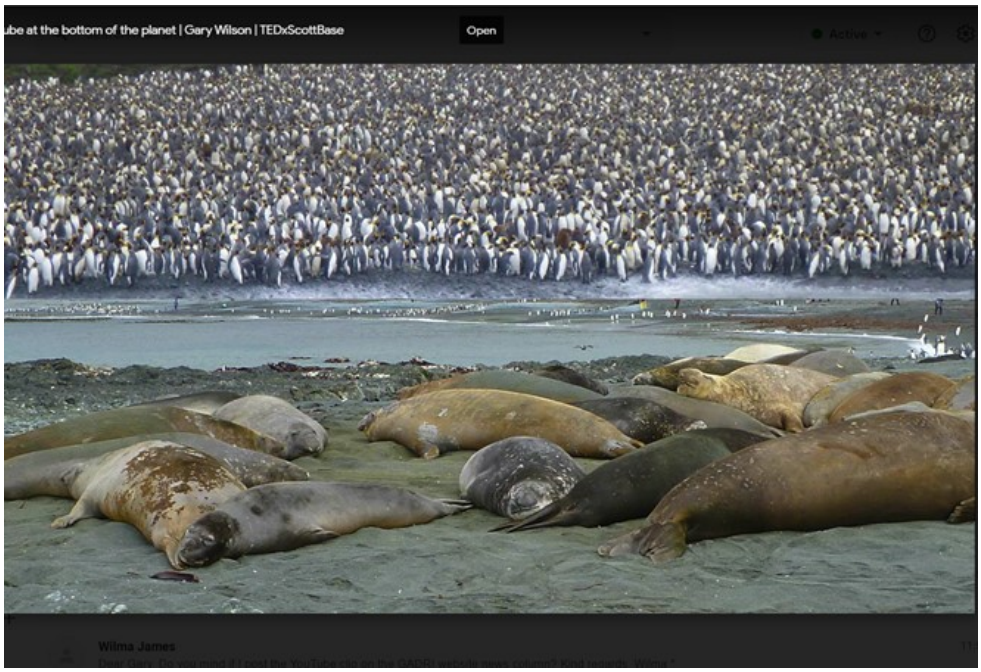
Dr. Gill Jolly

Director

E-mail: g.jolly@gns.cri.na

We are also developing the capability to forecast the likely location and size of earthquake and rainfall-induced landslides to provide rapid information for responding agencies and infrastructure operators.

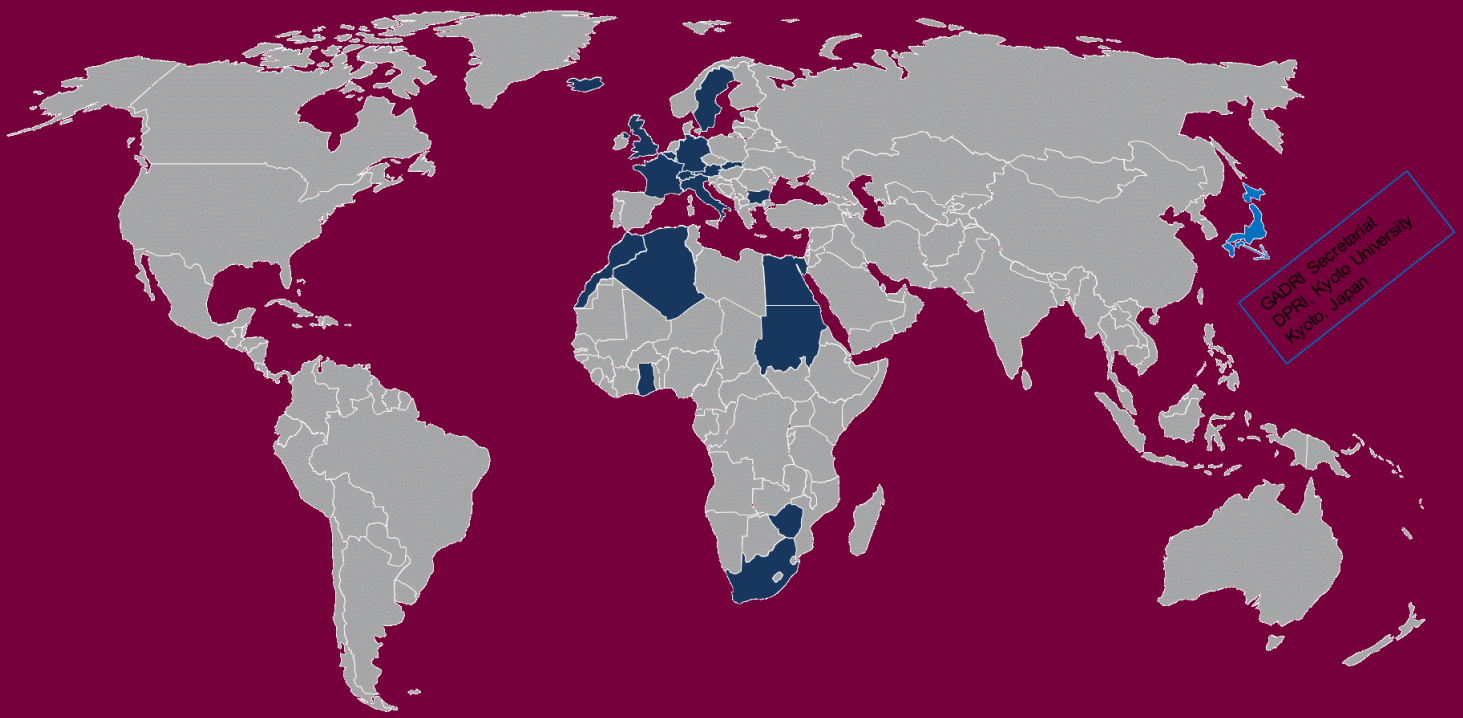
For volcanoes, we are working with our university partners to assess a technique that uses computer analysis of volcanic earthquakes to assess the risk of an eruption. The technique could potentially be a useful addition to our volcano monitoring toolbox. The technique is not accurate enough yet to give a firm prediction of an eruption happening at a particular time, nor do it indicate the size or potential impact. But it remains under active evaluation




Screen shot from Dr. Gary Wilson's YouTube talk on the—The Ice cube at the bottom of the planter—TEDxScotBase—https://www.youtube.com/watch?v=rnKB7TNcmGI

# 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 | Department of Information Technologies and Communications, University of National and World Economy (UNWE) |
| 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 | Disaster Research Unit, Department of Social and Political Sciences, Freie University Berlin |
| Germany | Institute for Advanced Sustainability Studies (IASS) |
| 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 | GEM Foundation |
| Poland | The Main School of Fire (SGSP) |
| Slovakia | Faculty of Security Engineering, University of Zilina |
| Sweden | Stockholm Environment Institute (SEI) |
| Sweden | Risk and Crisis Research Centre (RCRC), Mid Sweden University |
| Switzerland | Global Risk Forum GRF Davos |
| Switzerland | Faculty of Geosciences and the Environment, University of Lausanne |
| UK | Bournemouth University Disaster Management Centre (BUDMC) |
| UK | British Geological Survey |
| UK | Cabot Institute, University of Bristol |
| UK | Evidence Aid |
| UK | School of Business, Dept. Management, Innovation and Technology Division, University of Leicester |
| UK | Institute for Risk and Disaster Reduction (IRDR), University College of London |
| UK | Loughborough Water Engineering Group (LWEG), School of Architecture, Building and Civil Engineering, Loughborough University |
| UK | Global Disaster Resilience Centre, School of Art Design and Architecture, University of Huddersfield |
| UK | Disaster and Development Network (DDN), Department of Geography, Northumbria University |
| UK | Overseas Development Institute (ODI) |
| UK | Health, Global Disaster Risk Reduction (GDRR), UK Health Security Agency (formerly Public Health England (PHE)) |
| UK | Centre for Disaster Resilience, University of Salford |
| UK | Swansea University |

# Austrian Institute of Technology (AIT)
## Austria
https://dcna.at/index.php/en/home.html

AIT has successfully finalized three national research projects: In AREAS the usage of UAVs to identify log jams in alpine regions was investigated. Through the combined use of Unmanned Aerial Vehicles (UAVs), sensors in the visible, infrared and multispectral range, as well as laser scanners, information can be obtained effectively and efficiently in impassable terrain in real time. This reduces the risk for emergency services and the resources required to obtain information in the event of crises and disasters as well as in the event of damage. RELIANCE provided a detailed analysis on the requirements and implementation options for future public warning system in Austria. A special focus was put on combining different warning channels and investigating the options of new warning channels like cell broadcast or satellite-based systems. Additionally, in iLike an intelligent situation information portal for the collection and targeted processing of relevant social media information for innovative support of emergency organizations in disaster management was developed.

Furthermore, three new European research projects TeamAware, CBRN-RSS and INEGMA-E² have been started. TeamAware is dedicated to improving situational awareness for first responders from different sectors with heterogeneous and hardly interoperable sensor units including drone mounted, wearable, and external sensor systems. CBRN RSS, which is coordinated by AIT, will enable the early detection and reconnaissance of threats for the increased safety of soldiers, first responders and the general population. The project seeks to strengthen the EU Member States' reconnaissance, surveillance and incident management capabilities against CBRN agents by delivering a whole CBRN Intelligence, Surveillance and Reconnaissance (ISR) system demonstrating the operational capability for cooperative, integrative and transnational ISR missions. INEGAM-E², finally, a common methodology & tools for the evaluation of exercises in civil protection will be developed. This also includes the evaluation of existing tools and the collection of skills required by evaluators. Eventually, an exchange platform will be established and integrated into the knowledge network of the Union Civil Protection Mechanism (UCPM). Finally, the national research project MRespond - Multi-User Mixed Reality System for flexible training of emergency services, was started, as well. The aim of the project is to develop a mixed reality training system to expand the training options for emergency organizations in order to better prepare managers and operational units for emergencies.

In 2021 AIT 14 scientific papers on different aspects of crisis and disaster management have been published and a session on "Digital Transformation in Crisis Management" was co-organized at the annual IDIMT conference

Dr. Mario Drobics
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# Disaster Competence Network Austria (DCNA) Austria

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

RoboMole Field Tests at tunnel research center "Zentrum am Berg"

The DCNA – Disaster Competence Network Austria is a cooperation platform between universities, research institutions, authorities, ministries and aid and rescue organizations with the aim to bridge the gap between science and practice in the field of security and disaster research and management.

To facilitate disaster research activities the association confers full and associated memberships; actually having 19 ordinary members and 8 associate members from the public and private sector. Other pillars of the association are the advisory committee (with representatives from Austrian ministries), the expert groups (focusing on topics like mass movements and earthquakes, floods, extreme weather conditions, critical infrastructure and industrial hazards, socio-economic disaster aspects and public health) including a science board and over 200 scientists and experts.

Currently the DCNA includes 9 employees and besides its function as a networking institution, the association is also involved in several nationally and internationally funded projects.

For GADRI Annaul Report of 2021, an exclusive selection of present projects is listed here: BORIS (aims at developing a standardized method for the management of transboundary disaster events), HEUREKA (improve cooperation and coordination between experts in disaster management and humanitarian aid organizations through knowledge transfer in the middle east), UniNav (develop a navigation application for multi-modal on-road and off-road navigation), ROBO-MOLE (increase safety for emergency services in underground structures through semi-automatic robots). Further details about project involvement of DCNA as well as about the project contents are provided via the website: https://www.dcna.at/index.php/en/running-projects.html

Dr. Christian Resch

E-mail: christian.resch@dcna.at

One of the highlights in 2021 were again the Disaster Research Days (#DRD21). Due to the COVID-19 pandemic the event was organized virtually once more and was therefore held as a webinar series, taking place from 12th to 21st of October. The transfer of scientific knowledge into practice, as well as the joint discourse with representatives of experts from authorities, emergency organizations and business are crucial in order to tackle challenges in the prevention and management of disasters. To support this dialogue and the networking national and international keynotes as well as talks on the topics of technical infrastructure and industrial threats, disaster risk, public health, floods, mass movements, avalanches and earthquakes and extreme weather events.

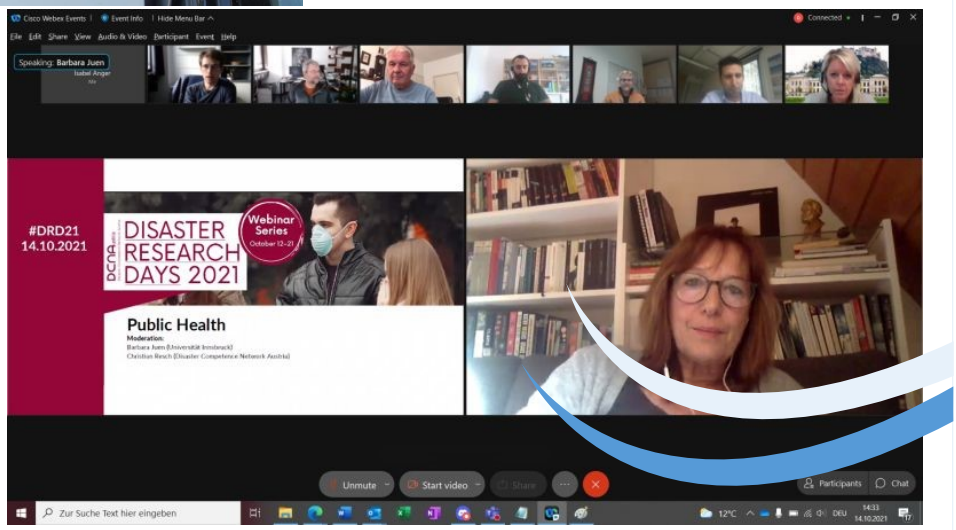

EFDRR side event by DCNA

The presentations were selected via a call for abstracts and were provided in a book of abstracts. Ten contributions will be published in a special issue of the International Journal for Disaster Risk Reduction.

Since middle of 2021 the DCNA team is complemented by an expert for media and marketing and is now professionally represented in various social media channels, like facebook, twitter and LinkedIn.

A final event was a side event at the UNDRR European Forum for Disaster Risk Reduction, which has been chaired by DCNA on “Scaling Up DRR in Civil Protection and Healthcare”.

UniNav Field Tests in RUANDA




Disaster Research Days 2021

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

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


The **SCRDRR** has started the work on two R&D Projects in 2021:

1. **SMART RISK MANAGEMENT FOR BUSINESS FROM ADVERSE EVENTS AND NATURAL DISASTERS**, (2021-2024), funded by the Science Research Fund, Ministry of Education and Science of Bulgaria

The project will develop an innovative methodology for integrated risk assessment, which will include new and modified classical and smart methods and models. Each method and model will be 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 is the developed general framework for smart risk management of adverse events and natural disasters based on an innovative methodology for integrated risk assessment. Smart risk management takes into account the following important factors: the interaction between various adverse events and natural disasters, as well as their mutual impact on business; the negative consequences on the business, both in terms of material damages and intangible losses, and the lost revenues and benefits; the vulnerability, resilience and adaptability of the specific business to the disturbances caused by the observed natural hazards.

The aim of the project is to propose a conceptual model of an information system for smart risk management for business from adverse events and natural disasters. The idea is the information system to include various risk assessment subsystems, a geographic information system (GIS); thematic maps and diverse databases, modern information and communication technologies: Cloud Computing, Social Networks, Internet of Things, 5G technologies, Big Data, Artificial Intelligence, Virtual and Augmented Reality.

2. **DEVELOPMENT AND USE OF ARTIFICIAL INTELLIGENCE IN EDUCATION AND THE ECONOMY**. (2021-2024), funded by UNWE.

Although the project has a wide research and application area, a special focus is on the application of the Artificial Intelligence in disaster risk reduction, in combination with complementary technologies, such as 5G and XR.

The **SRCDRR** organized the virtual ***11th INTERNATIONAL CONFERENCE ON APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY AND STATISTICS IN ECONOMY AND EDUCATION (ICAICTSEE-2021),*** November 25 – 26th, 2021, UNWE, http://icaictsee.unwe.bg/. The conference was coorganized together with 20 international universities and it is officially registered as an International Federation for Information Processing (IFIP, https://ifip.org/) event. The conference covered topics, such as Biomedicine, Big Data, IoT, Cloud Computing, Mobile Computing, BI, AI, XR, etc. More than 70 papers were presented.

The Director of **SRCDRR**, Prof. Dr. Dimiter Velev, took part as a keynote speaker in 5 international conferences and events during 2021, mostly of them conducted online due to the COVID-19 pandemic. The topics covered different aspects of the application of advanced ICT in disaster risk management.

Prof. Dimiter Velev

Director

E-mail: dgvelev@unwe.bg

# French Geological Survey (BRGM)
# France

http://www.brgm.eu/

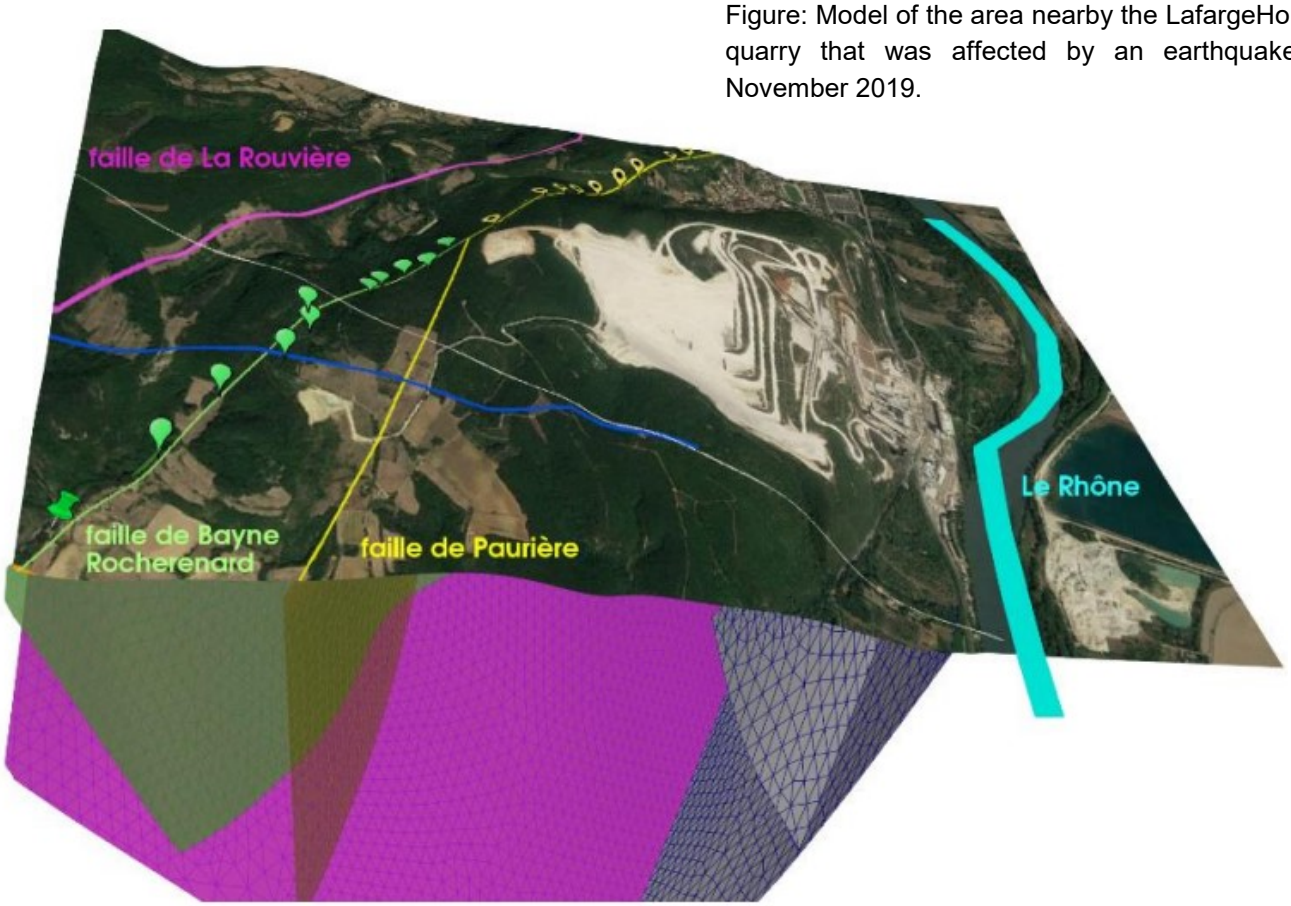



Figure: Model of the area nearby the LafargeHolcim quarry that was affected by an earthquake in November 2019.

