IRDR Online Workshop
UTC 8:00-9:30, 4 May 2023

Summary

New Technology vs Disaster Risk Reduction: Opportunities and Emerging Risks

1. IRDR organised the online workshop, which entitled "New Technology vs Disaster Risk Reduction: Opportunities and Emerging Risks", on 4 May 2023, from UTC 8:00-9:30. The workshop served as an initial expert meeting that starts the discussion on the Priority 5 of the Global Research Framework. The workshop is also the first pre-session of IRDR 2023 Conference. The concept note of this workshop is attached as the Appendix 1.

2. Qunli Han, the Executive Director of IRDR, served as the moderator of this workshop. He started the workshop by welcoming the participants and introducing the rationale, the agenda and the speakers of this workshop.

3. Jenty Kirsh-Wood, the Head of Global Risk Management and Reporting, UNDRR, delivered the opening remarks. She pointed out that the new technology and data provide opportunities to make risk reduction more effective and more able to reach those in need, while they also generate new challenges and risks. She underlined that the importance of participatory approaches to make sure difference voices are heard in this fast development context. She welcomed the workshop discussion at this conjuncture of Mid-Term Review of Sendai Framework and the start of implementation of the Global Research Framework.

4. Xianhong Hu, Programme Specialist of UNESCO and the Secretariat of Information for All Programme (IFAP), presented "UNESCO's humanistic approach to information ethics: why it matters and how to bridge AI divides".
   - UNESCO Recommendation on the Ethics of AI is the first global framework to guide the ethical use of AI. The core of the UNESCO recommendations is "human-centred AI", which underscore four humanistic values and ten principles that should be operationalized in forms of policies and actions.
   - AI, especially the generative AI, brought the potentials as well as risk. There are four major ethical issues for generative AI, namely human oversight and determination, responsibility and accountability, data privacy and protection, transparency and explainability.
   - In order to oversight the global AI development to minimize the new divides and challenges related, UNESCO recommended ROAM-X indicators, namely human rights, openness, inclusive access, multistakeholder approach, crosscutting AI issues with gender and Africa.

5. Bapon Fakhruddin, IRDR SC member and Water Sector Lead of Green Climate Fund,

presented "Cross-Domain Data Interoperability Framework for Disaster and Climate Risk Reduction".

- The systemic risk with complex impacts attributes challenges to the DRR dataset. The dataset, which consists of many domains that are interconnected, need to be reliable and accessible. There are barriers to data interoperability. Scientists proposed the FAIR principles to advance the cooperation on cross-sectional data policy and practice.
- Data possess an inherent value chain, which is important for DRR actions. The data should be collected and managed properly to create impacts in each phase of DRR scenarios. Therefore, the data baselines as well as standards are required.
- Data and digital technology can help with understanding risk and providing useful information for decision making. However, regarding the data maturity, DRR still in the traditional stage compared to other industries. DRR data needs to be upgraded into an integrated system and be transformative, adaptive, absorptive, anticipative and preventative to achieve the governance of risk and resilience.

6. Maxime Stauffer, CEO of Simon Institute for Longterm Governance, presented "Existential Risk and Rapid Technological Change: Advancing Risk-informed Development".
    - From the long-term perspective, the technology development may create new and extreme hazards. Under the large-scale and extreme scenarios, the rapid technological change may fertilize drivers of the existential risk, such as nuclear power and biotechnology.
    - Language is core to knowledge, production, and exchange. Knowledge is the core to actions and coordination between societies. Rapid technological change, such as AI, may alter the way that human society use knowledge and the way information spreads, and thus may escalate into an existential risk if we fail the needed governance.
    - Reactive governance is the core vulnerability since the development rate of regulation is slower than risk data and much slower than technology itself. In order to reduce the extreme risk, three improvements for the implementation of Sendai Framework are proposed, in particular the focus on technological hazards.

7. Jianhui Li, Vice President of CODATA and Executive Director of CODATA GOSC, presented "Advancing open science infrastructures for disaster mitigation".
    - Open infrastructure is one of the four pillars of open science. The Global Open Science Cloud (GOSC) is an initiative to enable such service capacity. The CSTCloud and CASEarth supported by GOSC have provided open data sources, open services, and open-source tools to benefit practitioners working on SDGs and DRR.
    - The DRR community should embrace open science and e-infrastructures in their research efforts. To this end, IRDR and GOSC have started the development of such e-infrastructure and a prototype of DRR in GOSC will be online soon in 2023.
    - The training for young scientists and the researchers from developing countries is essential for success of open science and open e-infrastructure.

