

Report of the IRDR 2021 International Conference

Prepared by IRDR-IPO, 12 October 2021

1. The Conference

Follow up the decision of 24th and 25th Sessions of IRDR Scientific Committee, IRDR 2021 International Conference “**Advancing Risk Science for Development: 10 Years of IRDR -- Building a new risk research agenda for 2030 and beyond**” was held during 8-10 June 2021. The Conference has six pre-sessions during April - May 2021. The complete and specific information on the organization of the Conference, the background and rationale, and agenda of both the main Conference and the six pre-sessions are available at the IRDR web site: <http://conference.irdrinternational.org/>

2. Conference objectives and the setting of the sessions

The overall purpose of the IRDR 2021 Conference is to reach a renewed consensus on the mission of STEI and put forward a novel proposal on the Global Research Agenda for disaster risk reduction and risk-informed development toward 2030 and beyond.

2.1 To this end, the Conference had provided a dual structure of Main Conference during 8-10 June 2021 (three hours each day) and Pre-sessions during April-May 2021. The Main Conference (Table 1) consisted of Opening Session and Closing Session, 3 Main Sessions and 3 Keynote Sessions.

Table 1 Structure of Main Conference

Day 1, UTC 11:00-14:00, 8 June 2021	Day 2, UTC 11:00-14:00, 9 June 2021	Day 3, UTC 11:00-14:00, 10 June 2021
Opening Session 1. Opening remarks 2. Launch of <i>IRDR Compilation 2010-2020</i>	Main Session 2: <i>Global Research Agenda on DRR</i>	Keynote Session 2: Knowledge in action
Keynote Session 1: The changing landscape of DRR and risk dynamics	Main Session 3: Insights and reflections on <i>Global Research Agenda on DRR</i> and the implementation	Keynote Session 3: Challenges and Opportunities for Cooperation
Main Session 1: IRDR achievements and lessons learnt		Closing Session 1. Conference Summary 2. Closing remarks

The Opening Session set the tones for the Conference in terms of IRDR’s relevance, added values and need for cooperation under the new DRR landscape. It launched *the IRDR Compilation 2010-2020: A Ten-Year Science Quest for Disaster Risk Reduction* (IRDR Compilation hereafter), which was the summary of work of the entire IRDR community in the last decade. For all who have participated in IRDR, or interested in this programme, the IRDR

Compilation provides a well-structured and most comprehensive summary of its achievements, experiences, lessons learnt and suggestions for the future cooperation.

The Closing Session soft-launched *the A Research Agenda for Global Science in Support of Risk-Informed Sustainable Development and Planetary Health* (Global Research Agenda hereafter). This document was expected to be submitted to the 2nd General Assembly of ISC in late 2021 for endorsement.

The three Main Sessions provided space to have relook on and discuss about the IRDR achievements and lessons learnt, the insights from IRDR community toward the Global Research Agenda and observations from multi-stakeholders. The three Keynote Sessions were instrumental in providing with the IRDR community with new knowledge, insights and experiences towards the changing landscape of DRR and risk dynamics, how to improve DRR knowledge in actions, as well as the challenges and opportunities for future cooperation.

2.2 The six Pre-sessions brought forward very important perspectives of DRR research from different regions and sub-regions that have diverse DRR dynamics, and from thematic or cross-cutting DRR areas or research groups including young professionals and industries in DRR. The suggestions and recommendations from these Pre-sessions constituted timely input as well as part of the wide consultation process, toward the Global Research Agenda and its future implementation. The topics of the Pre-sessions are displayed in Table 2.

Table 2 Pre-sessions of IRDR 2021 Conference.

Session Title
<p>Latest frontier and application of Health-EDRM within the scope of COVID-19</p> <p>Organizer: Collaborating Centre for Oxford University and CUHK for Disaster and Medical Humanitarian Response (CCOUC), The Chinese University of Hong Kong; IRDR ICoE-CCOUC</p> <p>Co-organizers: Integrated Research on Disaster Risk (IRDR); CUHK Centre for Global Health (CGH); CUHK JC School of Public Health and Primary Care (SPHPC); GX Foundation</p>
<p>Climate change and One health</p> <p>Organizer: IRDR ICoE on Risk Interconnectivity and Governance on WEather/Climate Extremes Impact and Public HEalth (RIG-WECEIPHE), Fudan University</p> <p>Co-organizers: Integrated Research on Disaster Risk (IRDR), IRDR CHINA, WMO/IGAC MAPAQ Asian Office Shanghai, WHO Collaborating Centre for Health Technology Assessment and Management</p>
<p>ANSO-DRR consultation (close door)</p> <p>Organizer: Alliance of International Science Organizations on Disaster Risk Reduction (ANSO-DRR)</p> <p>Co-organizers: Integrated Research on Disaster Risk (IRDR); Institute for Disaster Management and Reconstruction, Sichuan University - The Hong Kong Polytechnic University</p>
<p>Risk Science for Resilient Cities - From Concept to Action</p> <p>Convened by: IRDR ICoE-SEADPRI-UKM, UNDRR Asia Pacific Science Technology Academia Advisory Group (AP-STAG) and Asian Network on Climate Science and Technology (ANCST)</p>