BRGM is a French public institution in Earth Science, employing over 700 engineers and researchers. BRGM research brings practical responses to the major challenges facing society and arising in particular from climate change, increasing mineral resource scarcity, new energy needs, natural risks and soil and water pollution.

The BRGM remote sensing team has been exploring for many years the potential of satellite imagery for the study of disasters (landslides, settlements, cavity collapse, earthquakes, etc). This year, they shared their discovery of what is thought to be the largest active landslide so far identified on Earth. This megaslide is located on the banks of the Kara-Bogaz-Gol lagoon in Turkmenistan within a seismically active area. The team used 354 Sentinel IW SAR that span the period from 2014 to 2020 to extract movement data. They have shown that the volume of rock involved in the active part of this megaslide is about 10 cubic kilometres. The movement rate is not constant, but responds to the level of the lake. For more information, the publication is open access at https://www.nature.com/articles/s41598-021-89 899-6.

Dr. LEVY Clara
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Figure : Rescue-clearing exercise in the commune of Séméac in an industrial wasteland (Hautes-Pyrénées, 2021).© BRGM - Anne-Valérie Hau-Barras

You can access the publication at : https://www.frontiersin.org/articles/10.3389/fmars.2021.710342/full

and additional information at:

PROTECT : vers de nouvelles projections d'élévation du niveau de la mer | BRGM

The BRGM is also active in other scientific fields, such as the prediction and prevention of seismic and volcanic risks. This year, the BRGM is once again illustrating itself in this scientific field, shedding new light on the probable origin of the 11 November 2019 earthquake in Teil (France). This earthquake of magnitude about 5 affected the town of Teil and the surrounding area. The hypothesis that a quarry of the LafargeHolcim (LH) group, positioned in the immediate vicinity of the fault, may have played a role in triggering this earthquake gave rise to a public report by the CNRS in December 2019. At the request of LH, the BRGM established a research program in 2020-2021. The objective was to study the geological and structural context of the Teil quarry, around the probable focus of the earthquake, to simulate the influence of the quarry on the nearby fault system and to study in detail all natural phenomena that may have triggered or induced an earthquake. Numerous simulations were carried out. They showed that nothing opposes a tectonic origin of the Teil earthquake, with the hydraulic loading due to an intense rainy episode as probable trigger.

This work is currently under review process: watch out for publication advertisement on BRGM web site and social networks.

In addition to studying the physical phenomena at the origin of natural disasters, the BRGM is involved in promoting a common culture of seismic risk. This year, as part of the European POCRISC project, BRGM coordinated a full-scale simulation exercise of a magnitude 5.9 earthquake around the city of Tarbes (French Pyrenees) to test crisis management.

The purpose of the exercise was to test, under realistic conditions, the contribution to crisis management of the tools and methodologies developed by the partners of the POCRISC project over the past 3 years. These tools aim to give: 1) a rapid estimation of the effects of the earthquake, 2) the understanding and monitoring of aftershocks, 3) an emergency building diagnosis. This crisis management preparedness action mobilized more than 200 people from France, Spain and Andorra.

# Center for Disaster Management and Risk Reduction Technology (CEDIM) Germany

http://www.cedim.de/english

Copyright: Bernd März (Unwetter-Freaks)

The Center for Disaster Management and Risk Reduction Technology (CEDIM)is an interdisciplinary research center in the field of disaster and resilience research.

In near-real time Forensic Disaster Analyses (FDA), CEDIM investigates the dynamics and interrelations of disasters, identifies major risk drivers, estimates the impact (damage, fatalities, displaced), and infers implications for disaster mitigation. In 2021, CEDIM compiled various reports on hazards and disasters, including a special FDA report about the exceptional flood event in West Germany on 14/15 July 2021, where more than 200 people lost their lives and with a total damage amounting to€ 40 billion. CEDIM's FDA Task Force investigated the amount and distribution of the damage caused to buildings and infrastructure such as rail lines, roads and bridges. Based on numerous photos and drone/helicopter overflights, later complemented by Sentinel satellite data, CEDIM researchers estimated flooded areas and water levels immediately after the floods and from that the overall damage. CEDIM was the first who come up with a sound estimate of the economic damage.

CEDIM successfully applied for a new Real World Lab at KIT entitled "Real-time decisions in the presence of risky ignorance in the impact prediction of extreme events (ERNIE)". This Lab includes two full Professorships in tandem (with respective working groups): "Impact-based Forecasting" and "Decision making under high risk and high uncertainty" (both professorships will be advertised in 2022). ERNIE will focus on the prediction and analysis of the impacts of both short-term extreme events (heat, storms, floods, ...) and slow climate changes and the implications of associated high uncertainty in the decision-making process. ERNIE is designed as a hybrid facility with both physical and virtual meeting/experiment space, and will include various societal groups and stakeholders. The Impact-based forecasting professorship will develop impact and prediction models for different extreme natural events that shall be applied to urban areas in Germany.

Prof. Dr. Michael Kunz

CEDIM Spokesperson

E-mail: info@cedim.de

CEDIM together with Risklayer GmbH (KIT/CEDIM spinoff) and supported by a huge number of volunteers (crowd sourcing) has collected SARS-CoV-2 case numbers since March 2020. These data have been used by several stakeholders such as media, politicians, or by other Corona dashboards (e.g., the well-known dashboard of the John Hopkins University). The data collected on a daily or sub-daily basis were much more accurate and more up-to-data compared to the official numbers in Germany (from the Robert Koch Institute). Because of the current diffuse situation of the infection occurrence and the much weaker effect of the Omicron variant, this activity will be terminated in the next weeks. CEDIM is involved in a new project of the Helmholtz association COping CAPacity of nations facing systemic crisis –a global intercomparison exploring the SARS-CoV-2 pandemic.

CEDIM's current research program, which provides funding for PhD students, is on "Impacts of heat waves and droughts in Central Europe on society, economy, and ecology". Four PhD projects were selected for funding by the management board:

- Capturing the effects of drought and heat waves on forests in Central Europe
- Perception of hot spells in public spaces: Discrepancy of measurement and subjective perception in a social context
- Impact of recent and future drought events on river discharge and fluvial transport sector for the Rhine River
- Potential and feasibility study on the extension of the use of reservoirs in Baden-Württemberg for real -time management of heat, drought and flood (HDH -BaWü).

CEDIM Center for Disaster Management and Risk Reduction Technology

KIT Karlsruher Institut für Technologie

**CEDIM Forensic Disaster Analysis (FDA) Group**

**Hochwasser Mitteleuropa, Juli 2021 (Deutschland)**

**21. Juli 2021 – Bericht Nr. 1 „Nordrhein-Westfalen & Rheinland-Pfalz"**

**Autoren:** Andreas Schäfer, Bernhard Mühr, James Daniell, Uwe Ehret, Florian Ehmele, Katharina Küpfer, Johannes Brand, Christina Wisotzky, Jens Skapski, Lukas Rentz, Susanna Mohr, Michael Kunz

**DOI:10.5445/IR/1000135730**

**ZUSAMMENFASSUNG**

| Naturereignis | Beginn | Ende | Andauer |
|---|---|---|---|
| **Starkregen und Hochwasser** | **13.07.2021** | **15.07.2021** | **3,0 Tage** |

**Herausragende Ereignisse:**

| | |
|---|---|
| Tiefdruckgebiet | „Bernd" |
| Enorme Schäden und Verwüstungen | >170 Todesopfer |
| Historische Pegelhöchststände | z.B. Ahr, Prüm |
| 48h-Regensummen | 165,1 mm (Köln-Stammheim, NW) |

Abbildung 1: Verwüstungen in Bad Münstereifel (Quelle: Bernd März / Unwetter-Freaks).

# Institute for Advanced Sustainability Studies (IASS), Germany

https://www.iass-potsdam.de/en

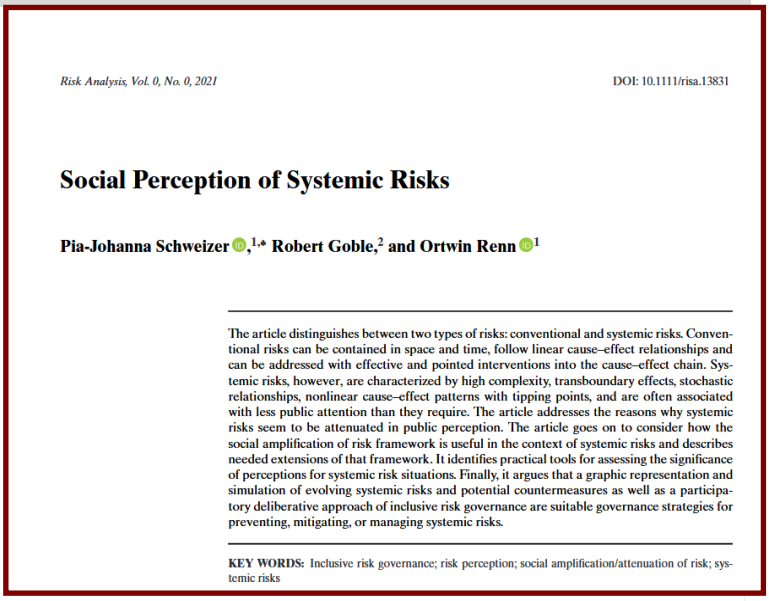
The research group Systemic Risks aims to identify common structural features of systemic risks such as climate change, financial crises, pandemics and digitalisation, with the goal of developing effective and sustainable governance approaches for risks that threaten the functioning of critical infrastructures and supply systems. Systemic risks are characterised by:

- a high degree of complexity;
- cross-border effects (cascade effects);
- stochastic cause-effect relationships
- non-linear development and tipping points;
- long periods of stability following by the rapid collapse of entire systems as tipping points are reached;

(often) attenuated risk perception and a lack of adequate policy instruments to manage them.

Due to these characteristics, systemic risks are overextending established risk management and create new, unsolved challenges for policymaking in risk assessment and risk governance. The group applies the concept of systemic risks to disasters, more precisely to the combination of natural hazards and human-induced disasters. Our research addresses these challenges of systemic risks from different disciplinary and sectoral perspectives.

Pia-Johanna Schweizer contributes to the Joint ISO/TC 262 - ISO/TC 292 JWG1 “Managing emerging risks” by the International Organization for Standardization. and the report “Crisis Radar” on early warning signals for crises and disasters on behalf of the Office of Technology Assessment at the German Bundestag (TAB).



*Risk Analysis, Vol. 0, No. 0, 2021* DOI: 10.1111/risa.13831

**Social Perception of Systemic Risks**

**Pia-Johanna Schweizer**[1,*] **Robert Goble**[2] **and Ortwin Renn**[1]

The article distinguishes between two types of risks: conventional and systemic risks. Conventional risks can be contained in space and time, follow linear cause–effect relationships and can be addressed with effective and pointed interventions into the cause–effect chain. Systemic risks, however, are characterized by high complexity, transboundary effects, stochastic relationships, nonlinear cause–effect patterns with tipping points, and are often associated with less public attention than they require. The article addresses the reasons why systemic risks seem to be attenuated in public perception. The article goes on to consider how the social amplification of risk framework is useful in the context of systemic risks and describes needed extensions of that framework. It identifies practical tools for assessing the significance of perceptions for systemic risk situations. Finally, it argues that a graphic representation and simulation of evolving systemic risks and potential countermeasures as well as a participatory deliberative approach of inclusive risk governance are suitable governance strategies for preventing, mitigating, or managing systemic risks.

**KEY WORDS:** Inclusive risk governance; risk perception; social amplification/attenuation of risk; systemic risks

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- Besley, J. C., & Schweizer, P.-J. (2021). Risk Researchers’ Views About the Goal of Trying to Ensure Policymakers Consider Scientific Evidence. Risk Analysis. https://doi:10.1111/risa.13813
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- Renn, O., Klinke, A., Schweizer, P.-J., & Hoti, F. (2021). Risk Perception and Its Impacts on Risk Governance. In H. H. Shugart (Ed.), Oxford research encyclopedia of environmental science. New York, NY: Oxford University Press. https://doi.org/10.1093/acrefore/9780199389414.013.2
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- Schweizer, P.-J., & Renn, O. (2021). Die Identifizierung von Emerging Risks durch KI. In Interdisziplinäre Arbeitsgruppe Verantwortung: Maschinelles Lernen und Künstliche Intelligenz (Ed.), Verantwortungsvoller Einsatz von KI? Mit menschlicher Kompetenz! (4, pp. 51-55). Berlin, Germany: Berlin-Brandenburgische Akademie der Wissenschaften (BBAW).

Pia-Johanna Schweizer has been appointed to the Scientific Advisory Board of GAIA – Ecological Perspectives for Science and Society in 2021.

JOURNAL OF RISK RESEARCH
2021, VOL. 24, NO. 1, 78–93
https://doi.org/10.1080/13669877.2019.1687574

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## Systemic risks – concepts and challenges for risk governance

Pia-Johanna Schweizer

Institute for Advanced Sustainability Studies e.V. (IASS), Potsdam, Germany

**ABSTRACT**

Modern societies are confronted with 'systemic risks' which challenge conventional risk analysis and management. The phrase 'systemic risks' denotes risk phenomena which are exceedingly complex and interdependent. Systemic risks originate in tightly coupled systems. They are characterised by cascading effects, tipping points and non-linear developments. Furthermore, compared to their potential impacts, they often lack proportional public awareness and adequate policies. Conventional risk management struggles with these challenges. Yet many threats to modern society, such as financial crises and the impacts of anthropogenic climate change, match these attributes. This article investigates the concept of systemic risks and raises questions for governance. The concept of inclusive risk governance serves as a guiding principle. In particular, the article draws on the Risk Governance Framework by the International Risk Governance Council to address the challenges of systemic risks.

**ARTICLE HISTORY**
Received 25 September 2018
Accepted 14 October 2019

**KEYWORDS**
Systemic risks; risk governance; communication; stakeholder involvement

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https://www.unescogeohazards.unifi.it

# UNESCO Chair on Prevention and Sustainable Management of Geo-hydrological Hazards

https://www.dst.unifi.it

https://www.protezionecivile.unifi.it

The Department of Earth Sciences of the University of Florence (DST-UNIFI), https://www.dst.unifi.it) is a recognized center for international research and higher training in Italy, with an Engineering Geology group counting almost over than 60 persons among professors, researchers, technicians, post-doc fellows, PhD students, collaborators and visiting fellows. DST-UNIFI was entitled in 2008 as a World Centre of Excellence (WCoE) (2008-2011) by the Global Promotion Committee of International Programme on Landslides (IPL) of UNISDR. This recognition was reaffirmed four times over for 2011-2014, 2014-2017, 2017-2020 and for the last triennium 2021-2023.

In 2021 the activities of Civil Protection Centre continued by providing the scientific support of the security of the University of Florence, by organizing dissemination and training events, and by the involvement with the National Civil Protection Service in several emergency operational activities for the technical support in the geo-hydrological hazards treating human life and infrastructures. In particular, these research activities were carried out in 2021 in the framework of the project ATLaS (Advanced Technologies for LandSlides) project, which objective is to develop new methodologies and advanced technologies for landslide risk reduction. Specific activities of the project are: i) EO data for mapping, characterization and monitoring of landslides, which involves ground deformation mapping and monitoring with millimetric precision, from local to regional scale. The final aim is the satellite surveillance system based on all the Earth Observation data (radar, multi- and hyperspectral) available from several constellation of satellites.; ii) Landslide risk assessment and regional landslide forecasting models, including the valuation of landslide risk at regional and national scale, with special emphasis on the evaluation of expected damages related to landslides, and the implementation and validation of regional landslide forecasting models both statistical and physically-based; iii) Monitoring unstable slopes and integration of different techniques for the set-up of early warning systems. Application of advanced technologies and methodologies for the management of geo-hydrological disasters. This activity focuses on the application of innovative monitoring techniques and the operative implementation of Early Warning Systems (EWS). This is achieved by the synergistic use of rapid mobile units for localized survey based on terrestrial, marine and airborne sensors.

The UNESCO Chair on Prevention and Sustainable Management of Geo-hydrological Hazards (UNESCO Chair), funded at the DST-UNIFI in 2016, has the mission of carrying out research and development (R&D) for the prevention and management of landslides, in order to support policies and actions of risk reduction (https://www.unesco-geohazards.unifi.it). The Chair has been signatory and promoter of the Kyoto 2020 Commitment (KLC2020) for global promotion of understanding and reducing landslide disaster risk. The Kyoto 2020 Commitment is a duty to the Sendai Landslide Partnerships 2015-2025, the Sendai Framework for Disaster Risk Reduction 2015-2030, the 2030 Agenda Sustainable Development Goals, the New Urban Agenda' and the Paris Climate Agreement. In the framework of the contribution to policies for risk reduction, the UNESCO Chair contributed to the organization of the 5th World Forum on landslides (WLF 5), which due to the COVID-19 pandemic was held in mixed virtual and in presence-mode from November 2-6, 2021, in Kyoto (Japan).