8. Li Pan, Executive Director of AI & Big Data Working Group of WFEO-CEIT, presented "*An*

Open Cocktail of Engineering, AI, DRR…".

- The generative AI will transform how people live and work, meanwhile has created concern and fears. However, the provably safe and benefit AI is desirable and also possible. We need to face this AI New Era confidently and positively.
- WFEO calls for promoting responsible conduct of Big Data and AI innovation and application in Engineering. In order to accelerate the development of AI with human values for sustainable development, WFEO recommends to promote international and interdisciplinary cooperation, and international dialogue to reach a global consensus on AI, and to improve AI education and literacy to ensure "leave no one behind".

9. Shiling Xu, Lecturer from International Academy of Red Cross & Red Crescent, Soochow University made her interventions from the perspective views of humanitarian actions in DRR:
    - The emergency response requires timely data for rescue operations and decision-making. However, the current telecommunication infrastructures cannot meet the needs. It is desired that technology advancement can help to deal effectively with the qualitative information of multiple categories during disaster response, that are often with much ambiguity, fragmentation, contradiction, lacuna, at the community level.
    - The positive phenomena have been observed that technology have massively changed social behaviour and consequently changed public reaction and simultaneous actions during disaster response. Examples are the social media on data collection and digital purchasing platforms on relief and donation patterns.

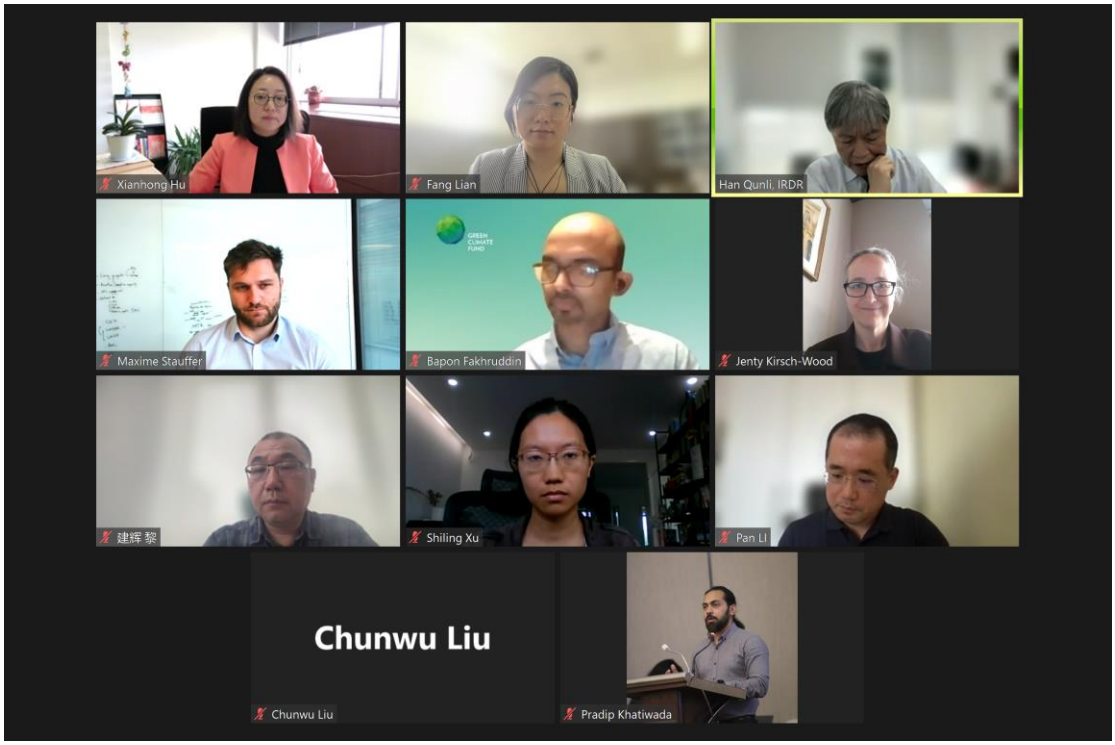
10. Pradip Khatiwada, Executive Director of Youth Innovation Lab made his interventions from the perspective views of young professionals' effort on data sharing:
    - The integrated disaster information management system can unlock the data sharing and the data partnership mechanism with the government. The experimentation in Nepal has been a successful one.
    - The challenges are how to utilize these technologies for good and how to better interlink the power of citizen science. The training on the use of new technology can empower the young people at the local municipalities, which some transformations have been observed in the understanding of risk and the decision-making in DRR.

