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2nd Integrated Research on Disaster Risk Conference - Integrated Disaster Risk Science: A Tool for Sustainability¹

June 7-9, 2014 Beijing, P.R. China

Organised by: Integrated Research on Disaster Risk Programme and China Association for Science and Technology
(<http://www.irdrinternational.org/conference-2014/>)

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Abstract – The IRDR Conference 2014 encouraged researchers, politicians, practitioners, funding agencies and disaster risk reduction-related organisations to discuss and develop ways to better integrate disaster risk science into policy, practice and sustainability. The format of the Conference will be a series of plenary sessions dealing with the challenges of implementing integrated research, inter-organisational collaboration, and policy, as well as the interaction with sustainable development activities. The sessions will address the range of environmental hazards, vulnerability, and sustainability in both global and local contexts.

Keywords – *disaster risk reduction, hazard science, integration, resilience, HFA2*

1. Introduction & Context

The Integrated Research on Disaster Risk (IRDR) Programme, in partnership with the China Association for Science and Technology (CAST), hosted the 2nd Integrated Research on Disaster Risk Conference from 7 – 9 June 2014 in Beijing, China. The theme was “Integrated Disaster Risk Science: A Tool for Sustainability”, and the conference placed emphasis on the importance of science as a tool to address hazard risks, integration and partnership. A key cross-session discussion considered the influence of science in the Hyogo Framework for Action (HFA) amid preparations for the World Conference on Disaster Risk Reduction (WCDRR) in Japan.

The IRDR programme is a ten-year research initiative. The IRDR office is funded by the China Association for Science and Technology (CAST); and hosted at the Institute of Remote Sensing and Digital Earth (RADI), Chinese Academy of Science (CAS)(ICSU, 2008). Research and project funds come from a variety of international sources. According to IRDR (2012, p.5), the programme is:

...co-sponsored by the International Council for Science (ICSU), the International Social Science Council (ISSC), and the United Nations International Strategy for Disaster Reduction (UNISDR). It is a global, trans-disciplinary research programme created to address the major challenges of natural and human-induced environmental hazards. The complexity of the task is such that it requires the full integration of research expertise from the natural, socio-economic, health and engineering sciences as well as policy-making, coupled with an understanding of the role of communications, and public and political responses to reduce the risk.

The conference was co-organized by the China International Conference Center for Science and Technology (CICCST), IRDR China IRDR National Committee, ICSU, ISSC, and UNISDR. The event was sponsored by the International Journal of Disaster Risk Science and the CAS, through RADI.

¹This article is a summary of the above mentioned conference with a special focus on proposed elements for consideration in the Post-2015 Framework for Disaster Risk Reduction.

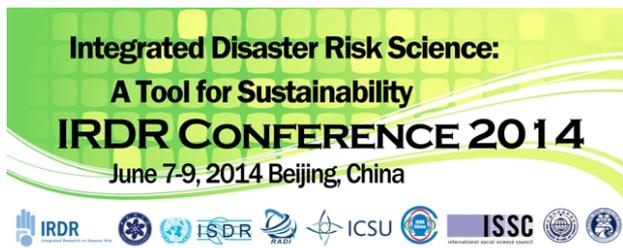


Figure 1: IRDR Conference Logo

2. Conference Aims & Objectives

2.1. Profile of participants

Participants in the 2014 IRDR Conference included researchers, politicians, practitioners, funding agencies and disaster risk reduction-related organisations from around the world. There were more than 200 participants present, representing more than 50 countries. These participants also included more than 30 early career scientists. Conference participants discussed, debated and worked towards developing ways to better integrate disaster risk science into practice, policy and sustainability.

2.2. Major aims and objectives

The Conference consisted of plenary sessions addressing the challenges of inter-organisational collaboration, implementing integrated research, and policy, as well as interactions between disaster risk reduction and sustainable development activities. Keynote topics included: using science to rebuild after Typhoon Haiyan; impacts of thirst on people's behavior and decision making processes; reconstruction from the Great East Japan Earthquake; how science can influence HFA2; the politics of disaster recovery; and the role of disaster risk reduction in the upcoming Sustainable Development Goals. The final keynote was a panel discussion to look at the relationship of science and the media. Panelists for this plenary represented the science community, media, higher education, and international organizations. The conference also included a number of breakout sessions that discussed a range of environmental hazards, vulnerability, and sustainability in both global and local contexts. Specific breakout sessions are displayed in Table 1.

3. Outcomes & Contribution towards the Post 2015 Framework for Disaster Risk Reduction

Notes were taken throughout the conference as a record of the event. This was facilitated by the IRDR Risk Interpretation and Action World Social Science Fellows⁴. During the conference, a simplified thematic analysis of these notes identified a number of cross-cutting themes that were highlighted in the closing conference keynote

speech (IRDR, Closing Speech). We used these to report on the outcomes of the conference, and contributions towards HFA2. While many of the themes overlap across subsections, they have been placed where they are likely to have the most impact. Some of the subthemes are questions that were raised and points to consider for further discussion and research.