Prof. Nicola Casigli

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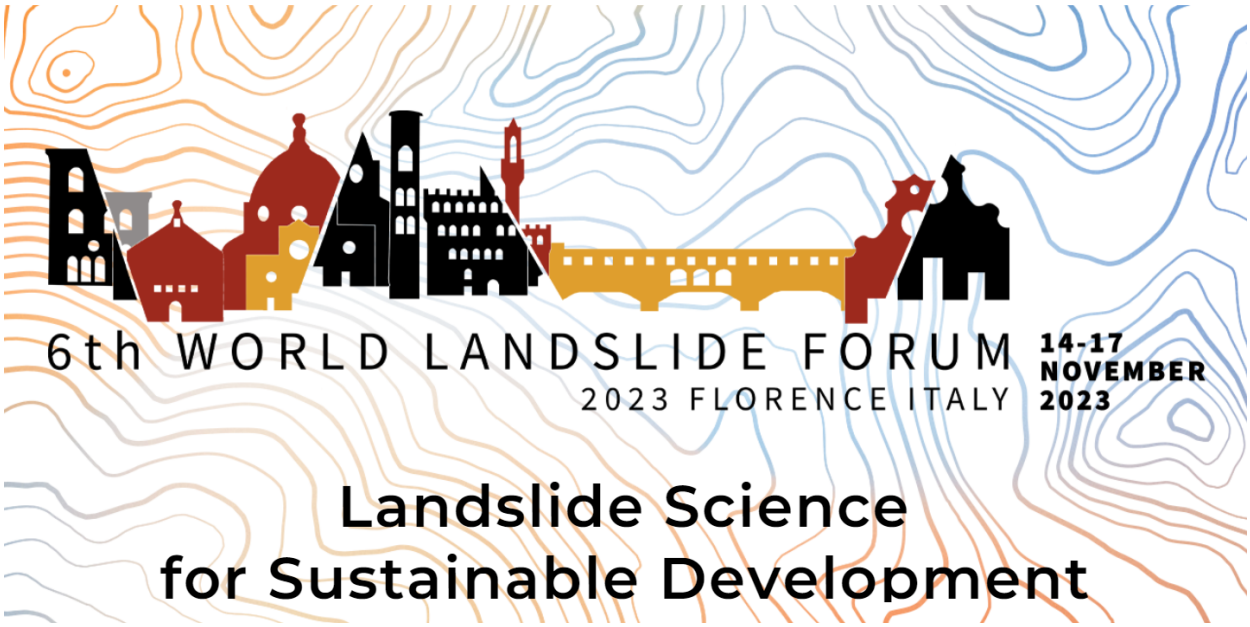



In particular, the UNESCO Chair coordinated the activities of Theme 3: Monitoring and rapid warning of landslides, and participated in numerous virtual meetings with the scientific committee of the World Forum on Landslides. The UNESCO Chair is currently organizing the 6th World Landslide Forum, which will be held in Florence from the 14th to the 17th of November 2023. The Forum will have the subtitle "Landslide Science for Sustainable Development", and will focus on 6 main themes:

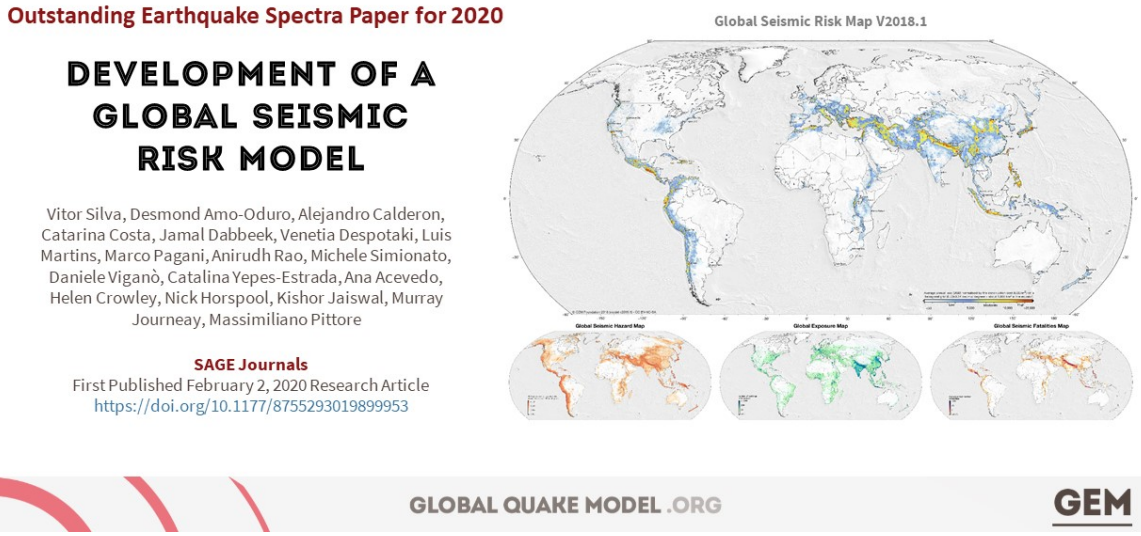
- Theme 1: Kyoto Landslide Commitment for sustainable development
- Theme 2: Remote sensing, monitoring and early warning
- Theme 3: Testing, modeling, and mitigation techniques
- Theme 4: Mapping, hazard, risk assessment and management
- Theme 5: Climate change, extreme weather, earthquakes, and landslides
- Theme 6: Progress in landslide science and applications

During the reporting period the Forum website (https://wlf6.org) was created and the Call for session proposal was opened (Fig. 1).

Furthermore, despite the COVID-19 pandemic the UNESCO Chair keeps promoting the protection of cultural heritage threatened by geo-hydrological hazards, with special regards to UNESCO world Heritage sites and developing countries, such as Madagascar (high City of Antananarivo), Georgia (Rock cut sites of Vardzia, Uplithsikhe and David Gareja), Saudi Arabia (AlUla Old Town, Dadan, Hegra), providing technical support, capacity building and scientific dissemination to local authorities, agencies and research centers.

# Global Earthquake Model (GEM) Foundation, Italy

https://www.globalquakemodel.org




2020 Outstanding Paper Award for Development of a Global Seismic Risk Model given by EERI

Despite the ongoing pandemic, the year 2021 proved to be another busy year for GEM, kicking off the year with the release of earthquake models for public application and celebration of a dozen years of GEM's work and contribution to earthquake risk reduction and resilience. The year was capped with the 2020 Outstanding Paper Award for Development of a Global Seismic Risk Model given by EERI, and the launch of GEM Strategic Plan and Roadmap to 2030.

The USAID-supported TREQ project added close to 400 risk professionals to the list of individuals trained online on seismic hazard and risk analysis using OpenQuake engine software. The project is further boosted by the participation of USGS to deliver a suite of National Earthquake Information Center's (NEIC) real-time shaking, impact, and aftershock forecast products for the TREQ earthquake scenarios.

After three years, the METEOR project, a consortium led by the British Geological Survey, has come to a successful conclusion, releasing exposure models for 47 countries, and delivering all the expected outputs for pilot countries Nepal and Tanzania. GEM, a member of the consortium, contributed to the structural vulnerability assessment and propagation of uncertainty to disaster risk estimates for multiple perils including earthquakes, landslides, floods, and volcanoes; and knowledge sharing and dissemination of project outputs and protocols through the use of web portals and training workshops with local partners.

Prof. John Schneider
Secretary-General
E-mail: john.schneider@globalquakemodel.org

Four partners teamed up with GEM to work in several related but different areas of research and application: seismic risk in China and the ASEAN region; hazard, exposure and risk information for global risk and disaster management; development and promotion of better understanding of earthquake risk through research and application of science; and in improved parametric risk financing mechanisms for earthquakes.

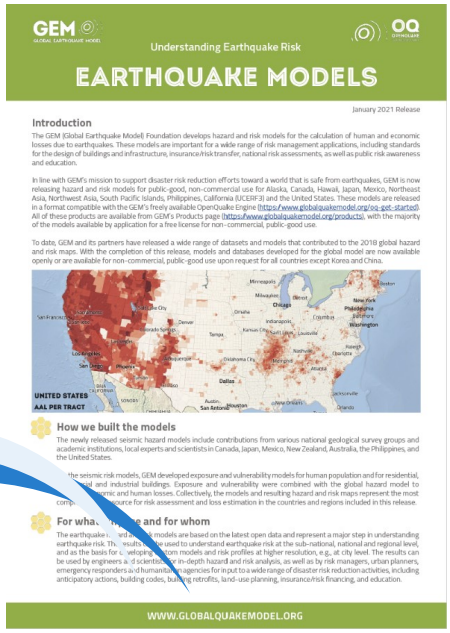
GEM launched its Services and new Get Involved pages offering collaborative services, products and resources, and flexible mechanisms to enable potential partners to contribute to GEM's ongoing and future work programs.

GEM open Products is nearing its 10,000th download as of December. In addition to this milestone, GEM has released commercial models for Colombia and South Africa, China and the Global Simplified Earthquake Hazard Data on Oasis Hub.

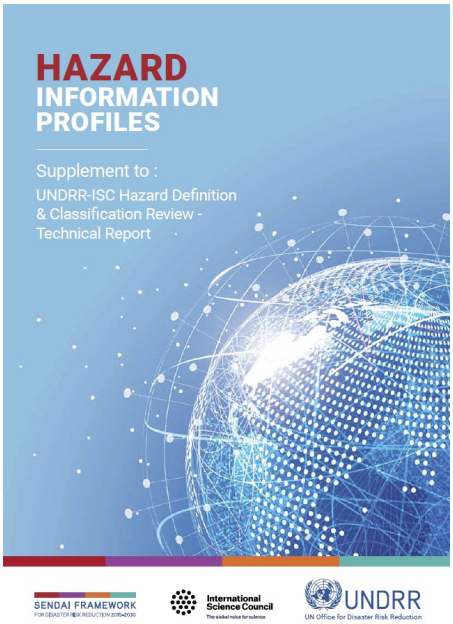
The OpenQuake development team released versions 3.11 and 3.12 featuring optimization and enhancement of the event-based risk and damage calculators and GMPE library plus other new performance improvements. In relation to this, a new toolkit, an open□source platform for vulnerability analysis, was also released, integrating in a single environment all phases of seismic vulnerability assessment.


GEM Strategic Plan and Roadmap to 2030


World Bank's Economics for Disaster Prevention and Preparedness book




Earthquake models for public application




Hazard Information Profiles

On UN's IDRR Day, GEM launched its Sendai Framework Voluntary Commitment page effectively renewing its commitment to help implement the Sendai Framework targets till 2030. At the COP26 in Glasgow, GEM as partner, participated in the official launch of the Global Resilience Index Initiative.

GEM also contributed to two major publications: World Bank's Economics for Disaster Prevention and Preparedness book where GEM contributed earthquakes and exposure analysis, including seismic risk in 2020 as well as projected exposure estimates for the years 2030, 2040, and 2050; and to the Hazard Information Profiles published by UNDRR and the International Science Council, where GEM provided the HIPs for earthquakes and associated or triggered hazards.

GEM hosted the TREQ project's webinar: Understanding seismic risk through capacity development and knowledge-sharing which attracted more than 240 participants from around the world and across various sectors. In addition to this major event, GEM scientists participated in more than 30 international conferences on loss models, earthquake risk assessment, and global challenges in earthquake risk and catastrophe modelling.


TREQ project's webinar: Understanding seismic risk through capacity development and knowledge sharing webinar


John Schneider at InsTech's Earthquake Risk - a Global Challenge webinar, one of the many international conferences participated in by GEM Secretariat


GEM launched its Sendai Framework Voluntary Commitment page

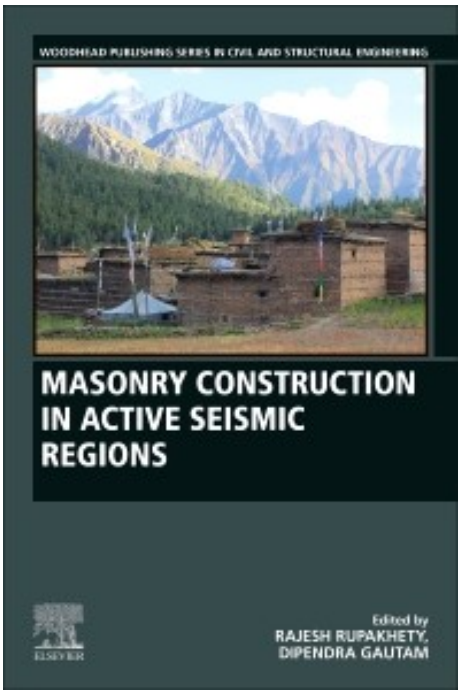
# Earthquake Engineering Research Centre, University of Iceland

https://www.eerc.hi.is

UNIVERSITY OF ICELAND

EARTHQUAKE ENGINEERING RESEARCH CENTRE
FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING
Austurvegur 2A, 800, Selfoss, Iceland
Tel. +354 525 4141 e-mail: eerc.hi.is

The EERC is one of the research institutes of the Faculty of Civil and Environmental Engineering of the University of Iceland and specializes in engineering seismology and earthquake engineering related fields. It operates and maintains the Icelandic Strong Motion Network (IceSMN), which is the only country-wide strong ground motion network in Iceland. In 2021, it completed a large project of structural vibration monitoring system in Iceland. The project was funded by the Icelandic Centre for Research (www.rannis.is) and resulted in extensive instrumentation of the 10 tallest structures in Iceland for monitoring their wind- and earthquake-induced vibrations. The EERC, as one of the leading investigators, received one of the most prestigious research grants in Iceland, the grant of excellence from the Icelandic Centre for Research. The grant is for a project called Seismic Risk in Iceland (SERICE), which aims at a multi-disciplinary and comprehensive study of seismic hazard, vulnerability, and risk in Iceland. Dr. Rajesh Rupakhety, director of research at the EERC, is one of the three principal investigators of the SERICE project.




https://www.elsevier.com/books/masonry-construction-in-active-seismic-regions/rupakhety/978-0-12-821087-1

Dr. Rajesh Rupakehty, Director of Research at the EERC, is the lead editor of this book which deals with seismic characteristics and risk to masonry constructions around the world.

Prof. Rajesh Rupakhety

E-mail: rajesh@hi.is

# The Main School of Fire Service (SGSP) Poland

https://www.sgsp.edu.pl/

Pic. 1. Final demonstration of EU-SENSE project—Source: https://www.sgsp.edu.pl/?page_id=21337

In 2021 four organizational units of the Main School of Fire Service (Szkola Glowna Sluzby Pozarniczej, SGSP) 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 SGSP. Consequently, during the second full year of participation in GADRI, SGSP covered research, educational and operational areas of the reduction, also in the pandemic conditions.

In the reported period, SGSP engaged in the following international research projects related to DRR aspects:

1. SAFEguard of Critical heAlth infrastructure (SafeCare), Horizon 2020.
2. European Sensor System for CBRN Applications (EU-SENSE), Horizon 2020.
3. Integrated Technological and Information Platform for wildfire Management (SILVANUS), Horizon 2020.
4. Factors shaping safety perception in the system disaster risk reduction in Poland', National Science Centre Poland.
5. Community Safety Action for Supporting Climate Adaptation and Development (CASCADE), Horizon 2020.
6. The impact of landfill fires on the air quality – methodology and emission value estimation, National Science Centre Poland.

Operational risk in the functioning of societal security systems, Ministry of Education and Science of the Republic of Poland.

SGSP published open access volume of "Scientific Papers of SGSP" dedicated to disaster risk reduction. All relevant articles are available online (https://zeszytynaukowe-sgsp.pl/resources/html/articlesList?issueId=14445).

Prof. Pawel Gromek

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CBRN and epidemic risk reduction issues were discussed during the 2nd Nationwide Scientific and Training Symposium on Fire Protection “CBRN hazards – From operational needs to modern scientific solutions” (26.11.2021).

SGSP used its field facilities to organize final demonstration of EU-SENSE project (21-25.06.2021). The movie from the demonstration is available online (https://www.youtube.com/watch?v=L3t3RMrPeD4).

In addition, doctoral dissertations were carried out in security studies (in social sciences) and in environmental engineering, mining and power engineering (in technical

Pic. 2. The Main School of Fire Service (Warsaw, Poland)

Source: https://bip.sgsp.edu.pl/

# Faculty of Security Engineering, University of Žilina Slovakia

https://www.fbi.uniza.sk/en/

Faculty of Security and Safety Engineering in 2021 successfully solved research and non-research projects. Among the most interesting are the FightARs and Techmergency projects, which focus on emergency services and crisis management. FIGHTARs aims to prioritise specific skills/ competences for an immersive rescue environment in firefighters training, by providing guidance concerning pedagogical suitable options (didactic added value) as well as by developing, testing, evaluating and transferring several digital enriched training scenarios ("training toolkit"). We are using smart glasses – Hololens 2 for training. TeachMergency aims to equip teachers/trainers with innovative tools in teaching rescue, survivor and first aid. Partners are focusing on exchanging best practice, passing this know-how to colleagues and increasing quality of education of firefighters and rescue professionals. Another projects are mainly about HSE issues and crisis management situation solving. During the summer we were organizing Summer school for children: "Young rescuer". This activity was very successful and we were hosting 60 children.