11. In the Q&A and discussion session, the speakers and the participants shared the new reports, services and platforms of big data, open science infrastructures and new technologies. The questions and challenges that how new technology and data can further contribute to DRR especially the early warning systems were raised.

12. The moderator summarized the workshop with sincere thanks to all speakers and participants. He underlined the need to continue the discussion under this important topic in line with the Priority 5 of Global Research Framework. Technologies are providing great and new services and tools for DRR, and international community must act to maximize

the benefits for common interest. At the same time, the international community need to guard the lines and boundaries of technology advancement in order to ensure such development is human-centred and for public good. Science and technology development must contribute toward an inclusive, safer and sustainable future.

13. This workshop had 365 registrants with final 108 attendees from 52 countries. The record and this summary of this workshop is available at IRDR website: [Summary on IRDR Workshop on New Technology vs Disaster Risk Reduction: Opportunities and Emerging Risks- IRDR (irdrinternational.org)]



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Appendix:

Concept Note of IRDR Online Workshop

New Technology *vs* Disaster Risk Reduction: Opportunities and Emerging Risks

Rationale and Objectives:

A Framework for Global Science in support of Risk Informed Sustainable Development and Planetary Health (ISC-UNDRR-IRDR, 2021, hereafter as the Research Framework) identified nine research priorities for cooperation. To advance the implementation of the Research Framework, IRDR will organize a series of workshops in 2023 to further discuss the implications of priority setting and the lines of actions for DRR community. This workshop will focus on Priority 5 "Harness technologies, data and knowledge for risk reduction". As stated in the Research Framework, rapid technological advances in the areas of artificial intelligence, digitalization and analytical capacity and the very widespread adoption of mobile devices and social media are driving major changes in our lives and have the potential to contribute to risk reduction and the development of Open Science. Successful cases can be found in DRR efforts such as the development of multi-hazard early warning systems, assessment of climate change impacts, and access to DRR information services. Recently, the launch of ChatGPT and its service has raised intensive discussion on its potentials, applications and impacts on the development of society. There is a growing concern that new risks, systemic vulnerabilities and new forms of inequalities can also be created from the misuse or unintended consequences of the technology. Understanding and managing technology advancement is therefore a key part of global resilience building and development safety.

This workshop is an initial expert meeting that starts the discussion on the Priority 5. The overall objective of this workshop is to bring together experts in the field of DRR, technology, and policy to discuss the opportunities and emerging risks associated with new technologies. The workshop aims to provide a platform for participants to share the insights, knowledge and experiences to identify the new opportunities harnessing the technology for the benefits of communities in DRR and to articulate the new challenges in forms of development risks, and to elaborate the specific suggestions and recommendations for intersectoral and interdisciplinary collaboration and practice. The output of this workshop will be a concrete contribution to the implementation of the Research Framework and the inputs toward IRDR 2023 Conference.

Key questions to be addressed:

- What are significant impacts of the technology advancements to DRR both as the opportunities and emerging risks?
- How can DRR community maximize the benefits of new technologies especially in forms of knowledge integration and information service?
- What other key measures and actions should be taken to reduce the digital inequalities and systemic vulnerabilities?

Expected outputs:

- The outline of IRDR Special Report on the overall implications of new technology advancement in DRR, evidenced by the contributions and case studies, key insights, as well as suggestions and recommendations for further actions and collaborations.
- The concept and research targets for IRDR Work Stream on the Priority 5.
- Suggestions for IRDR Pilot Studies or technical task force.

Participants:

The workshop is made for the participation of experts from DRR communities, technology industries, policy makers, as well as representatives of international organizations committed to Sendai Framework and Open Science.

Date and Time:

The workshop will be at UTC 8:00-9:30 AM, 4 May, 2023.

Structure:

The workshop will take the form of online panel and will last for 90 minutes. The structure is as following:

- Brief opening by ISC/UNDRR/IRDR (5 min in total)
- 5 panelists (8 min each, 50 min in total)
- 2 discussants (5 min each, 15 min in total)
- Q&A and discussion from the audience (15 min)
- Summary by the moderator (5 min)

Organized by:

Integrated Research on Disaster Risk (IRDR), Global Open Science Cloud (GOSC)

Supported by:

International Science Council (ISC), United Nations Office on Disaster Risk Reduction (UNDRR)

Registration Link:

https://us06web.zoom.us/meeting/register/tZYucOGqpzgpE90y0c-jvA4TPhvgDJiMWC-G