3.1. Research in the Post 2015 Framework for Disaster Risk Reduction

- Risk assessment and indexing:
 - How do we formulate standardised risk assessment?
 - How do we estimate risk beyond physical or economic losses?
 - A need for holistic risk assessment, including social aspects.
 - The need to carry out risk assessments (like Global Risk Management surveys) at higher resolution: sub-national and local level.
 - Risk and social vulnerability indices: tools of assessment versus processes for disaster risk reduction?
- Science, decision making and communication:
 - Integrated risk science: The different models, context and data will dictate choice of model (complex / generic) to offer understanding to policy makers.
 - Need to better understand needs of various stakeholders at all levels to deliver effective science, including terminology.
 - Need for research innovations: scenarios, optimisation, predictive models, communication formats and decision approaches.
- Science and uncertainty:
 - The need for a better understanding of the ethics around what is communicated: the concept of transparency (process and data), communication of uncertainty, enabling stakeholders with a complete picture, and practitioners' capacity for uncertainty.
 - Better understanding of how research is accepted by users or policy makers.
- Data and technology:
 - There is a call for more data across groups to guide policy and implementation (including national statistics).
 - We need to identify ways to tackle an increasing diversity and volume of information.

⁴The WSS Fellows took part in a WSS Fellows seminar in December 2013, examining interdisciplinary perspectives on the ways in which people interpret risks and how they respond based on these interpretations. The Risk Interpretation and Action seminar was co-sponsored by the International Social Science Council's WSS Fellows Programme; the Integrated Research on Disaster Risk (IRDR) programme; the IRDR International Center of Excellence, Taipei; the international START Secretariat, and the Royal Society of New Zealand.

Table 1: Breakout Session Titles

Timing	Session Title
Day One, 13.30-15.15	Assessing risk Community disaster reduction Risk Interpretation and Action (RIA) Empowering local officials
Day One, 15.45 – 17.30	Risk reduction and sustainable development Integrated risk sciences Forensic Investigations of Disasters (FORIN) Risk reduction planning
Day Two, 13.30 – 15.15	Water and disasters Science and national politics Indigenous and vulnerable populations Capacity building
Day Two, 15.45 – 17.30	Science and the post-2015 natural hazard agenda Risk indexing Gap between disaster knowledge, policy and practice (Society for Applied Anthropolgy (SFS) Topical Interest Group on Disasters) Data and technology
Day Three, 13.30 – 15.15	Communications and the media Meteorological issues CAS-TWAS ² special session on earth observations for disaster risk reduction in developing countries CODATA ³ session: Opportunities for innovative use of data in disaster research

- Data sharing is a bottleneck for science research in DRR and needs to be addressed.
- Computing and analysis needs advancement in technology and geo-visualisation.
- Should we pay for data?

- Importance of scale - time, geographic and scope:

- Long term strategies result in a higher degree of uncertainty and unknowns
- Short term versus long term assessments of impacts and causes are needed
- Financial and social implications must be considered at all scales
- Goals and planning should incorporate these different ranges of scale
- Forensic analysis, focusing on the event versus the process involved in creation of disasters (IRDR FORIN project) is important to understanding the effect of scale
- Economic impacts are spatially different – especially from the across local scales within a global context
- The appropriate and relevant spatial scale is key to social vulnerability data
- For decision making we need to understand the scales of: individual, local, policy and governance

3.2. Education and training in the Post 2015 Framework for Disaster Risk Reduction

- Education:

- Adopt the community, integrated approach by involving local universities and academics as active

members in their local DRR community.

- DRR education and capacity building that goes from pre-school to higher education.
- Should DRR initiatives and education be distinct separate programs within institutions or integrated through existing curricula?
- Education needs to focus more on students, not just end-users and the public; as they are the future community members and decision-makers.
- We need both broad education in DRR and specific skill training: for communities, government, and researchers.

3.3. Implementation and practice in the Post 2015 Framework for Disaster Risk Reduction

- Types and adoption of knowledge in DRR:

- Acknowledgement that there are different types and adoption practices for assessment, communication, planning, and implementation.
- Additional types and sources of knowledge that should be incorporated in DRR include the local community, indigenous community, and gendered knowledge.
- There is thus a need for more coproduction of science with this knowledge, and identification of methods with which to coproduce this knowledge.
- A need to acknowledge and incorporate existing human activities, environments, and relationships with land.
- Need to include at-risk or “vulnerable” communities and their knowledge into DRR processes.