Our teachers are travelling all around the world to meet project goals and to present our results on conferences.

http://fight-ar.com/?fbclid=IwAR2oO19_Hej19_lVKmbE3vfjCSwi8Zj2Lixf5rGGnGMawCXmPcYGltFu0GY

https://www.facebook.com/fbi.uniza

Dr. Katarina Holla

Associate Professor;

Vice-Dean, International Relations and Marketing

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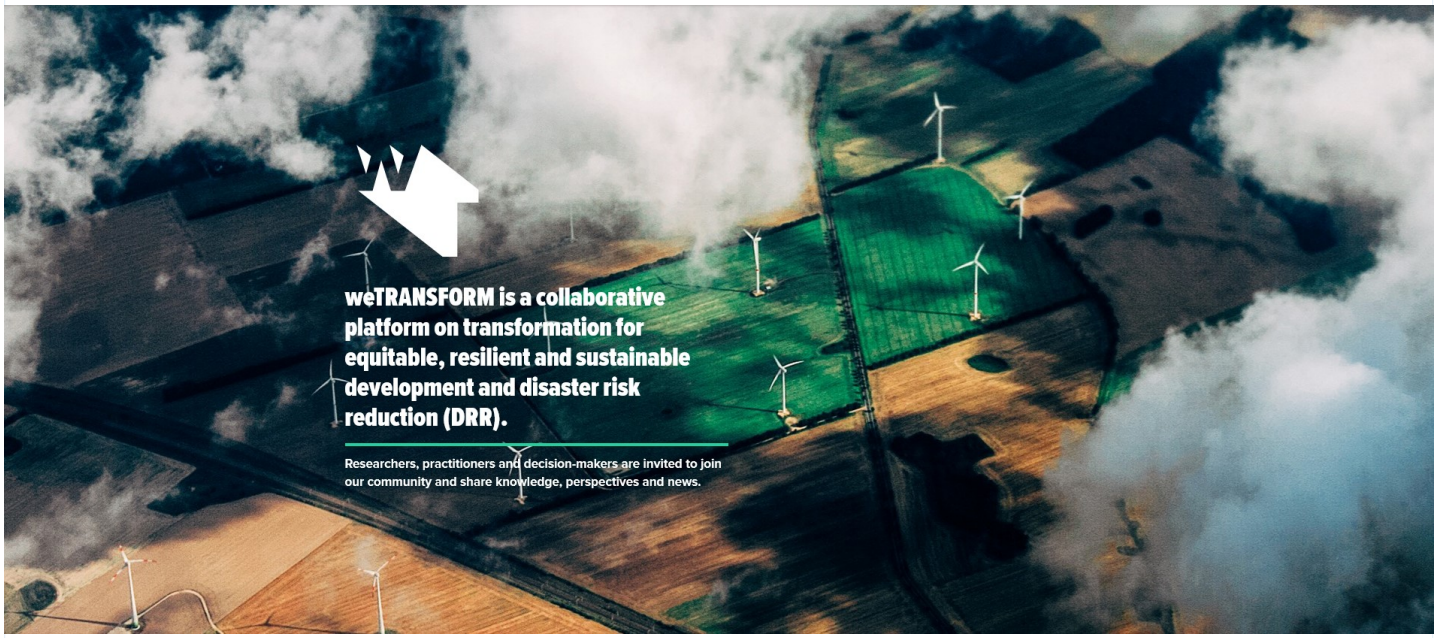
# Stockholm Environment Institute
# Sweden

https://www.sei.org/




The central focus for DRR work at SEI is to understand pathways of transforming the relationship between development and disaster risk, as well as translating the understanding to on-the-ground practices (for more detail see https://www.sei.org/projects-and-tools/projects/sei-initiative-on-transforming-development-and-disaster-risk/#overview).

Other than an array of projects, we have two main platforms. One is the **weTRANSFORM** (https://wetransform.dev ), a collaborative platform on transformation for equitable, resilient and sustainable development and disaster risk reduction (DRR). The platform is powered by weADAPT (https://www.weadapt.org/ ), and marks a new global meeting place for development and disaster risk researchers, practitioners and decision-makers and their partners. We invite you to join us and share your knowledge, perspectives and news.

Another platform is the International Centre of Excellence on Transforming Development and Disaster Risk (ICoE-TDDR) that SEI hosts, in collaboration with the Integrated Research on Disaster Risk (IRDR) proramme. Learn more about ICoE-TDDR here https://www.sei.org/publications/transforming-development-and-disaster-risk/

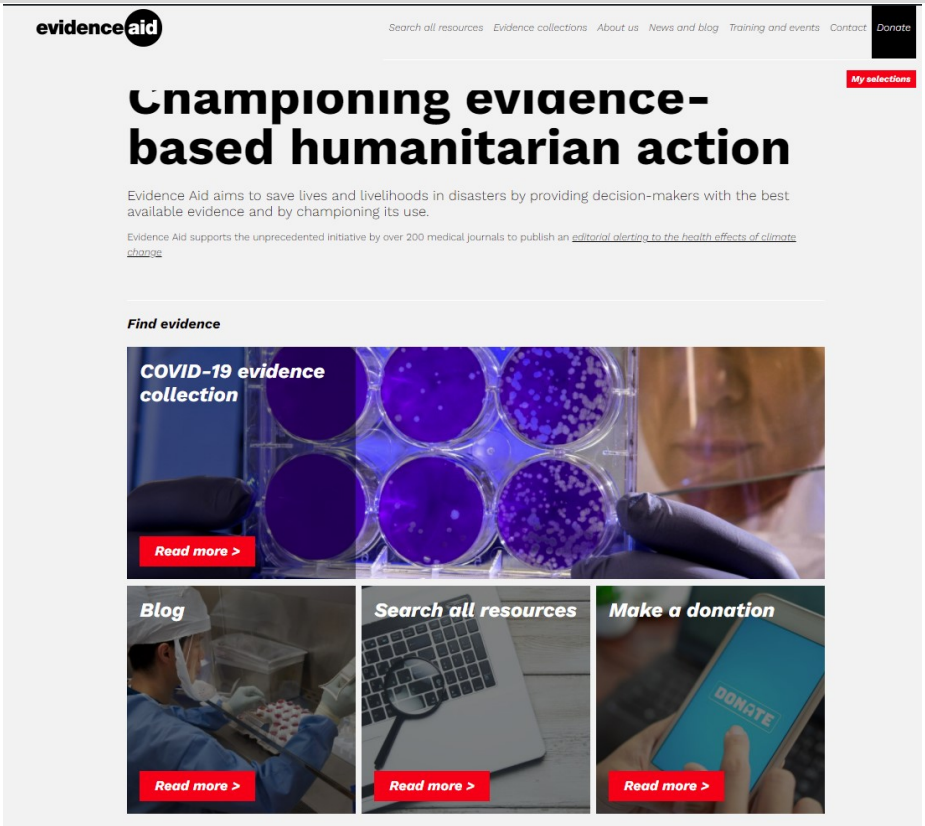
During 2021, we have continued the close partnership with UNDRR, by joining (both the Steering Committee and the Working Groups) and contributing to the CRAF development process. As the same time, contributing to the prep and background research for the next Global Assessment Report on Disaster Risk Reduction.

We have also actively participated in the global summit of GADRI, as well the annual conference of IDRiM Society, celebrated the twenty years' journey of defining, understanding, and promoting integrated disaster risk management implementation around the world.

Dr. Guoyi Han
E-mail: guoyi.hn@sei.org

# Evidence Aid, United Kingdom

https://www.evidenceaid.org/

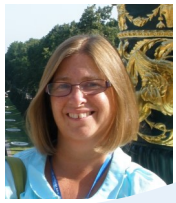



Evidence Aid has excelled this year, thanks to the amazing work of a core team of staff and volunteers. We continued work on our COVID evidence collection which currently includes summaries covering information from 880 systematic reviews (at early November 2021). These summaries have been routinely translated into Arabic, Chinese, French, Portuguese and Spanish, and, for some, into Italian and German.

In May 2021, we instigated a new evidence collection on the Humanitarian Impact of Climate Change in response to the climate emergency recently acknowledged at the COP26 summit in Glasgow, UK. We will be working on this through 2021-22.

In June 2021, we worked with the World Health Organization, Kobe Centre to develop new materials to be included in a Knowledge Hub. The work centred around the online book 'WHO Guidance on Research Methods for Health Emergency and Disaster Risk Management'. A small team summarised the chapters, further readings, and others brought together slideshows (some with video), podcasts and to date we have run two webinars (the third to be held mid-November). These materials will be uploaded to a dedicated Knowledge Hub.

Also in June 2021, we started working with the Pan American Health Organization to create an evidence collection on Resilient Health Systems with a particular focus on low and middle income countries. As of mid-November 2021, this contains some 56 summaries of systematic reviews and will contain more than 120 by the end of the project. All summaries are being translated into French, Portuguese and Spanish.



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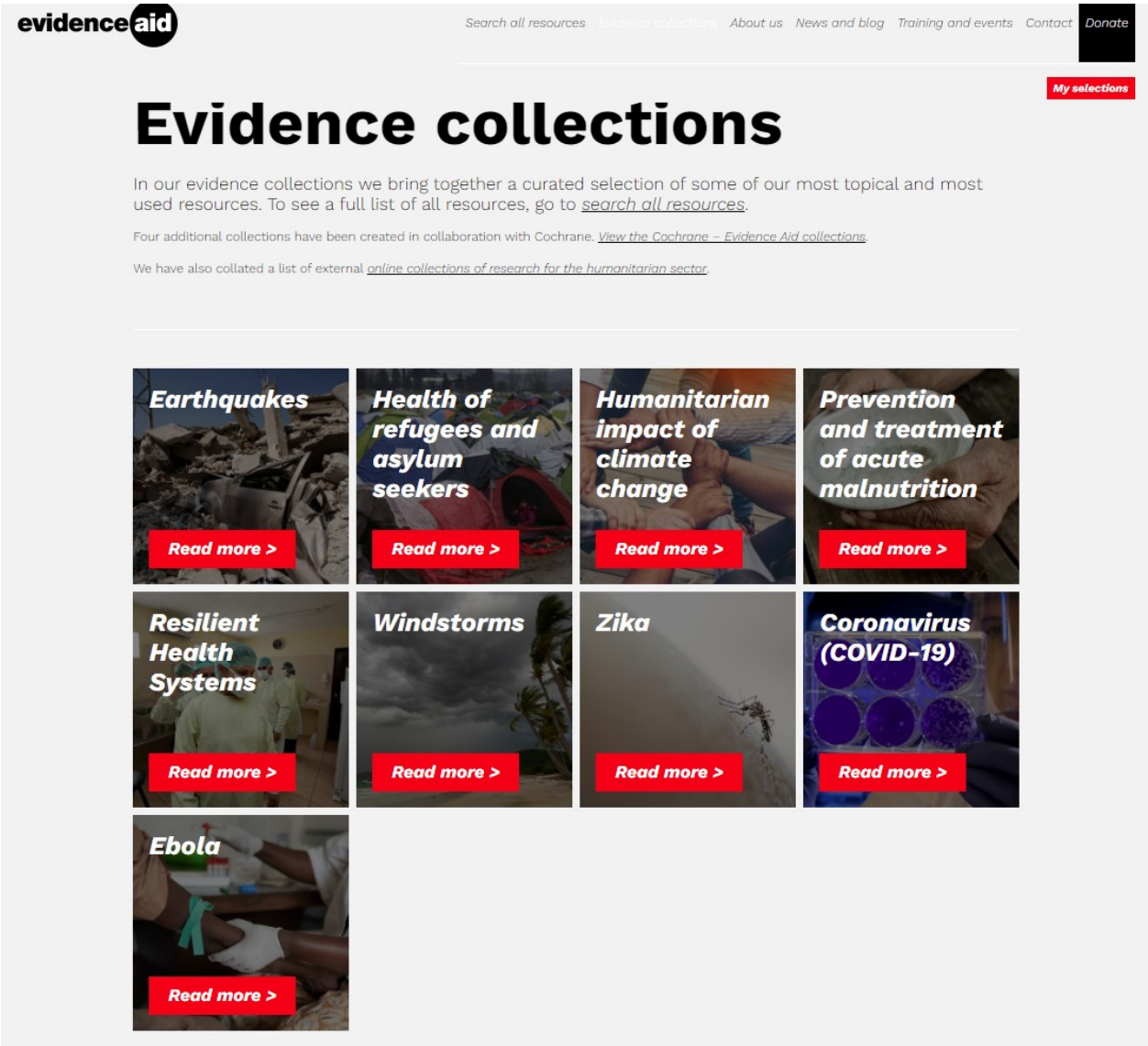



We were lucky to have three interns from McMaster University who worked on the creation of a new evidence collection on Earthquakes. The collection currently contains 60 summaries with more to come later in the year. The summaries are being translated into Italian, Japanese and Spanish.

At the end of December 2020, our Chief Executive Officer, Ben Heaven-Taylor decided to leave us, but in April 2021, we were lucky to recruit Jane Copsey, an excellent Administrator to support us. In addition, in June 2021, we recruited Firas Khalid, Anish Jammu, Brian Li, Noah Dixon and Yasmeen Saeed to work on the WHO WKC project, and Firas Khalid, Ana Pizarro, Jane McHugh and Yasmeen Saeed to work on the PAHO project.

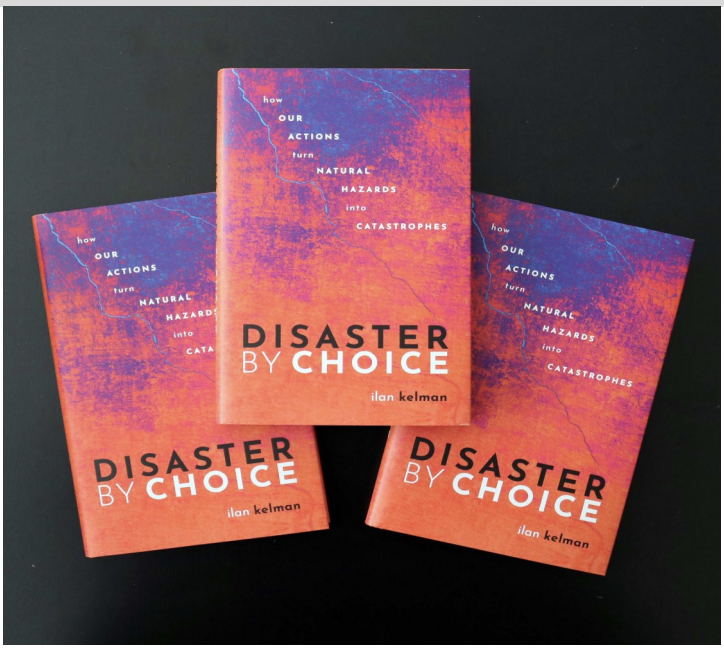
We would like to take this opportunity to thank all our interns and volunteers without whom we would not have had such a successful year.

Our website has been enhanced in 2021, adding the facility to export the citations and summaries we produce to various platforms including Zotero, CSV and TXT files. We have also added a survey pop-up to obtain information about who our users are and what sector they work in.

Our Board of Trustees was sad to lose Sue Wolstenholme, but delighted that Euan Crawshaw joined.

# Institute for Risk and Disaster Reduction (IRDR)
# University College London, United Kingdom

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




The UCL Institute for Risk and Disaster Reduction (IRDR) was launched in 2010 with a mission from the Provost to lead transdisciplinary research, teaching and knowledge exchange in risk and disaster reduction in the UK and internationally. 2021 has been a tough year for everybody and the IRDR has been no exception. Some staff and students have struggled during the lockdowns. But IRDR students have shown real resilience pursuing their studies, face-to-face and online, under challenging circumstances. When face-to-face teaching resumed, staff and students really enjoyed and drew strength from the contact, even if constrained. With our global engagement we are only too well aware of the impact of Covid-19 around the world. We wish to offer our support. Our research and impact projects have pivoted to addressing Covid-19 both in the UK and around the world.

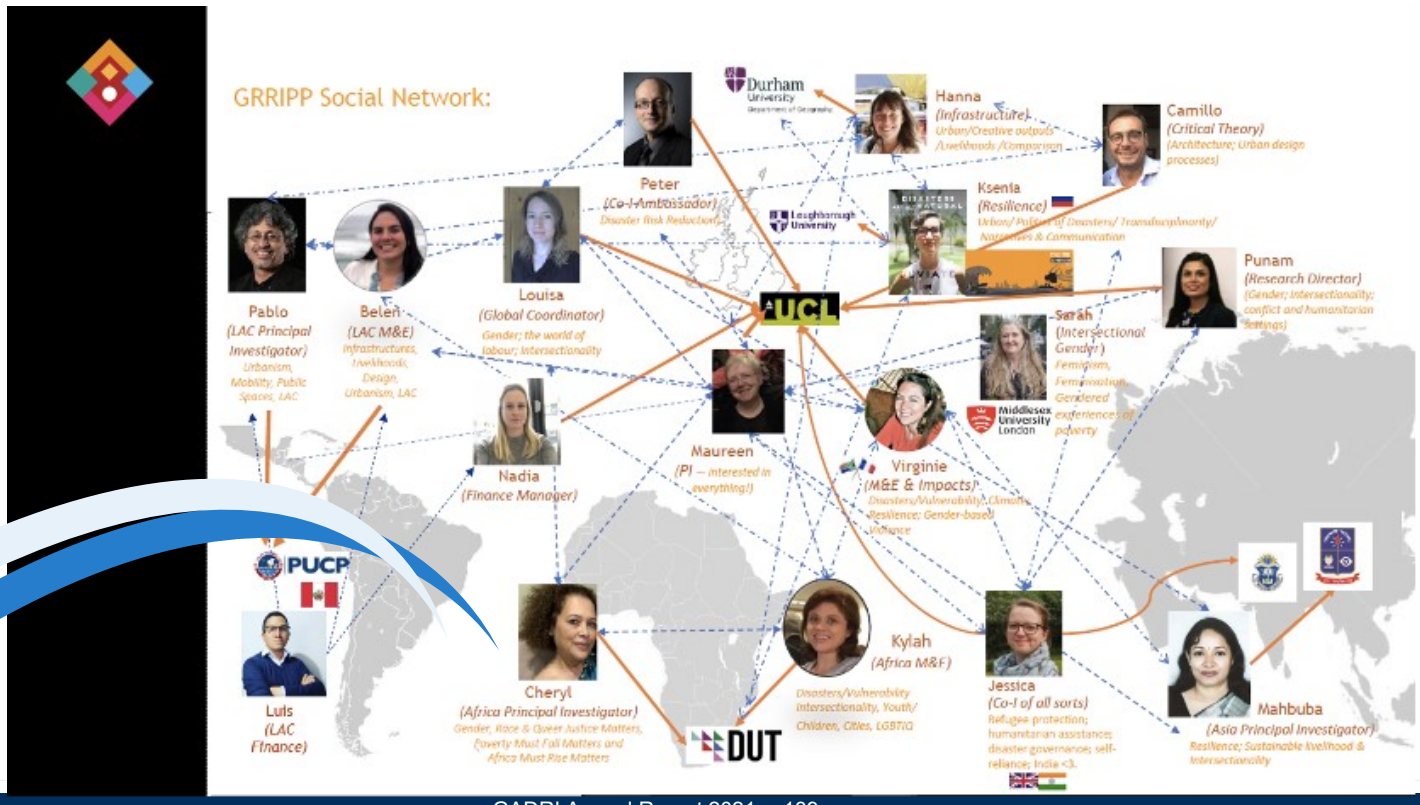
The IRDR is under-going a rapid phase of expansion, as we became UCL's newest academic department in 2020 and prepared for the start in September of our BSc Global Humanitarian Studies in September 2021. We have over 60 students join the programme - far ahead of expectations. There has been a 60% surge in student numbers on our masters' programmes in Risk, Disaster and Resilience and Risk and Disaster Science, with such relevant modules as emergency planning, epidemics and big data, and business continuity, as well as also covering natural hazards and impacts of the climate crisis.