Supported by: UNESCO Youth and Young Professionals Group on Disasters, International Science Council – Regional Office for the Asia Pacific (ISC-ROAP) and the Academy of Sciences Malaysia

Promoting Coherence among Disaster Risk Reduction, Climate Change Adaptation, and Sustainable Development by Establishing an “Online Synthesis System (OSS)” and Fostering “Facilitators” using OSS

Organizers: IRDR NC Japan; Science Council of Japan

Global Research Agenda on DRR - Perspectives from Africa

Organizers: IRDR ICoE for Risk Education and Learning (IRDR ICoE-REaL), PERIPERI U Secretariat, Stellenbosch University, South Africa

2.3 The setting of the Conference sessions and Pre-sessions ensured strong geographic balance and gender balance, and full engagement of young DRR professionals. College students from Horizon Global Youth Development Program of Tsinghua University volunteered to facilitate the communication and outreach of the Conference.

3. Organisation

The roles of organisation team include sponsors, supporters, organising committee, hosts, partners, coordination team, and Secretariat.

- **Sponsors:** International Science Council (ISC), United Nations Office for Disaster Risk Reduction (UNDRR), China Association for Science and Technology (CAST)
- **Supporters:** Chinese Academy of Sciences, Chinese Academy of Social Sciences, The World Academy of Sciences
- **Organising Committee:** IRDR Scientific Committee, and representatives of ISC, UNDRR and CAST. The Organizing Committee is responsible for the overall design of the Agenda, identification of the speakers and moderators and provides operational guidance to the Conference Secretariat.
- **Hosts:** IRDR International Programme Office, Aerospace Information Research Institute of Chinese Academy of Science, China Centre for International Science and Technology Exchange, IRDR National Committee of China
- **Partners:** IRDR National Committees and International Centres of Excellence, partners in ISC and UN families, private sectors and civil society organisations, the Horizon Global Youth Development Program
- **Coordination Team:** Riyanti DJALANTE (Chair of the Conference), Virginia JIMENEZ, Mahefasoa RANDRIANALIJAONA, Anne-Sophie STEVANCE, Jenty KIRSCH-WOOD, Tsuguki Ishio, YIN Lin, John HANDMER, CHEN Mingmei, CHEN Fang, HAN Qunli (Head of Secretariat). This Coordination Team was set up to deal with the routine preparation decisions of the Conference.
- **Secretariat:** SUN Yue, YANG Shuang, LU Yisha, LANG Lang, LIAN Fang, Michael BOYLAND. HAN Qunli led the Secretariat in liaison with the above bodies.

4. Participation

426 participants from 80 countries and regions attended the IRDR 2021 Conference (Figure 1), there were in total over 2.63 million views of live streams via Facebook and Twitter for 3 days. The roles of participants according to the registration record included academic researchers, decision-makers, practitioners, funding agencies, private sectors and other stakeholders in DRR. The young professionals, especially the IRDR young scientists, played important roles in the organisation and discussions in this Conference. The participants presented, discussed and worked towards advancing risk science for development safety.