- Risk reduction, mitigation and planning:

- We need to understand the ‘Complex’ cost-effectiveness of DRR investments
 - There needs to more focus on managing risk rather than managing disaster.
 - Which risk is the priority in a multi-risk environment?
 - It is important to study extreme events, however it must not be done at the cost of regular, reoccurring events or creeping disasters.
- Media:
 - We can involve the media to help us highlight the political obligations for implementation of DRR.
 - There is a strong need for the translation of science and DRR into media language and message.
 - The media challenged the scientists: asking them to identify how we can make DRR enticing to the media at the mitigation and preparation stage, not just at the response and recovery phase.
 - We need to build trusted partnerships with the media prior to an event.
 - Strong science/media relations can be used to systematically build emergency preparedness.
 - Integrated approaches and need to bridge gaps:
 - Adopting integrated risk management is necessary at all levels, from the local through to global.
 - However, what falls under integrated DRR, and what doesn’t?
 - We need to identify and develop tools to drive collaboration and adopt this integrated approach
 - Participation / co-responsibility of all actors to communicate the need for scientific advances, technological progress and social, practical and decision making needs.
 - Our role is our inter- and trans-disciplinarity: but we must identify communities not yet involved in the integrated DRR process.
 - It is vital that the science developed is one that is useful, useable and used is key
 - Water:
 - There are unsustainable water management processes currently on-going in megacities.
 - Government response to supply safe and sufficient water is currently inadequate.
 - Water, food security and drought – these are related within DRR as both primary and secondary (in time) hazards.
- 3.4. *Policy improvement for the Post 2015 Framework for Disaster Risk Reduction*
- Government, policy and planning:
 - It is challenging to integrate global, regional, national, and local level policies and plans but solutions are possible.
 - We need to promote local innovations and knowledge to the policy level
 - The use of stories and narratives, including emotion, may provide a way to engage government and policy makers
 - Informal relations play a very important role in practice, we should acknowledge and develop these.
 - There is a significant gap between policy and knowledge. Better implementation of knowledge is needed.
- Political drivers for science:
 - Political factors frame, surround and result from disasters.
 - * There are many political pressures on the scientific community, to both explain community perceptions of advice, and to support unpopular political decisions
 - Scientists and communities need to involve the media to highlight political DRR obligations.
 - Local communities:
 - Community participation in DRR is vitally important: it provides both an opportunity to listen to, and empower, a community. Collaboration and partnerships are key to building local resilience.
 - Disasters are place-based, thus we must acknowledge the role and impact on communities, as well as the uniqueness of such communities.
 - Communities and individuals can contribute to the data needs of DRR via initiatives such as ‘citizen science’.
 - We must understand how the role of embedded cultural norms in science and policy.
 - Early warning systems: we must consider how early warning systems best suit local communities, and bridge the gap between local communication networks and official pathways for advice and science.
 - Relocation, reconstruction and recovery:
 - Relocation, reconstruction and recovery can be agents for social change and opportunities for action, however they can also create new risks if not adopted in a DRR framework.
 - All recovery should be framed within a social context – history matters.
 - Socioeconomic factors must be considered in relocation.
 - There are financial and social implications of short-term and long-term recovery and reconstruction, which must be better assessed and acknowledged in policy and practice.

- What is the role and appropriateness of relocation as part of DRR policy?
- National and international networks:
 - There is an important role in guiding each other: through the development of a global peer support network in DRR, not just through research but from community to community (“sister” city, village), both nationally and internationally.
 - How do agents at local, national, and international levels communicate and co-ordinate during response and in sharing knowledge pre and post disaster? What is the role of informal relationships within these distributed networks?
 - In developing and establishing science advisory groups, we must identify existing examples of good practice for physical and social science integration and practice as a guide.

4. Conclusions

The aforementioned themes are the conclusions of more than 100 talks and presentations. An issue that was prevalent throughout the event was the need for more integrated approaches. This includes natural and social science integrations; integration of science into policy and practices; as well as the integration of non-traditional knowledge and information into science, policy and practice. The DRR community needs to find ways to adopt such an integrated approach to bridge the current gaps between science, policy, and practice.

As a community, DRR researchers, academics, policy makers and practitioners, need to rapidly contribute to global initiatives including the Post-2015 Framework for Disaster Risk Reduction (March 2015); Sustainable Development Goals (September 2015); and climate change agreements through UNFCCC (December 2015). This needs to be accomplished through integration of DRR into

the new Sustainable Development Goals. This is similar to how DRR is embedded in the Intergovernmental Panel on Climate Change (IPCC) process, and we would like to see the same outcome in the context of the Sustainable Development Goals. Therefore a key message from this IRDR 2014 conference is the urgent need to have DRR included explicitly in the draft of the Sustainable Development Goals including the interrelationship with HFA and HFA2.

Conference Documentation

Material and news releases related to the 2nd IRDR Conference can be found at <http://www.irdrinternational.org/conference-2014/>

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