The IRDR has been recruiting strongly. We are delighted that Dr Mohammad Shamsudduha joined us as Assoc Prof in Humanitarian Science; Dr Rozana Himaz as Assoc Prof in Humanitarian Economics; Dr Yulia Ioffe as a Lecturer in Humanitarian Law and Human Rights; and Dr Lisa Guppy as Lecturer – Teaching in Humanitarian Crisis Response. We have approval for further appointments in Humanitarian Policy and Intersectionality and in Crisis and Catastrophe Modelling.

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


**Highlights of the year include:**

- Gender Responsive Resilience (GRRIPP) project built its global network.
- Professor David Alexander was appointed as Specialist Adviser to the House of Lords Select Committee on Risk Assessment and Risk Planning.
- IRDR Centre for digital Public Health in Emergencies won a raft of awards for how they have risen to the COVID-19 challenge including 'Team of the Year' from Computing Magazine. Professor Patty Kostkova was named 'Innovator of the Year' for the second year running.
- Launch of Space Health Risks Research Group and the Warning Research Centre



# Avoidable Deaths Network (ADN)

## University of Leicester, United Kingdom

https://www.avoidable-deaths.net/

The ADN's purpose is to help policy makers and practitioners make better decisions to save lives and reduce injuries from disasters to achieve sustainable development. The ADN aims to achieve this through, although not limited to, its eight activities, and they can be viewed through this weblink https://www.avoidable-deaths.net/activities/. Some of the highlights of activities one, three and five are provided below.

**Activity 1: Foster trans-disciplinary ideas, partnerships and solutions to reduce avoidable disaster deaths through knowledge exchange events:**

ADN in collaboration with, Disaster Management Advice and Training Consulting KG, Prepared International, Shared Aim, and Gannon Emergency Solutions organised a day-long Symposium 'Integrating Disaster Risk management with Energy Services and Defence to Reduce Avoidable Disaster Deaths' in the Caribbean region on 10 December 2021. Link to the Symposium's proceedings: https://www.avoidable-deaths.net/adn-materials/

ADN organised five Special Sessions on Avoidable Deaths in Uganda, Nigeria, Pakistan, India and the UK. The Special Sessions in Uganda and Nigeria involved national disaster management authorities, African Union and non-governmental organisations to raise awareness on avoidable disaster deaths. For more details, please click this link: https://www.avoidable-deaths.net/adn-special-sessions/

**Activity 2: Raise visibility and awareness of the Sendai Framework's first two targets, through publications, and knowledge exchange events.**

- Alam, E. and Ray-Bennett, N.S. 2021. Disaster Risk Governance of Local Level Administration in Rangamati, Bangladesh. *International Journal for Disaster Risk Reduction*, 59(2021): 1-13 doi.org/10.1016/j.ijdrr.2021.102220
- Ray-Bennett, N.S., et al., 2021. 'RHCC Intervention: Strengthening the delivery and coverage of sexual and reproductive health care during floods in Bangladesh'. *International Journal of Human Rights in Healthcare*. https://doi.org/10.1108/IJHRH-11-2020-0098
- Ray-Bennett, N.S. et al. (2020) *COVID-19 Helpline Services in India*. Avoidable Deaths Network Publication: Leicester. https://www.avoidable-deaths.net/ongoing-projects/project-covid-19-helplines/ https://www.avoidable-deaths.net/ongoing-projects/project-covid-19-helplines/*Policy Brief*
- Ray-Bennett, N.S. et al., 2021. *Introducing Reproductive Kits for Facility and Crisis Set-Ups*. IPPF-South Asia Region Office: New Delhi. https://www.ippfsar.org/resource/introducing-reproductive-health-kits-facility-crisis-set-bangladesh
- Ray-Bennett, N.S. et al., 2021. *Frequently Asked Questions on Emergency and Reproductive Health Kits.* IPPF-South Asia Region Office: New Delhi. https://www.ippfsar.org/resource/introducing-reproductive-health-kits-facility-crisis-set-bangladesh

Dr Nibedita S. Ray-Bennett

E-mail: Nsrb1@leicester.ac.uk

**Activity 6: Nurture future leaders for Avoidable Deaths and improve their leadership and employability skills, through expert mentoring and engaging Interns**

As of 31 July 2021, ADN had 25 Interns from nine different countries. Interns who have worked with ADN have said:

- "I truly enjoyed working with […] the ADN team, and learned a tremendous amount. I would still really love to hear about the work ADN is doing and attend the events you host. Hopefully in the future I will be able to reconnect with ADN and perhaps collaborate on future projects. Thank you again for your incredible mentorship." (Ms. Elizabeth Nelson, University of Harvard).
- "I joined ADN as an Intern. I had no job experience. I took part in two research projects, and one was a consortium. I learnt tremendously. After that I took on ADN's administrative role. These different roles build my confidence […] and I was eventually able to seek a Lecturer position […]. I will never forget my first job experience with ADN" (Ms. Shaiza Khwaja, The Center for Disaster Management, University of Management and Technology, Pakistan).


A Screenshot of Some of Our Presenters, Moderators, Discussants and Viewers from the Symposium 'Integrating Disaster Risk Management with Emergency Services and Defence to Reduce Avoidable Disaster Deaths' 10 December 2021.

# Water Engineering and Development Centre (WEDC) Loughborough University United Kingdom

https://www.lboro.ac.uk/research/wedc/


Researchers from WEDC, Loughborough giving an webinar about the Climate Change impacts on UK surface flooding, which are the key findings from the NERC funded future drainage project.

As the world is emerging from the global pandemic, tackling and adapting Climate Change is becoming priorities again in Government's agenda. In the year 2021, the Water Engineering and Development Centre (WEDC) of Loughborough University continued to deliver several disaster-related research projects and have been awarded two new projects about climate change adaptation. In these research projects, the Loughborough University researchers work in international and multi-disciplinary teams to build resilience to disasters such as flooding and landslides.

- The NERC funded 'River basins as 'living laboratories' for achieving sustainable development goals across national and sub-national scales' project (February 2019-January 2021) Total £400,000 (£130,000 for Loughborough) [involving Qiuhua Liang, Lee Bosher, Xilin Xia, Huili Chen and Jiaheng Zhao]
- The NERC funded 'Valuing the benefits of blue/ green infrastructure for flood resilience, natural capital and urban development in Vietnam' project (January 2019-July 2021) Total £500,000 (£185,000 for Loughborough) [involving Lee Bosher, Qiuhua Liang and Jiaheng Zhao]
- The NERC funded 'FUTURE-DRAINAGE: Ensemble climate change rainfall estimates for sustainable drainage' project (February 2019 – June 2021) Total £280,000 (£138,000 for Loughborough) [involving Qiuhua Liang, Xilin Xia, Xiaodong Ming and Huili Chen]
- The UK Met Office funded 'Weather and Climate Science for Service Programme: Building a Flood Impact Model for India' project Phase 1 and 2 (September 2019 – March 2022) Total £660,000 (£203,000 for Loughborough) [involving Xilin Xia, Qiuhua Liang, Jinghua Jiang and Syed Kabir]
- The NERC funded 'PYRAMID: Platform for dYnamic, hyper-resolution, near-real time flood Risk AssessMent Integrating repurposed and novel Data sources' (August 2020 – August 2022) Total £787,200 (£182,838 for Loughborough) [involving Qiuhua Liang]
- The NERC funded 'ENACT: Evaluating the feasibility and efficacy of integrated catchment-scale Nature-based solutions for Climate Change adaptaTion in India' project (October 2021 – March 2022) Total £108,000 [involving Tim Marjoribanks, Lee Bosher, Xilin Xia and M. Sohail Khan]
- The NERC funded 'FLASH: Fit-for-purpose high-resoLution risk Assessment and forecasting System for rainfall-induced Hazards in Bhutan' project (October 2021 – March 2022) Total £135,500 [involving Huili Chen, Qiuhua Liang, Tom Dijkstra, Sussie Goodall]

Dr. Xilin Xia

E-mail: x.xia@lboro.ac.uk

Despite the halt of international travel, the members of WEDC have continued to disseminate their research in difference ways such as giving invited talks via Zoom.

- Lee Bosher became member of the WHO Thematic Platform for Health EDRM Research Network (2020 – 2021)
- Ksenia Chmutina and Lee Bosher have been invited to give two ICCROM/UNESCO webinars (2020 – 2021)
- Ksenia Chmutina and Lee Bosher became members of UNDRR expert group on traditional knowledge in DRR (2020 – 2021)
- Qiuhua Liang and Huili Chen gave invited talks at the virtual Annual Dialogue of the Koshi DRR Knowledge Hub on 'Assessing GLOF exposure using high-performance hydrodynamic modelling and open-source data' (2020)
- Ksenia Chmutina co-authored the paper 'Protecting Crowded Places: Challenges and Drivers to Implementing Protective Security Measures in the Built Environment' [doi: 10.1016/j.cities.2020.102891]


Lee Bosher and Ksenia Chmutina giving invited talks at ICCROM/ UNESCO via Zoom

# Global Disaster Resilience Centre (GDRC)
# University of Huddersfield, United Kingdom

http://www.hud.ac.uk/gdrc


**A Projects:**

**GDRC has been successful with the following funded projects during 2021:**

**1. INCLUDE (INCLUsive Disaster Education)**

**Start date :** February 2021

**Value:** € 300,000

**Duration:** 2 years

**HUD team:** Dilanthi Amaratunga (PI), Chamindi Malalgoda (PI) and Richard Haigh (COI)

**Scheme:** European Commission's Strategic Partnerships for Digital Education Readiness Scheme

**Partnership:** University of Huddersfield (lead); UCLAN, UK; Lund University Sweden; VGTU, Lithuania; KEIO UNIVERSITY, Japan; Swedish Civil Contingencies Agency (MSB); Sweden's Statistics Bureau (SCB); UNDRR & ESTAG; and Institute of Global Environmental Strategies, Hayama, Japan

**Aim:** INCLUDE aims to build inclusive higher education systems to reimagine online distance learning education and research so that it better supports the diverse DRR community. INCLUDE will develop a University-Industry digital learning platform with the use of disruptive technologies to provide high quality inclusive digital education in DRR and will develop a digital competence framework for educators in building capacity to implement online and distance learning in DRR.

**2. CORE (sCience & human factOr for Resilient sociEty)**

**Start date :** July 2021

**Value:** € 5 million (HUD value = € 450,000)

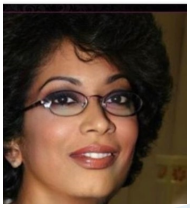
**Duration:** 3 years

**HUD team:** Dilanthi Amaratunga (PI) and Richard Haigh (COI)

**Scheme:** European Commission's H2020 call SU-DRS01-2018-2019-2020 - Human factors, and social, societal, and organisational aspects for disaster-resilient societies.

**Partnership:** UNIVERSITY OF SALERNO (Italy) Project coordinator; Institute for Sustainable Society and Innovation (Italy); ETH (Switzerland); EMSC (France); BRGM (France); UNIVERSITY OF HUDDERSFIELD (UK); MTO (Sweden); UNIVERSITY OF HAIFA (Israel); PSCE (Belgium); IIASA International Institute for Applied System Analysis (Austria); HANKEN School of Economics (Finland); SAHER Europe (Estonia); INSTITUT de Science et Ethique (France); UNIVERSITY OF NICE (France) ; CNSAS (Corpo Nazionale Soccorso Alpino e Speleologico - RESCUE CORP); Protezione Civile Italiana (Italy) ; Corpo dei Vigili del Fuoco (Italy); Croce Rossa Italiana (Italy); Israeli National Fire Authority; HföD FB Polizei / Ludwig-Maximilians Universität München (Germany)

**Aim:** CORE's overall objective is to frame a harmonized vision of diversity awareness, management and overcoming leading to Disaster Resilience Building among EU municipalities, Member States and EU Agencies, which accommodates the diversity of the EU society, considering the variability of human factors.



Prof. Dilanthi Amaratunga
Head
E-mail: d.amaratunga@hud.ac.uk

**3. Developing and harmonising local capacities for tsunami early warning (*Newton Prize)***

**Start date : September 2020 (until March 2022)**

**Value:** £ 200,000

**HUD team:** Richard Haigh (PI) & Dilanthi Amaratunga (COI)

**Scheme:** PARLIAMENTARY UNDER SECRETARY OF STATE FOR BUSINESS, ENERGY AND INDUSTRIAL STRATEGY (Newton Prize)

**Partnership:** University of Huddersfield (lead); Institute of Technology Bandung, Indonesia), Ministry of Agrarian and Spatial Planning, the National Disaster Management Agency (BNPB), the Meteorology, Climatology and Geophysical Agency (BMKG), and the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS).

Aim: This project addresses challenges associated with the wide array of national and local actors that have a mandate to support effective TEW, by addressing near field tsunami risk.

**4. Integrating pandemic preparedness and disaster risk reduction to protect economic assets and people in the 'new normal' for the Greater Bandung Metropolitan area of Indonesia**

**Start date:** March 2021

**Value:** £ 98,123 + £ 30,000

**HUD team:** Richard Haigh (PI) Dilanthi Amaratunga (COI)

**Scheme:** Newton Fund Impact Scheme

**Partnership:** University of Huddersfield (lead); Institute of Technology Bandung, Indonesia; Ministry of Agrarian and Spatial Planning (ATR); National Disaster Management Authority (BNPB); West Java Province Local Disaster Management Organisation (BPBD); Agency for Meteorology, Climatology and Geophysics (BMKG); Indonesian Disaster Experts Association (IABI)

**Aim:** The project will reduce disaster risk, including human and economic losses, increase pandemic preparedness, and create more resilient, connected communities. It will directly contribute to Indonesia's efforts in working towards the targets set out in the 2015 global agreements on disaster risk reduction, climate change and sustainable development.

**5. Embedding COVID-19 preparedness into local disaster risk reduction**

**Funded by**: NEWTON FUND INSTITUTIONAL LINKS

**University of Huddersfield team (Project lead )** : Prof. Dilanthi Amaratunga & Prof. Richard Haigh

**Duration :** 2021 – 2023

**Indonesian Project Partner:** Andalas University , Indonesia

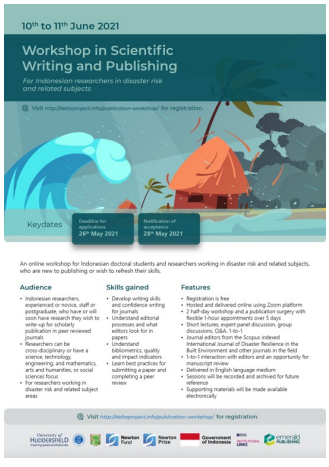
**Partners in this initiative include**: BNPB (National Disaster Management Agency of Indonesia); BPBD of West Sumatra Province (Badan Penanggulangan Bencana Daerah); Public; Works Office of West Sumatra Province; Health Office of West Sumatra Province; and Social Office of West Sumatra Province. It is valued at £ 100 K and is a 2-year project

## B. Events

**There have been a large number of events organised by GDRC during 2021. Some examples are listed below :**

**1. Workshop in scientific writing and publishing for Indonesian researchers in disaster risk and related subjects**

In June 2021, GDRC hosted a workshop in scientific writing and publishing for Indonesian researchers in disaster risk and related subjects. The event was held as part of their Newton Prize grant, funded by the UK Newton Fund and carried out in conjunction with the Institute of Technology, Bandung. The intensive two day workshop attracted over 80 Indonesian researchers and featured a mix of short lectures, expert panel discussion, group discussions, Q&A, and 1-to-1 surgeries. Invited speakers included experts from New Zealand, Australia and Japan, and from Emerald Publishing. GDRC's Professors Richard Haigh, Dilanthi Amaratunga and Dr. Nuwan Dias organised and facilitated the event, while Dr. Chathuranganee Jayakody contributed to a panel discussion on the peer review process. Many of the centre's early career researchers also acted as rapporteurs and facilitators for breakout groups. The event has helped participants to develop writing skills and confidence writing for journals.



**2. Webinar on 'Writing articles for high impact journals: a guide to young scientists'**


GDRC's Professors Dilanthi Amaratunga and Richard Haigh were invited Facilitators of the **Webinar on 'Writing articles for high impact journals: a guide to young scientists', held on the 25th May 2021, organised by** the National Science Foundation of Sri Lanka in collaboration with the

Continuous Professional Development Committee (CPD) of the Institution of Engineers of Sri Lanka (IESL) and the General Research Committee (GRC) of the Sri Lanka Association for the Advancement of Science (SLAAS). This event was attended by over 1000 delegates


**3. Panel discussion on Environmental Justice and Sustainable Development**

The Institute of Town Planners Sri Lanka (ITPSL) invited GDRC's Dr Nuwan Dias to be the moderator of the Panel discussion on Environmental Justice and Sustainable Development, which was organised to commemorate World Environmental Day 2021. This was held on the 12th June 2021.


**4. COVID-19 : Impact, Mitigation, Opportunities and Building Resilience: From Adversity to Serendipity**

GDRC was a strategic partner of the National Science Foundation of Sri Lanka (NSF) conducted 2-day national inter disciplinary conference titled "COVID-19: Impact, Mitigation, Opportunities and Building Resilience" under the theme "From Adversity to Serendipity" from January, 27-28, 2021. It aimed at bringing all the key players of the relevant public and private sector institutions under one roof to deliberate and reflect on the above aspects of the pandemic so as to build a robust and resilient community and economy in Sri Lanka. Other strategic partners included: World Health Organisation; State Ministry of Skills Development, Vocational Education, Research & Innovations, Sri Lanka; Ministry of Health, Sri Lanka; Postgraduate Institute of Management, Sri Lanka; and Disaster Management Centre, Sri Lanka.

Conference book, co edited by Prof. Dilanthi Amaratunga can be accessed via this link : https://covidcon.nsf.gov.lk/images/files/BookofAbs-26012021.pdf

**5. Interdisciplinary Policy dialogue On COVID 19: Impact, Mitigation, Opportunities and Building Resilience**

Prof. Dilanthi Amaratunga was the moderator of the Interdisciplinary Policy dialogue On COVID 19: Impact, Mitigation, Opportunities and Building Resilience, held on the 28th January 2021 in Colombo, Sri Lanka


**6 Sustainable Future and Climate Change: Insights from Adaptation Gap Report 2020**

Prof. Dilanthi Amaratunga was a panellist at the Sustainable Future and Climate Change: Insights from Adaptation Gap Report 2020, held on the 25th Janayry 2021. It was organized by the National Institute of Disaster Management, Ministry of Home Affairs, Government of India, jointly with: Department of Science & Technology (DST), GoI; UN - World Food Programme; United Nations Environment Programme; International Water Management Institute – CGIAR; Gorakhpur Environmental Action Group; UNICEF; ICUN-Council of Ecosystem Management; UN-ESCAP.