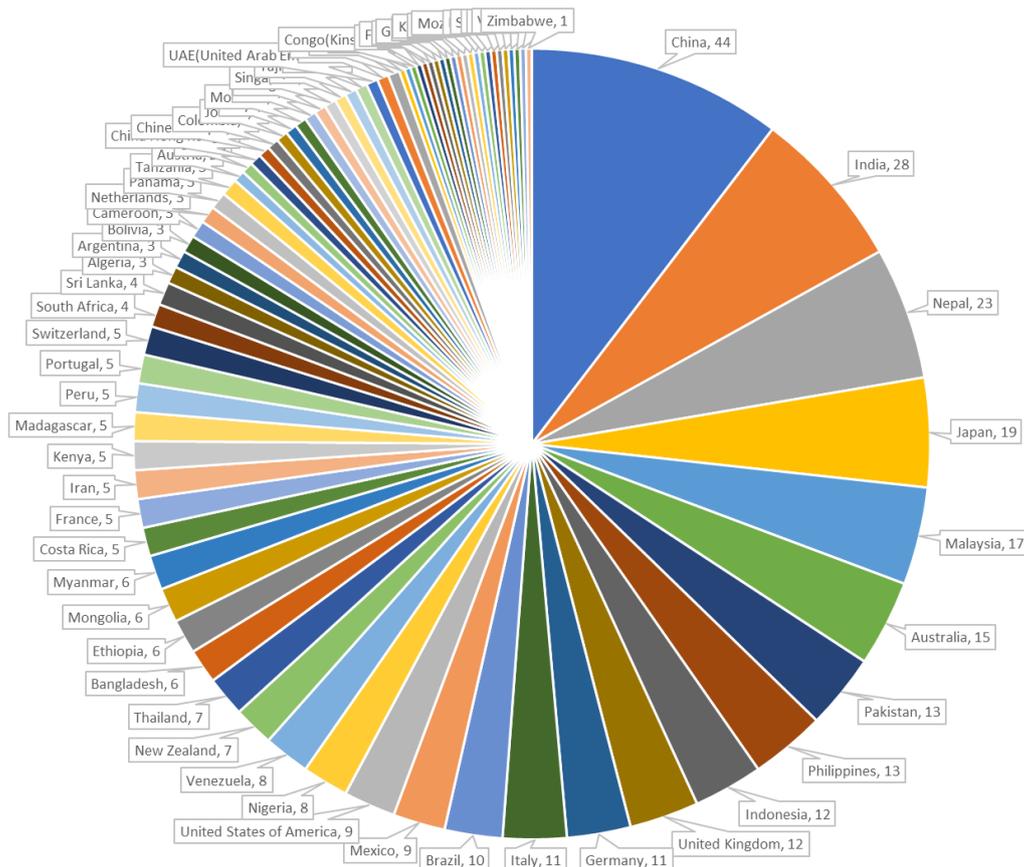


Figure 1 Participants of IRDR 2021 Conference

5. Outcomes and key messages from the Conference

The summary of the Main Conference was facilitated by the Organising Committee of the Conference and IRDR young scientists. The reports of the Pre-sessions were also presented by the corresponding organizers in the main session. All the materials of the conference can be downloaded at <http://conference.irdrinternational.org/>.

5.1 On the Changing Landscape of DRR and Risk Dynamics

- Complexity is our new normal. Risk is interlinked between sectors, temporal, spatial scales.
- Evidence shows the interconnectedness and complexity of risk, and systemic risk has emerged as a bridging concept across disciplines and sectors.
- Multiple tipping points are approaching due to the climate change and extremes.

- A new hazard definitions and classifications has been established and launched by UNDRR/ISC Terminology Technical Working Group.
- Monitoring and reporting of hazards and risks remain difficult and will be one of the key priorities of the new Global Research Agenda on DRR.
- Data and data technology enhance the progress of the implementation of SDGs and Sendai Framework with contributions to the monitoring the indicators.
- International organisations and programmes such as IRDR, Risk KAN, International Research Centre of Big Data for SDGs play important roles in enhancing understanding around emergent risks and synergy in Sendai, Paris, SDG implementation.

5.2 On Knowledge in Action

- A roadmap to unleash the potential of young DRR professionals for implementing and enhancing SFDRR goals includes improving:
 - institutional and financial support;
 - engagement, inclusion, and fundraising strategies;
 - increasing opportunities for collaboration;
 - data and technology accessibility.
- Knowledge co-production, science-entrepreneurship, and last-mile connectivity is key to address disciplinary gaps; north-south gaps; knowledge gaps in cascading, systemic and complex risk scenarios; and knowledge application gaps.
- Innovation encompasses descriptive and normative aspects as well as concepts of technology push and capacity pull. We need to further address capability gaps to prioritize innovation that responds closely to user needs

5.3 On the Challenges and Opportunities for Cooperation

- The planet is on 'red alert' and the society is far off-track on the SDGs. A business-as-usual science cannot deliver the science we need for our basic needs of food, water, urban areas, energy& climate, health & wellbeing.
- A new mission-oriented science framework was proposed and introduced for societal transformation, with transdisciplinary heart of 3Co (Co-design, Co-Production and Co-delivery/implementation), to bring together political leverage, societal influence, engaged governments, the private sector and all funders. More discussions needed for the implementation.
- Insurance can provide protection against various risk and enable sustainable growth over time, yet the world is under-protected against major risks.
- Re/insurance can reduce risk impacts by providing financial support for recovery and help increasing society resilience along the entire process.
- Very limited opportunities for young professionals to communicate with related DRR stakeholders due to lack of funding, supports, etc. Young professionals are lack of transdisciplinary training.

- Science and business are on different tracks. Ways should be developed to connect them.