**7. Scientific advice on 'Crisis Prevention, Preparedness, Response and Resilience'**

Prof. Dilanthi Amaratunga was nominated by the network of European academies of science following a call for experts organised by Science Advice for Policy by European Academies (SAPEA) for a scoping workshop of the "Group of Chief Scientific Advisors (GCSA) of the European Commission", and subsequently was selected by the DIRECTORATE-GENERAL FOR RESEARCH & INNOVATION of the EUROPEAN COMMISSION to be part of the scoping workshop leading to scientific advice on 'Crisis Prevention, Preparedness, Response and Resilience' . The GCSA provides high-level, independent scientific advice to the European Commission leadership ("President, Vice-Presidents and Commissioners").

**8. Input to United Nations European Forum for Disaster Risk Reduction in Portugal (EFDRR)**

GDRC has been invited substantially contribute to the Regional Assessment Report to be launched at the European Forum for Disaster Risk Reduction in Portugal (EFDRR), November 2021. It is envisaged that our contribution will be mainly framed around Integration of Covid-19 perspective to the Regional Assessment Report and will be built around How can past and ongoing work on Covid-19 be utilized to include reflections from the pandemic in the RAR?

**9. COMMUNITY OF EUROPEAN RESEARCH AND INNOVATION FOR SECURITY (CERIS) DISASTER RISK SOCIETIES – SCIENTIFIC SUPPORT TO THE SENDAI FRAMEWORK OF ACTION W**

GDRC was invited to provide specific scientific input towards the DRR research agenda and the Sendai Framework organized by the European Commission's DG Home and DG Research (RTD), held on the 9th March 2021. The aim of this event is to continue the discussion with stakeholders in order to contribute to improve DRR research and the science policy interface.

**C. Keynotes**

**In 2021, GDRC members were invited to deliver, several high profile key note speeches. Some examples are listed below:**

**1. 2nd International Symposium on Disaster Resilience and Sustainable Development" (DRSD -2021) 24 – 25 June 2021**

Professor Dilanthi Amaratunga was an invited keynote speaker of the 2nd International Symposium on Disaster Resilience and Sustainable Development" (DRSD-2021) 24 – 25 June, 2021, organized by the Asian Institute of Technology, Thailand. Her key note speech was titled: **Unmaking Disasters: Education as a Tool for Disaster Risk Reduction and Sustainable Development**

**[www.disaster-sustainability.org ]**

2. International Knowledge Sharing Workshop on Climate change and Energy Efficiency for Sustainable Development

Professor Dilanthi Amaratunga was an invited keynote speaker of the International Knowledge Sharing Workshop on Climate change and Energy Efficiency for Sustainable Development, held from, 12th to 17th June 2021, organised by Department of Civil Engineering, University of Moratuwa, Sri Lanka. Dilanthi's intervention was on: "**Impact of Climate Change on Sustainable Development : *Harmonising climate action with broader Sustainable Development Goals".***



3. **International Workshop on "Developing next-generation earthquake and tsunami early warning systems for the enhancement of disaster resilience in urban societies"**

Professor Dilanthi Amaratunga was an invited keynote speaker at the International Workshop on "Developing next-generation earthquake and tsunami early warning systems for the enhancement of disaster resilience in urban societies", organised by University College, London, and held on 21st May 2021. Dilanthi's talk was on "Indian Ocean Tsunami Early Warning and Mitigation System: A system of Systems"

4. **What role for science in understanding, reducing and managing Disaster Risks?"**

Professor Dilanthi Amaratunga was the invited keynote speaker at the 2020 Annual Sessions of the Sri Lanka Association of Advancement of Science, held form 6th – 11th December 2020. Her keynote entitled: "What role for science in understanding, reducing and managing Disaster Risks?"

5. **Research relevance and interest beyond a community of scholars: How can we achieve this?**

Professor Dilanthi Amaratunga was the invited keynote speaker at the launch meeting of the Strengthening University-Enterprise Collaboration for Resilient Communities in Asia (SECRA), held from 2–4 February, 2021. Her key note speech was titled: "Research relevance and interest beyond a community of scholars: How can we achieve this?

6. **"Disasters don't stop for a virus"**

At the Annual Meeting of the Sendai Framework National Focal Points In Europe and Central Asia, held from 15-16 December 2020, DGRC's Prof. Dilanthi Amaratunga did the key note on "Disasters don't stop for a virus" . This annual meeting was organised by the UNDRR Regional Office for Europe and Central Asia, which covered 56 countries across European and Central Asia


7. **Disaster Resilient Properties: Built Environment Discourse**

Prof. Dilanthi Amaratunga is the invited key note speaker of the International policy dialogue on Disaster Risk Reduction : Civil Engineering for a Disaster Resilient Society, held from 19-21 March 2021 . It is Organized by Civil Engineering Council of India, together with Asian Disaster Risk Reduction and Response network. Dilanthi's keynote is titled: Disaster Resilient Properties: Built Environment Discourse

**D Notable international roles commenced in 2021**

**Some examples are listed below:**

**1. 2021 United Nations High Level Policy Forum on Sustainable Development**

Professor Dilanthi Amaratunga was an invitee to be part of the 2021 High Level Policy Forum (HLPF) Thematic Review Expert Group Meeting, held on the 17th May 2021. The theme of the 2021 HLPF is "Sustainable and resilient recovery from the COVID-19 pandemic that promotes the economic, social and environmental dimensions of sustainable development: building an inclusive and effective path for the achievement of the 2030 Agenda in the context of the decade of action and delivery for sustainable development". HLPF thematic reviews of the above theme and SDGs brought together a multi-stakeholder group of experts from academia, civil society, government experts participating in their individual capacity, and UN system technical colleagues. Participants assessed progress and challenges to achieving the in-focus SDGs in the context of the broader 2030 Agenda; considered how COVID-19 response and recovery efforts can contribute to achieving these SDGs; identified particular areas of concern and opportunities for transformation; and suggested partnerships and ways forward during the decade of action to mitigate trade-offs, harness synergies and leave no one behind.

**2. UK Alliance for Disaster Risk Research (UKADR)**

Professor Dilanthi Amaratunga was appointed as a Steering Committee member of the UK Alliance for Disaster Research (ukadr.org), with effect from May 2021, for three years. The primary motivation for the UK Alliance for Disaster Research (UKADR) is to bring together the UK's rich and diverse disaster research community, to facilitate collaboration and partnership in order to aid representation of the research community at government level in the UK and to facilitate where appropriate the implementation of the Sendai Framework for Disaster Risk Reduction. UKADR aims to support excellence in science and enhance opportunity for impact on policy and practice by acting as:

- An alliance of the research and academic disaster research community to facilitate collaboration and partnership across the UK
- An advocate of UK science to UK Government
- A contact point for UK Government seeking the best UK science input
- A mechanism for UK Government to communicate emerging needs to the UK science community.

Rest of the committee membership are from: UCL, University of Cambridge, BGS, University of Bristol, Public Health England, University of Durham, Kings College London , Northumbria University and University of Edinburgh.

**3. International Consultation on the Global Best Practices in Gender Balance Toolkit**

Professor Dilanthi Amaratunga was an invited member of the international Consultation on the Global Best Practices in Gender Balance Toolkit, held on the 28 April, 2021, organised by the OECD, in consultation with the UAE Gender Balance Council and Global Council for Sustainable Development Goal 5 (Gender Equality), who is developing a 'Global Best Practices for Gender Balance Toolkit'. The Toolkit will profile successful gender balance policies, legislation, and initiatives across core areas, to support government and institutions around the world to advance women's multi-dimensional empowerment. Dilanthi was specifically invited to lead the discussion discuss Section 4 : Adopting a Gender Lens in Crisis and Emergency Management, on 1). How do we plan for future crises – economic, social, health, etc., to ensure response and recovery are gender-responsive?; and 2).What has the Covid-19 crisis revealed in terms of government capacities for gender mainstreaming? This consultation brought together approximatively 20 technical gender experts from around the world with the objective of sharing practical country examples and advise on the practical application of this section of the Toolkit.

**4. UNDRR Regional Assessment Report : MOVING FROM RESPONSE TO INVESTING IN PREVENTION OF RISKS**

GDRC professors Dilanthi Amaratunga and Richard Haigh were invited to make specific contributions towards the "UNDRR Regional Assessment Report : MOVING FROM RESPONSE TO INVESTING IN PREVENTION OF RISKS", which will be launched at the European Forum for Disaster Risk Reduction, to be held from 24 - 26 November 21, in Matosinhos, Portugal. Together with their researchers, Asitha de Silva, Kinkini Hemachandra and Aravindi Samarakkodi, Dilanthi and Richard contributed to the chapters on:

- Preventing risk through resilient infrastructure; implementation of Green and Blue Infrastructure
- "Mis-pricing of risk for business
- COVID and lessons learned in the UK
- From risk perception to risk behaviour – how awareness at local level can be crucial for risk management
- Multi-stakeholder approaches to the management of complex risks
- Fostering policy coherence for sustainable development

**UNDRR Europe, with fifty-five countries, is broadening the definition of risk from natural hazards to the new social and economic realities, threats and risks in Europe.** The regional assessment report's core thesis is for European policies and instruments to coherently invest in preventing risk rather than expensively responding to the aftermath of disasters. Central to the argument is preventing systemic failures due to increasing, cascading and compounding risk in investments coherent with future climate, social and economic realities.

The European Forum for Disaster Risk Reduction (EFDRR) forms the regional platform structure of Europe. The triennial EFDRR has established itself as an important vehicle to address the regional disaster risk challenges. It serves as a forum for other stakeholders to take a shared responsibility and make actionable commitments to reduce disaster risk. The conference, true to the multi-stakeholder spirit of the Sendai Framework, enables governments and stakeholders to exchange experiences on successful practices and innovative approaches to prevent, reduce and manage disaster risk. This results in forward looking action plans based on a mutual sharing status of DRR implementation

**5. Plenary session lead at the EUROPEAN FORUM FOR DISASTER RISK REDUCTION**

Professor Dilanthi Amaratunga was appointed by the UNDRR as the Plenary session on "COVID-19 and Systemic Risk" co-lead , along with WHO. This is to be held at the EUROPEAN FORUM FOR DISASTER RISK REDUCTION (EFDRR) , to be held from 24 - 26 November 21, in Matosinhos, Portugal. EFDRR is organised by the United Nations Office for Disaster Risk Reduction - Regional Office for Europe (UNDRR), Portuguese National Authority for Civil Protection, European Commission, and Council of Europe

**(E). Publications**

Like with the previous years, there have been a large number of publications written by our members during 2021, including: Books and book chapters; Refereed research papers; Editorials; Conference proceedings; Vision papers, Briefing Papers, and Research reports, and are available at: https://pure.hud.ac.uk/en/organisations/global-disaster-resilience-centre

**Amaratunga D., Haigh R., Dias N. (eds) (2021). Multi-Hazard Early Warning and**

**Disaster Risks. Springer**

**DOI : https://doi.org/10.1007/978-3-030-73003-1_1**

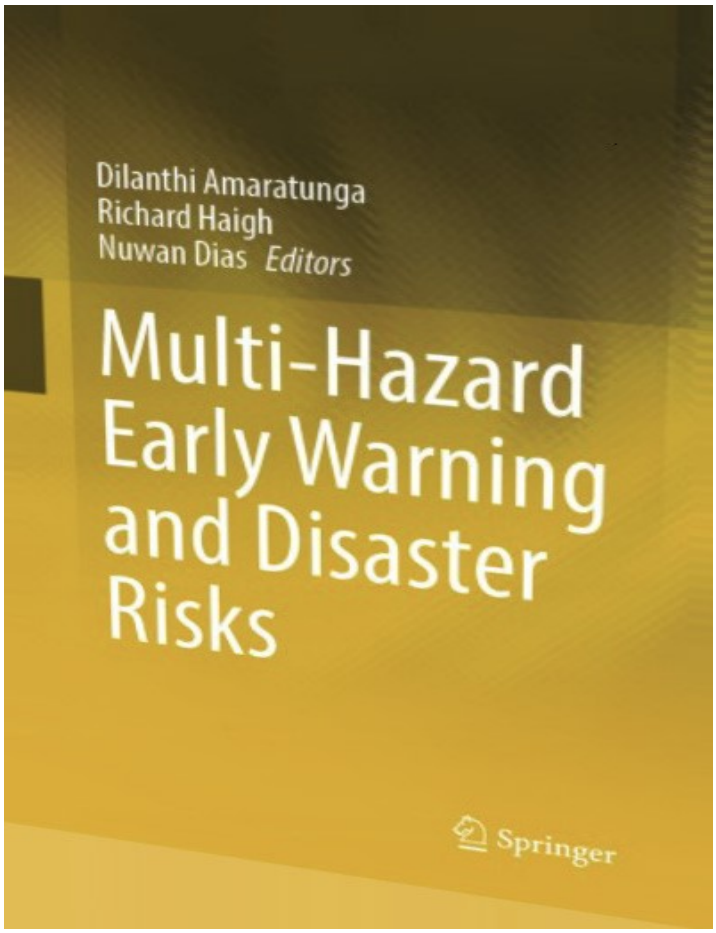
**Print ISBN: 978-3-030-73002-4**

**Online ISBN: 978-3-030-73003-1**

**Springer publishing**

**56 Chapters**

This book presents a collection of papers under the theme of multi-hazard early warning and disaster risks. These were selected from the presentations made at the International Symposium on Tsunami and Multi-Hazard Risks, Early Warning and Community Awareness in supporting implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030. This conference aimed to recognise achievements and to highlight work that still needs to be carried out. The conference promoted collaboration among academia, research institutions and disaster management offices and further encouraged multidisciplinary and multi-sectoral interaction.



# Disaster and Development Network (DDN)
# Northumbria University
# United Kingdom

https://www.northumbria.ac.uk/ddn

The Disaster and Development Network (DDN) produces knowledge and skills that engage hazards, disasters and complex emergencies

The Disaster and Development Network (DDN) comprises interlinked disaster and development research, enterprise and teaching initiated via Northumbria University's Department of Geography and Environmental Sciences since 2000. The Northumbria based institutional elements of this network to date have included the Disaster and Development Centre (DDC)(2004-2012), Disaster and Development postgraduate studies (2000-present), Disaster, Development and Resilience (DDR) research group (2012-present), the affiliated student led Disaster and Development Society (DDS)(2015-present), and inter-Faculty Geographies of Development and Disaster (DDG) research cluster (2018-present) also contributing to the university wide 'global development futures' research theme.

The focus of the DDN is the knowledge and skills that engage hazards, disasters and complex emergencies from the perspective of different development debates and experiences. It examines the current and future survivability and resilience of people facing critical levels of rapid and slow onset environmental, economic, and political change. Some achievements and updates for 2021 include:

Indicative research:

- Francis Massé – "Identifying and mitigating the impacts of COVID-19 on legal and sustainable wildlife trade in LMICs". This included recruitment of a PhD Scholarship, Mridula Paul, who is working with Francis for the Northumbria input to the project.
- Katie Oven – UKRI-NERC GCRF "Sajag-Nepal– Planning and preparedness for the mountain hazard and risk chain in Nepal". This included recruitment of one full time researcher, Amy Johnson, and a PhD Scholarship, Bina Limbu, who are working with Katie for the Northumbria input to the project.
- Andrew Collins working with UKRI-NERC, GCRF "Tomorrow's Cities, Multi-hazard Urban Risk Transitions" research hub. This includes a PhD Scholarship, Becky Richardson, focusing on "child-centred approaches to health risk communication in Nairobi primary schools".

- Kevin Glynn – UKRI GCRF "Ixchel: Building understanding of the physical, cultural and socio-economic drivers of risk for strengthening resilience in the Guatemalan cordillera". Project underway.
- Richard Kotter - advancing of new initiatives for local and external engagement work alongside UK and South Asia based Emergency Services.

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

UK Research Excellence Framework:

In March 2021 Northumbria University consolidated its submission to the UK Government Assessment Framework exercise using the Disaster and Development focus as a core theme. The submission drew from the combined work of the Disaster, Development and Resilience research group, Centre for International Development and other contributions. Full details can be found at:

https://www.northumbria.ac.uk/research/ref-2021/uoa/geography/research-groups/geographies-of-development-and-disasters and

https://www.northumbria.ac.uk/about-us/academic-departments/geography-and-environmental-sciences/research/disasters-development-and-resilience/

The UK research environment is currently heavily focused on encouraging IMPACT.

An example of impact used by Northumbria derived from the DDN included the DDN work with United Nations and non-governmental organisations on; “Embedding a people-centred approach to health in Disaster Risk Reduction at the Local and International scales”. A summary version of this impact is available at: https://www.northumbria.ac.uk/research/research-impact-at-northumbria/societal-impact/new-people-centred-global-policies-prepare-communities-better-for-diasasters/


Indicative External Engagement, Advisory and Research for Policy Making:

Andrew Collins served in the Steering Committee of the United Kingdom Research and Innovation (UKRI) COP26 Adaptation and Resilience series of 20 events throughout 2021, which fed into the UK hosting of COP26. Serving as Co-Chair of the United Kingdom Alliance for Disaster Research (UKADR) meant that he served with a seat in the UK Disasters Research Group. This forum comprises UK Research Funders, Cabinet Office, Foreign and Commonwealth Office, Royal Society, British Academy and other agencies. Andrew also served as a Co-Chair of the 2021 GADRI Global Summit.

Postgraduate Studies:

The MSc Disaster Management and Sustainable Development established in 2000, recruited a further 40 students in the September intake including new participants from 10 nations. The area of study also continued as one of the most in demand amongst the geography and environmental sciences undergraduate studies.

Dr. Mark Ashley Parry successfully defended this PhD thesis on “Climate Change Perception, Reaction and Engagement in the United Kingdom: the case of youth participation” during the first half of 2021.

# Overseas Development Institute
# United Kingdom
https://www.odi.org/

ODI's **Global Risks and Resilience Programme** published a range of reports, briefings and working papers in 2021:

- Gender equality, social inclusion and resilience in Malawi
- Resilient Generation: supporting young people's prospects for decent work in the drylands of east and west Africa and Issue Brief
- Exploring the conflict blind spots in climate adaptation finance
- Transboundary climate and adaptation risks in Africa: perceptions from 2021.
- Understanding the role of anticipatory action in Somalia
- China's Economic Pulse Series 2 and 3
- BRI energy infrastructure in Pakistan: environmental and climate risks and opportunities
- Driving a green recovery in developing countries: what role is China playing?
- Investing for sustainable climate services: insights from African experience technical report and policy brief
- A fair share of climate finance: apportioning responsibility for the $100 billion climate finance goal working paper
- Preparing for extreme weather in the Eastern Caribbean: what role for forecast-based early action? and joint work plan
- Climate change, conflict and displacement: implications for protection agencies advisory report and summary report
- Addressing protection risks in a climate-changed world: challenges and opportunities
- Scoping opportunities, barriers and enablers of nature-based solutions in Russia
- Enhancing financial commitments to disaster risk reduction in conflict contexts
- Sustaining development in Small Island Developing States: a reform agenda
- Towards sustained development in Small Island Developing States: why we need to reshape global governance
- Mapping financial flows for disasters: strengthening resilience and response to crises
- China's lending landscape and approach to debt relief
- Understanding and mitigating social risks to sustainable development in China's BRI: evidence from Nepal and Zambia
- The Belt and Road and Chinese enterprises in Ethiopia: risks and opportunities for development
- Caribbean Comeback podcast

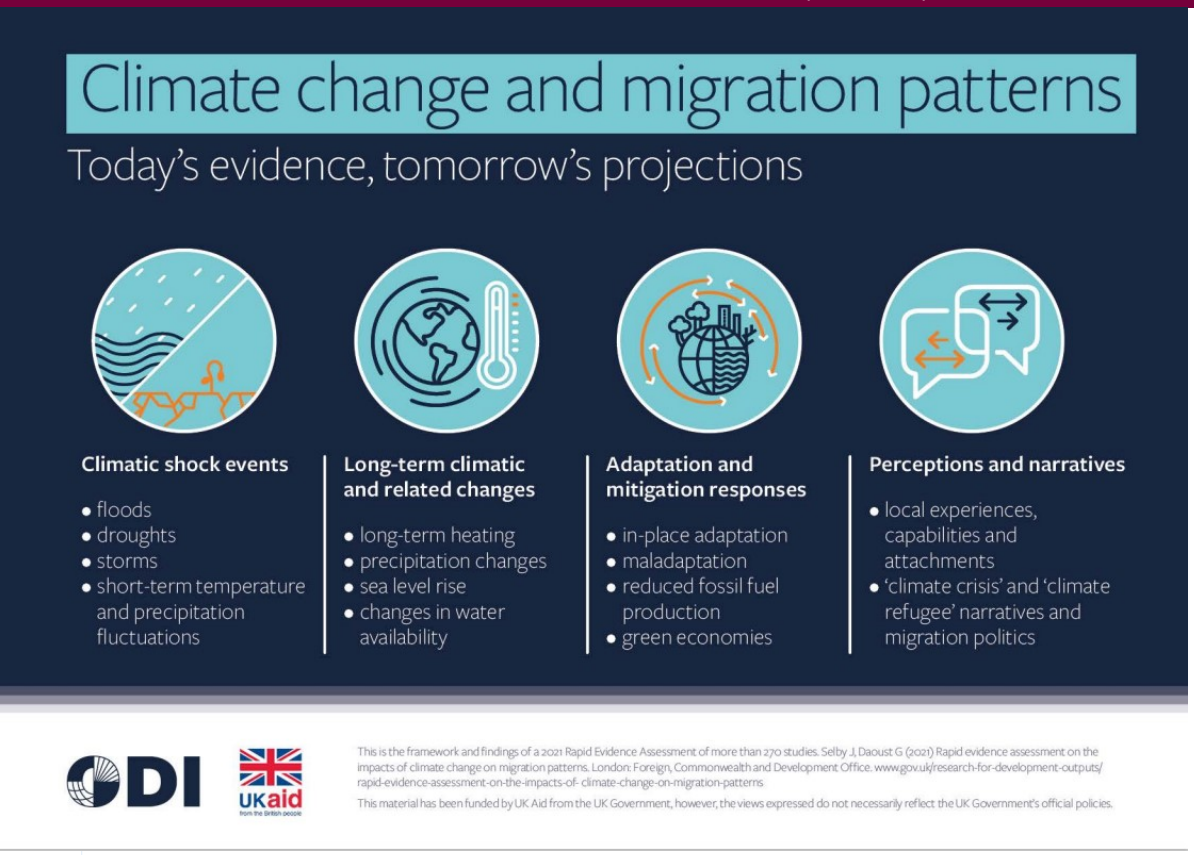
**Projects**

The programme has numerous multi-year projects/ initiatives, including:

- ODI is the research and communications lead for Supporting Pastoralism and Agriculture in Recurrent and Protracted Crises (SPARC) (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
- Adaptation Without Borders, an ODI, SEI and IDDRI collaboration supporting policymakers and planners to more effectively identify, assess and manage transboundary climate risks
- ODI is the knowledge management and communications lead for the Climate Ambition Support Alliance (CASA), which seeks to strengthen the capacity and support the engagement of climate-vulnerable countries in international climate negotiations
- ODI's Global China 2049 Initiative
- Dr Emily Wilkinson is supporting the Climate Resilience Execution Agency for Dominica (CREAD) as Chief Scientific Adviser.

Ms. Emma Lovell

E-mail: e.lovell@odi.org.uk




Report: Rapid evidence assessment on the impacts of climate change on migration patterns and accompanying infographics (available in English and French)

**Events**

- ODI and SPARC convened, hosted and/or participated in more than 25 events in the lead up to and at COP26 and were at the centre of discussions on issues including transboundary adaptation, climate risk in fragile and conflict-affected situations, anticipatory action, and the needs of small island developing states.
- SPARC hosted two sessions at the Global Landscapes Forum
- ODI and FCDO hosted a virtual roundtable on 'Climate and migration: what's the evidence?'
- ODI, University of Southampton and University of Sheffield hosted an expert roundtable on Small Island Developing States: 'Are we reaching a viability tipping point?'

**Media highlights**

Yue Cao was interviewed by CNBC Africa about how to drive green recovery in developing countries

- Rebecca Nadin commented on China-UK relations in Al Jazeera's report: UK defence: Crucial review tilts towards more nuclear weapons, Indo-Pacific region
- ODI's first China Economic Pulse report was covered in the Financial Times.
- Rebecca Nadin was interviewed by Quartz on China's developing climate goals and the related challenges

**Blogs / articles**

- What does pastoralism have to do with climate change?
- Young people are creating a new climate narrative for African drylands
- Climate adaptation finance has a blind spot on conflict and fragility
- Small-Island Developing States need urgent support to avoid debt defaults
- International Women's Day: Time to Put Malawi's Gender Equality Laws into Practice
- Our thoughts on COP26 - Rolling insight
- IPCC report: No further proof needed of our planetary emergency
- How to take early action in the eastern Caribbean to avoid climate extremes becoming disasters
- Getting down to the business of 'nature'
- Why building national resilience means reimagining risk
- Disasters by design: the need for actionable risk management
- Why action on climate change presents an opportunity for protection actors concerned about conflict

**Images from events where ODI participated at COP26**


Some of the ODI team at COP

'Youth Voices for Climate Action' – part of the Youth and Public Empowerment Day,


PCCB Capacity-building Hub event

# Global Disaster Risk Reduction (GDRR)
# UK Health Security Agency
# (formerly Public Health England) United Kingdom

https://www.gov.uk/

The Global Disaster Risk Reduction (GDRR) team of the UK Health Security Agency (formerly Public Health England) has engaged in supporting the COVID-19 response in England and has been involved in the following publications in 2021

- Virginia Murray as Chair the UNDRR/ISC Technical Working Group. With GDRR colleagues report that the UNDRR-ISC Hazard Definition and Classification, published 2020, links to the Sendai Framework for Disaster Risk Reduction, the Paris Agreement on Climate Change and the Sustainable Development Goals. The Hazard Information Profiles: Supplement to UNDRR-ISC Hazard Definition & Classification Review Technical Report published October 2021, provides a significant contribution to global understanding of hazards and will support the operationalisation of the Sendai Framework for Disaster Risk Reduction.
  - ◊ This supplement includes 302 globally agreed and peer-reviewed hazard definitions.
  - ◊ The Hazard Information Profiles will be used to inform national risk registers of UN member states, improve data collection around specific hazards, and inform disaster preparedness planning at all levels.
  - ◊ This work has been a global effort, bringing together scientific, UN and industry partners (including GADRI colleagues) to operationalize the Sendai Framework
- Virginia Murray, as a cochair of the WHO Health emergencies and disaster risk management (Health EDRM) Research, we have contributed to
  - ◊ WHO Guidance on research methods for Health EDRM (Initially published in September 2020 was launched in summer 2021) – Virginia Murray has been one of the four editors working with 164 authors from 30 countries, WHO Headquarters and Regional Offices (PAHO, AFRO, EMRO, EURO, SEARO, WPRO),
  - ◊ Involved in setting up the WHO Health Emergency and Disaster Risk Management Research Knowledge Hub
  - ◊ WHO technical guidance notes on Sendai Framework reporting for Ministries of Health (published in November 2020) and shared widely in 2021
- The United Nations Office for Disaster Risk Reduction and the United Nations Convention to Combat Desertification published the Global Assessment Report on Drought 2021 in July 2021 where Virginia Murray and the GDRR team contributed to the Human Health summary on pages 51- 54. Health impacts have been strongly identified in the related video https://www.undrr.org/gar2021-drought.
- WMO Atlas of mortality and economic losses from weather climate and water extremes (1970-2019) was published September 2021. The Atlas is WMO's most exhaustive compilation to date of fatalities and economic costs from natural hazards. It provides comprehensive details of recorded disasters and their impacts, both at global and regional level. It gives statistics for the entire 50 year period, as well as a decadal breakdown which shows the evolution of disasters in our changing climate. The *Mortality and morbidity – perspectives from the Health Sector – a contribution from co-contributors WHO and Public Health England* contribution is on pages 71-75.

Prof.. Virginia Murray

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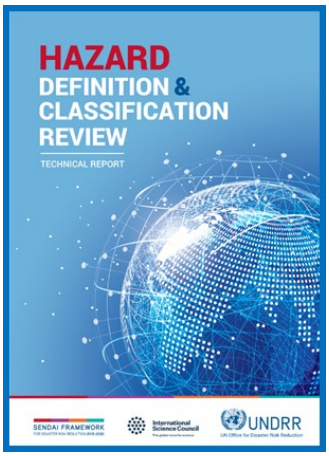
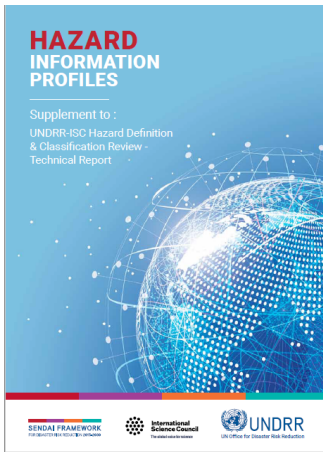
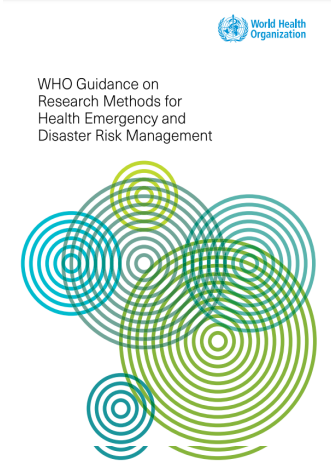
Maddie.Weir@phe,gov,uk

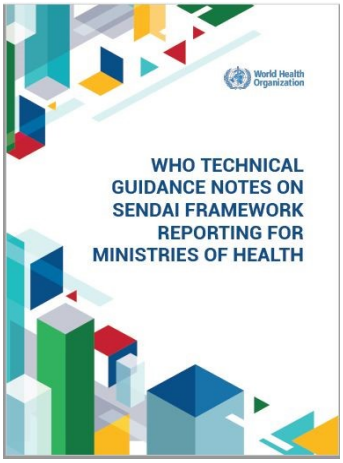
Kanza.Ahmed@phe.gov.uk

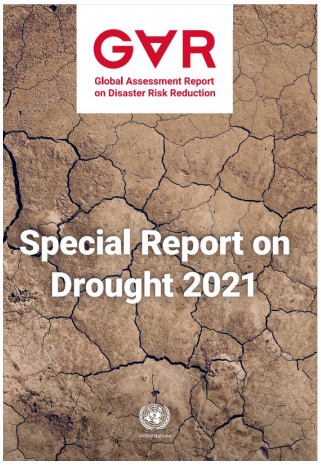

HAZARD
DEFINITION &
CLASSIFICATION
REVIEW
TECHNICAL REPORT
SENDAI FRAMEWORK
International Science Council
UNDRR

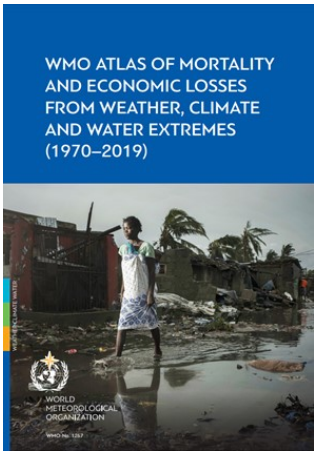

HAZARD
INFORMATION
PROFILES
Supplement to :
UNDRR-ISC Hazard Definition
& Classification Review -
Technical Report
SENDAI FRAMEWORK
International Science Council
UNDRR


World Health Organization
WHO Guidance on
Research Methods for
Health Emergency and
Disaster Risk Management

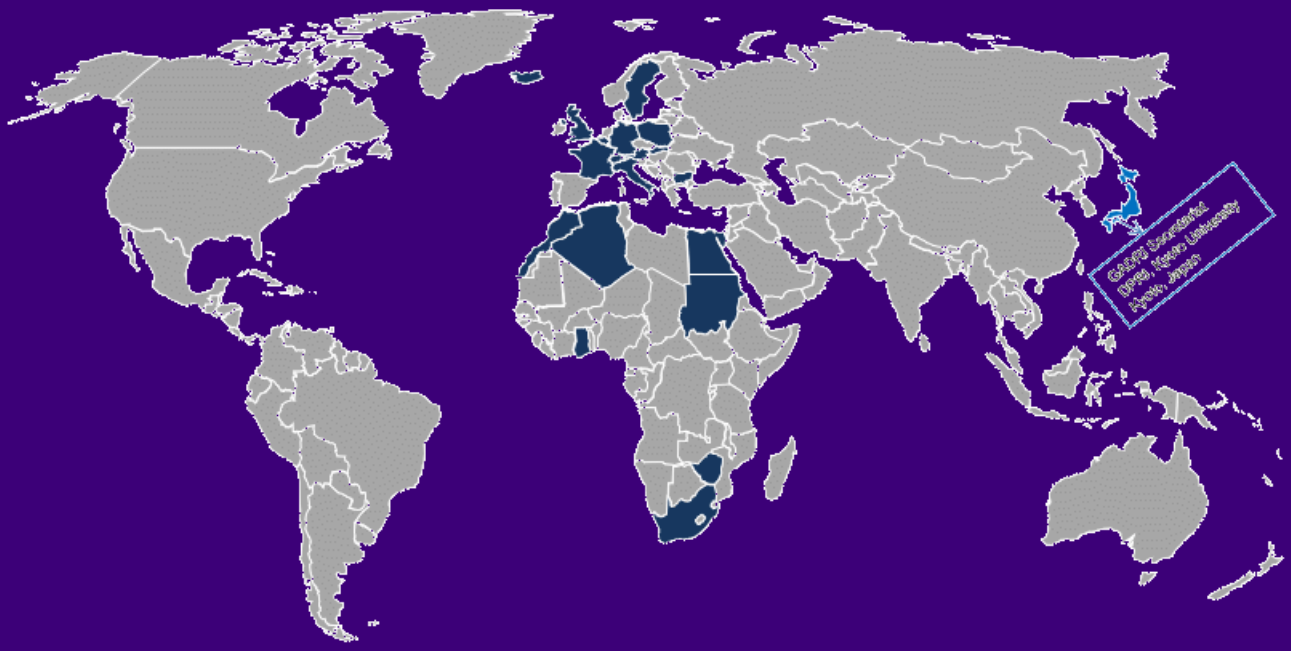

International Journal of Environmental Research and Public Health
MDPI
Conference Report
Progress towards the Development of Research Agenda and the Launch of Knowledge Hub: The WHO Thematic Platform for Health Emergency and Disaster Risk Management Research Network (Health EDRM RN)
Abstract
Keywords
1. Introduction


World Health Organization
WHO TECHNICAL
GUIDANCE NOTES ON
SENDAI FRAMEWORK
REPORTING FOR
MINISTRIES OF HEALTH

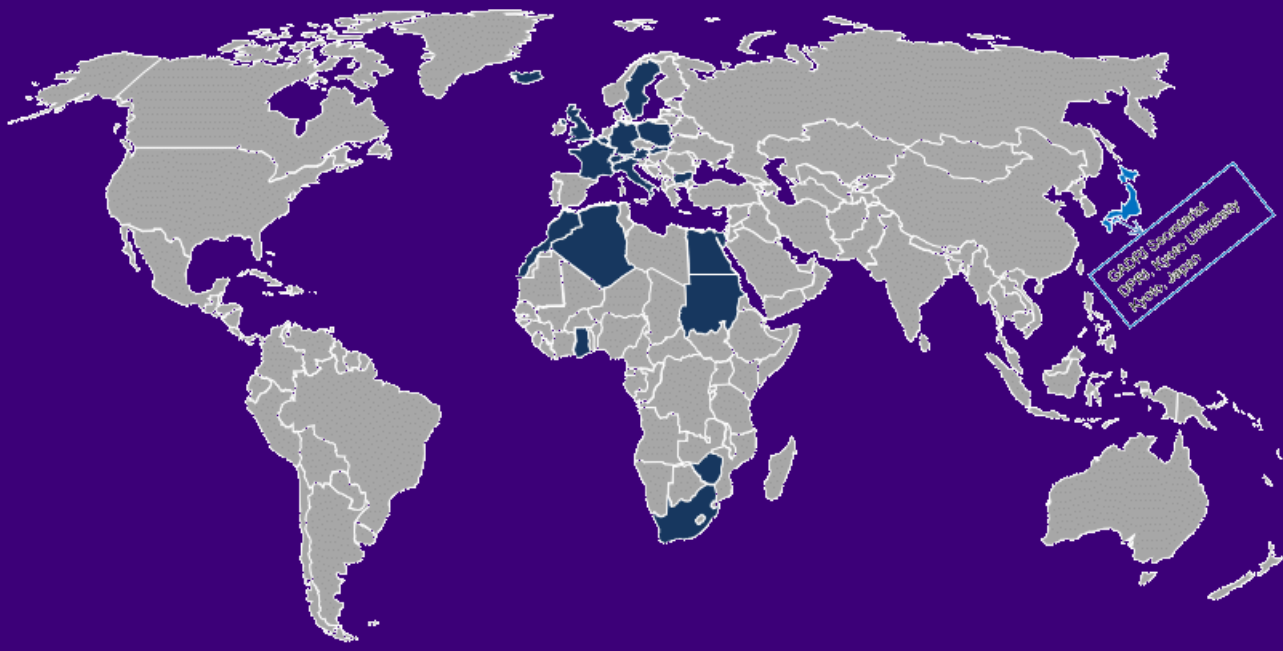

GAR
Global Assessment Report
on Disaster Risk Reduction
Special Report on
Drought 2021


WMO ATLAS OF MORTALITY
AND ECONOMIC LOSSES
FROM WEATHER, CLIMATE
AND WATER EXTREMES
(1970–2019)
WORLD
METEOROLOGICAL
ORGANIZATION

# 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,<br>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<br>African Alliance of Disaster Research Institutes (AADRI) |

# Africa Alliance for Disaster Risk Institutions (AADRI), Bindura University, Zimbabwe

https://www.aadri.org.zw/

Important Achievements

Published national books entitled:

1. Manatsa, D., Mushore, T.D., et al. (2020). Revision of Zimbabwe's Agro-Ecological Zones. ISBN 978-1-77920-535-3
2. Manatsa, D., Mushore, T.D., et al. (2020). Building Resilience to Natural Disasters in populated African Mountain Ecosystems: Case of Cyclone Idai'. TSURO Trust Research Report, ISBN 1-177925489-4

Conferences

AADRI actively contributed and participated in the 5th Global Summit of GADRI that took place virtually from the 31st August to 2 of September 202 and especially supported the regional session on Europe with Africa and the Middle East. Prof. Manatsa was a panelist of the discussion panel session 1 of Asia and Oceania; and the Europe with Africa and the Middle East. Prof. Chipo Muzenda moderated the panel discussion session four on Bridging the General Gap of the Europe with Africa and the Middle East. Further details of the 5th Global Summit of GADRI can be found at the newsletter, GADRI Actions 15 issue at GADRI website.