5.4 On IRDR Achievements and Lessons learnt

- Efforts have been made to attach greater importance to scientists in the process of decision-making.
- A centralized data ecosystem for hazard, exposure and vulnerability data are needed, and it needs to be useful, usable and used.
- A 5Ps (PhD, Products, People, Passion, Performance) idea was conceived in order to move YSP forward.
- Scenarios of multi-hazard interrelationships in time that include anthropogenic processes and dynamic vulnerability has been developed.
- Regional community resilience strategy tries to develop social capital that can have benefits in everyday life, not just when disaster strikes.
- Science-Technology- and/or scientific data- and/or evidence-based DRR and decision-making is important and should be moved forward.
- The ethical issues related to expertise and risk management and regulation must be taken into account.
- Greater connectivity and collaboration among NCs should be strengthened.

5.5 Insights on Global Research Agenda and its Implementation

A new Global Research Agenda on DRR, led by ISC, UNDRR and IRDR Scientific Committee, was presented and discussed, focusing on i) science and risk contexts, ii) rationale for a new agenda, iii) process of development, iv) emerging research priorities, and v) pathways to impact. As a result of its iterative and consultative development process, the Agenda reflects diverse, multi-disciplinary perspectives, and different aspects resonate with a wide range of stakeholders.

Panellists acknowledged and applauded the explicit focus on key challenges including bridging the knowledge-to-action gap, breaking the hegemony of science, engaging the private sector, addressing justice and equity dimensions of risk, and elevating voices from the Global South. There is a need for science to inform more transformative governance, for instance through trans-disciplinary and multi-stakeholder knowledge co-production, which should be reflected in the Agenda implementation and operationalization.

Not just about the document, but how we learn and take forward its ideas, for Sendai implementation and beyond. We see the Agenda as a starting point and inspiration for thinking, framing, collaboration, and finding solutions to risk. DRR is everyone's business, and we hope the Agenda will help take that message forward.

A collaborative, multisectoral, and transdisciplinary approach - working at the local, regional, national, and global levels for building resilient communities and for better implementation on Global Research Agenda on DRR:

- Scientists and researchers need to translate their findings into citizen and decisionmakers language
- Involvement of engineering into the DRM
- The potential of youth and young professionals for contributing to risk science
- There also needs to push for more openness in terms of data

- Collaboration of IRDR Network
- Bottom up citizen engagement in Health-EDRM since COVID19

New thinking on hazards and systemic, cascading and complex risk has been discussed with the framework of Priority 1 and Priority 4 of the new Research Agenda. Firstly, biological hazards compounded with other hazards or systemic have raised the need for risk to be reconceptualized. There is a strong relationship between climate and health risk that have been identified. There is a non-linear transition of biological hazards that yet to be reflected in disaster risk management. Therefore, understanding the interconnectivity of risks associated with climate change should be an essential component of priority 4. In addition, urban health, not only for this pandemic but for the longer term, is also important, especially in the context of resource sustainability. For example, measuring risk in cities struck by natural disasters such as earthquakes and ways to reduce it with governance and technology is one aspect that requires improvement. Furthermore, as social factor exacerbates disaster risk, how to effectively integrate the social element such as coping capacity in the risk assessment process and reflect it in the risk management strategy requires focus from natural and social scientists.

For Priority 3, we need to enable transformative governance and action to reduce risk, and innovative mechanism under which non-traditional stakeholders can be integrated into disaster planning, response, and recovery policies. We need to encourage and leverage community participation and leadership within research frameworks. Stakeholders such as the media are important. COVID-19 has brought up gaps in terms of effective information dissemination and there has been spread of misinformation.

Open data and open sciences are important to DRR. It is essential to priority 5 and 9, harness technologies, innovations, data and knowledge for risk reduction and foster trans-disciplinarity and multi-stakeholder collaboration for solutions to risk challenges. One thing brought to our attention is that communities facing frequent hazards have a wealth of non-traditional wisdom that can facilitate research methods and research outcomes within the disaster landscape. Examples have been provided such as the implementation of OSS from Japan and other countries. The design of facilitators and their communication between governmental sectors, enterprises and research institutes have successfully provided the solution to the local DRR.

In addition, enterprises are also very important, especially for harnessing technologies, data and knowledge for risk reduction. Regarding the multi-stakeholder collaboration, there should be a new strategy to strengthen the communication between governmental sectors, enterprises, and research institutes and promote risk informing applications.

To better support regional and national science and knowledge for policy and action as identified in priority 6. First, it is required to raise research capacity and capability, especially for locally/policy-relevant research that needs to align with the development needs and risk priorities of the country/local communities. Risk science and indigenous knowledge could act as an enabler of transformative governance and actions to reduce risk.

6. Photos of Conference



Figure 2 Post of the Conference



Figure 3 Peter Gluckman in Opening Remarks



Figure 4 Jinpeng Huai in Opening Remarks



Figure 5 Riyanti Djilante in Opening Remarks