Projects including ongoing research grant projects:

1. World Ban funded Project: Mavhura E. Manatsa D. Manyangadze T. (2021). A Technical Assessment for updating Drought Risk Mapping in Zimbabwe SPF – Support to Zimbabwe Recovery and Resilience Grant No.: P172176. (completed)
2. World Ban funded Project: Mavhura E. Manatsa D. Manyangadze T. (2021). Institutionalization of the Combined Drought Index in Zimbabwe. SPF – Support to Zimbabwe Recovery and Resilience Grant No.: P172176. (ongoing 2022)

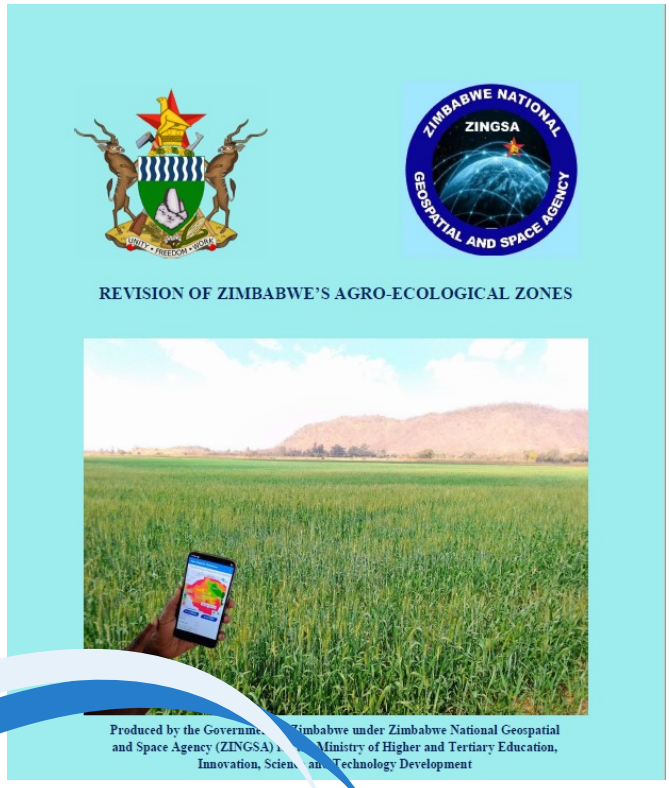
Prof. Desmond Manatsa

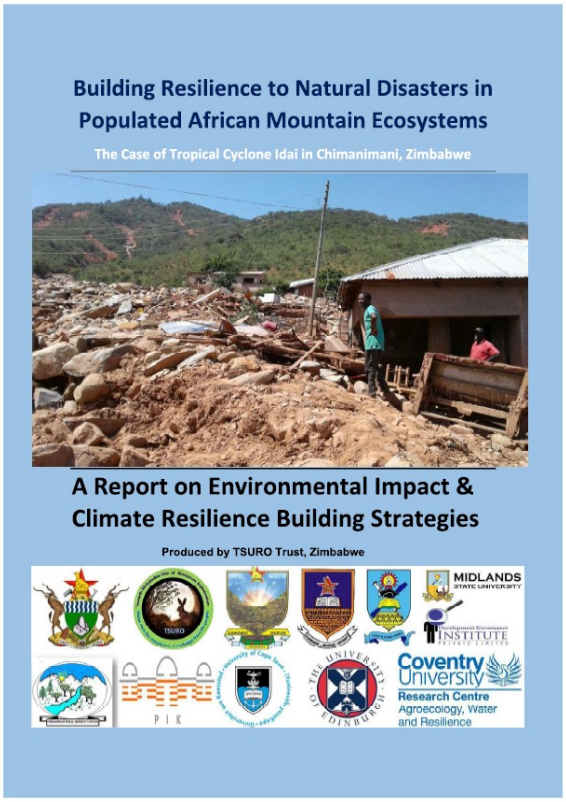
Acting President

Email: dmanatsa@gmail.com

Publications

- Munsaka, E., Mudavanhu, C., Sakala, L. et al. When Disaster Risk Management Systems Fail: The Case of Cyclone Idai in Chimanimani District, Zimbabwe. Int J Disaster Risk Sci 12, 689–699 (2021). https://doi.org/10.1007/s13753-021-00370-6
- Manyangadze, T., Mavhura, E., Mudavanhu, C. et al. An exploratory analysis of the spatial variation of malaria cases and associated household socio-economic factors in flood-prone areas of Mbire district, Zimbabwe. GeoJournal (2021). https://doi.org/10.1007/s10708-021-10505-3
- Mavhura E, Manyangadze T (2021). A comprehensive spatial analysis of social vulnerability to natural hazards in Zimbabwe: Driving factors and policy implications,
- International Journal of Disaster Risk Reduction, 56, https://doi.org/10.1016/j.ijdrr.2021.102139.
- Mavhura, E., Manyangadze, T. & Aryal, K.R. Perceived impacts of climate variability and change: an exploration of farmers' adaptation strategies in Zimbabwe's intensive farming region. GeoJournal (2021). https://doi.org/10.1007/s10708-021-10451– 0
- Mavhura, E., Manyangadze, T. & Aryal, K.R (2021) A composite inherent resilience index for Zimbabwe: An adaptation of the disaster resilience of place model. International Journal of Disaster Risk Reduction, Vol 57, https://doi.org/10.1016/j.ijdrr.2021.102152.




Books that were published (left) Building Resilience to Natural Disasters in Populated African Mountain Ecosystems (right) Revision of Zimbabwe Agroecological Zones

# University of Development Studies (UDS) Ghana

**http://www.uds.edu.gh/ktcsr**

The Kazuhiko Takeuchi Centre for Sustainability and Resilience (KTCSR) is a research Centre in the University for Development Studies (UDS). It was established as a Research, Development and Extension Centre for issues of Sustainability and Resilience in Climate and Ecosystem Changes and Disaster Risks Reduction.

During the period of January to December 2021, these were the activities undertaken by KTCSR ;

**Workshop under the sub-theme Floods, Livelihood and Migration in Northern Ghana**.

The Kazuhiko Takeuchi Centre for Sustainability and Resilience (KTCSR) at the University for Development Studies (UDS) in collaboration with the Friedrich-Ebert Stiftung Ghana Office of Economic Policy Competence Centre (FES-EPCC) and the Youth Advocacy on Rights and Opportunities (YARO) held a one-day Workshop at the Climate Change and Migration Conference in the Savanna Region, at the Wuripe and Sons Royal Lodge, Bole. The workshop which brought together stakeholders from different fields to discuss the issues of climate change and its effects on livelihoods was under the sub-theme "Floods, Livelihoods and Migration in Northern Ghana". This was in response to the issue of climate migration and how the phenomenon has threatened the livelihoods of people and caused movements from especially the rural areas to urban areas in search of better opportunities. The topics discussed at the conference, facilitated by the resource persons include; Climate sustainability actions in northern Ghana and its implications on migration; Causes, impacts of flood risk adaption in northern Ghana, and Flood risk management governance and resilience. The resource persons were Dr. Hamdiyah Alhassan, Director of KTCSR - UDS, Prof. Francis Obeng, UDS, and Prof. Ebenezer Owusu-Sekyere, Institute for Distance and Continuing Education (IDCE) – UDS. Also, present at the event were representatives from the Ghana Meteorological Agency, the National Disaster Management Organisation (NADMO), Environmental Protection Agency, WASCAL, Ghana Immigration Service, youth groups, traditional leaders and Assembly members. Link: https://uds.edu.gh/news/ktcsr-organizes-a -one-day-workshop -on-environmental -drivers- of-migration-at -the-climate-change-and -migration-conference

Dr. Hamdiyah Alhassan

Director

Email: ahamdiyah@uds.edu.gh

**Events**

- Dr. Hamdiyah Alhassan presented at the Women in Economic Transformation forum at Golden Tulip Hotel, Kumasi, Ghana on the environmental effects of the future of work on 22nd -23rd October, 2021.

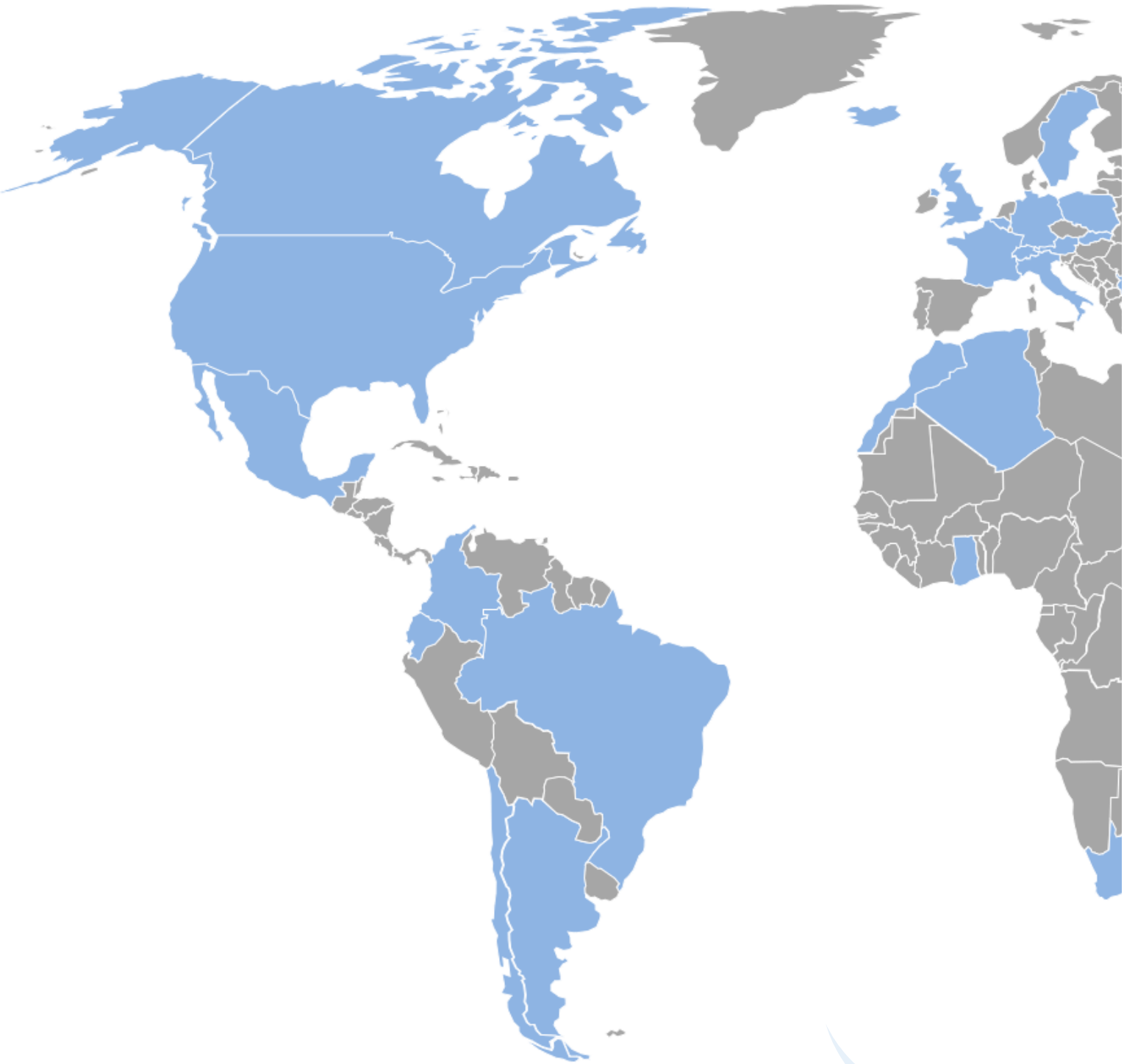
**Publications:**

- Owusu-Sekyere, E., Alhassan, H., and Jengre, E. (2021). Urban growth, fuel service station disasters and policy compliance in Ghana. *Ghana Journal of Development Studies*, 18(2), 25 47. DOI//http://dx.doi.org/10.4314/gjds.v18i2.2.

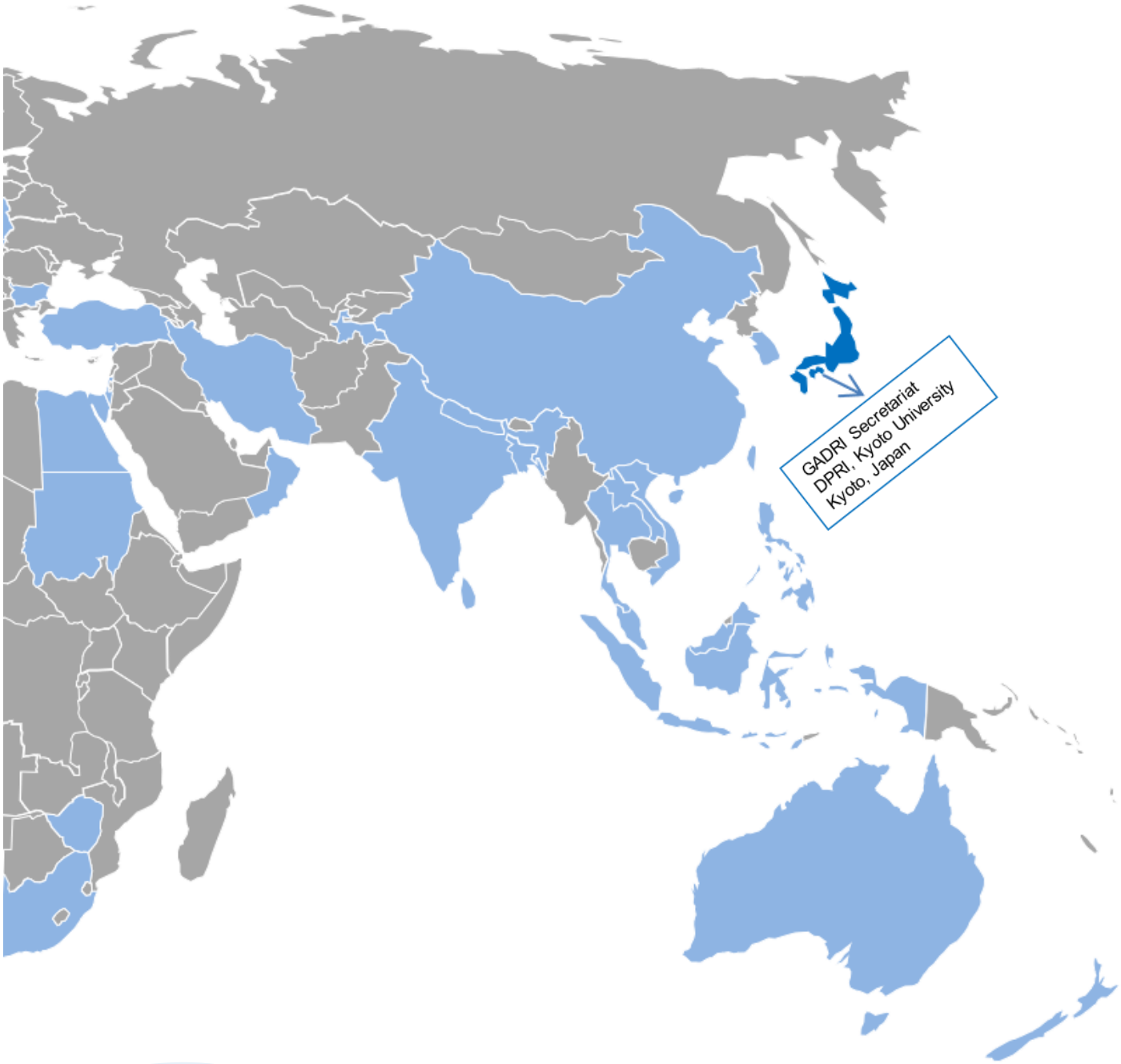
- Gbangou, T., Slobbe, E., van, Fulco, L., Kranjac-Berisavljevic, G., Paparrizos, S. 2021. Harnessing Local Forecasting Knowledge on Weather and Climate in Ghana: Documentation, Skills, and Integration with Scientific Forecasting Knowledge. *Weather, Climate and Society*, 13,23-37, DOI: 10.1175/WCAS-D-20-0012.1, http://journals.ametsoc.org/wcas/article-pdf/13/1/23/5019907/wcasd200012.pdf

Group photograph at the Workshop

# Geographical Distribution of



# Members of GADRI as of 31 December 2021




GADRI Secretariat, Disaster Prevention Research Institute (DPRI), Kyoto University, Japan

GADRI
Global Alliance of Disaster Research Institutes

# GADRI SECRETARIAT

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