

King's Centre for Integrated Research on Risk and Resilience (CIRRR) Commentary:

An enhanced role for science in the post-2015 global policy landscape

“we need to think critically about how we represent knowledge, uncertainty and authority, and we must go into this with open eyes concerning our own positionalities” (Amy Donovan)

The *Sendai Framework for Disaster Risk Reduction 2015-2030* offers a prominent role for science in the current and future disaster risk reduction and resilience policy landscape. It calls for governments to mobilise expert knowledge through the creation of partnerships at the local, national, regional and international scales, and establishing Science and Technology advisory groups to feed into the ISDR Sendai process. This is a marked shift from the *Hyogo Framework for Action 2005-2015* in which the systematic positioning of science for informing policy and practice was not so clearly emphasised. This resurgent attention to science within the Sendai Framework is welcomed and reflects the value of evidence-based decision-making in policy.

However whilst the Sendai Framework was agreed in March 2015 at the Third World Conference on Disaster Risk Reduction and ratified by the UN General Assembly in June 2015, the road forward still needs to be defined.

2016 provides a window of opportunity for reconsidering how science and its institutions and the relevant methods and tools used to frame, collect and evaluate data and experience can be used as effectively as possible in policy-making. Science will be most effective in supporting the Sendai Framework, in talking to policy and in data collection, if planned alongside measures to support the United Nations Sustainable Development Goals. The success of this effort will determine how important science is for disaster risk reduction and resilience policy and practice in the post-2015 agenda.

There is much work to be done over the next year to translate the Sendai Framework into action. Guidance on how to implement the framework needs to be developed, definitions of key terms need to be agreed and key actors need to contribute and commit to concrete work plans. Empirical and theoretical scientific research will need to inform this process to ensure quality outcomes.

The role of science in support of Sendai will be the subject of the UNISDR *Science and Technology Conference* on the implementation of the *Sendai Framework for Disaster Risk Reduction 2015-2030* in Geneva from 27 to 29 January 2016. This conference will bring together the full diversity of the science and technology community, policy makers, practitioners and researchers from all geographical regions, at local, national, regional and international levels. Still it is far from clear if a reflective and critical view of science will be voiced at this conference. Worst of all would be a congratulatory tone presenting science as a value neutral arbiter for policy – it is not!

The King's Centre for Integrated Research on Risk and Resilience (CIRRR)

The King's CIRRR seeks to play an active role in this process. We are a formal partner in the UNISDR Conference and will participate through several poster presentations. The CIRRR brings together researchers from the physical and social sciences with development and humanitarian specialists and policy-makers, all working at various levels and in different geographical areas. Together we are

exploring a range of areas related to risk and resilience that are directly relevant to the work underway regarding the Sendai Framework.

This includes work of direct policy relevance. For example, 'multi-hazard' is mentioned thirteen times in the Sendai Framework but as yet there is no clear and agreed definition of this. Bruce Malamud and Joel Gill at the King's CIRRR are researching varying degrees of multi-hazards and have defined four layers from multilayer single hazards to multi-hazards, these include: hazard identification and comparison, hazard interactions, hazard coincidence and dynamic vulnerability. With Faith Taylor and James Millington, Bruce is exploring the practical implementation of these concepts through the ESRC-DFID Urban Africa: Risk Knowledge project.

The King's CIRRR also integrates natural and social science to investigate knowledge generation. Key here are issues related to natural hazard data, including the sharing of data, global vs. local data and metadata and dealing with uncertainties. Uncertainty in data is not explicitly addressed within the Sendai Framework and can be "a major spanner in the works (...) the natural sciences respond [to uncertainty] by attempting to estimate error – but there are types of uncertainty and incertitude that are simply not quantifiable" (Amy Donovan, CIRRR). This challenge opens an opportunity for human geographers to inform the physical geography landscape and highlights the value of the CIRRR's mix of human and physical scientists. Two specific projects where these challenges are being worked through are our DFID funded BRACED projects on food security and climate forecasting in Burkina Faso and Ethiopia (led by Camila Audia, Sophie Rigg, Emma Visman and Mark Pelling) with Christian Aid.

The Road Forward:

"Research outputs (...) need to be targeted in terms of content to better engage with the end user and in terms of the type of output" (Faith Taylor). The communication of science determines the reach of scientific knowledge.

Sometimes, simple tools well deployed can bring significant impact. At the September CIRRR meeting Virginia Murray, Public Health Consultant in Global Disaster Risk Reduction, Public Health England and vice-chair of the UNISDR STAG, highlighted the value of UNISDR case studies for sharing scientific knowledge and informing policy (see also the [2013 and 2015 UNISDR STAG reports](#).) She demonstrated how their accessible format has enabled informed and effective policy-making in the case of the [health services in Darfur](#), Sudan and also the [Rubella vaccination](#).

Communication is a well-recognised challenge for science – and perhaps at times overstated - however, successful examples, such as these case studies, are not in abundance and rely sometimes on longstanding relationships between researchers and research users, or on serendipity.

Different goals and perspectives across disciplines can act as barriers to effective communication. Overcoming these barriers requires two-way dialogue, greater integration of science and policy spheres and that both physical and social scientists understand the goals and language of policy-makers and vice versa. This raises a number of questions: How do policy-makers understand the role of scientists? How do scientists understand and view the policy-making process? And how does this impact their interaction and how science is produced and used?

These questions seek to unpack the space between science and policy. The CIRRR as the IRDR International Centre of Excellence for Risk Information to Action has a special responsibility and opportunity in this regard. Its multi-disciplinary group of experts positions itself at this interface of

scientific research and policy on risk and resilience, and seeks to investigate the processes that structure this interface.

The CIRRR takes the view that the structure of the science-policy interface is not linear; that science is not value-free or separated from the social and political context in which it is created; and that policy making is not informed by a simple one directional transfer of scientific knowledge. Furthermore it supports the view that knowledge in itself is dynamic and changes when it is put into practice or used.

This highlights the danger that by invoking science as a driver for policy the social values lying behind development trajectories can become normalised. Science can act as a cleaning house for dominant understandings of the world and dominant development assumptions – unless science itself is held to account and scrutinised. We have the tools to do this and the coming together of social and natural sciences is a first step that the King's CIRRR and other bodies like IRDR can play a key role in facilitating. It is important early on in the process that science is unpacked and recognised for its diversity and that this is held alongside other knowledge generation mechanisms, from indigenous understanding to citizen science. Without this, science will not fulfil its potential as a democratising force in development planning for risk reduction.

This line of investigation and the awareness of science as a value-laden domain presents scientists, policy makers and practitioners with probing questions about how they understand their own identities, roles and responsibilities; and how their own positionalities and perspectives construct the science-policy dynamic. This in turn demands reflexivity and critical self-assessment.

Reflexivity can be uncomfortable and has the potential to destabilise traditional identities and push people into new areas. Perhaps, this in turn has the potential to redefine the realms of science and policy, transforming the interface between the two and leading to a genuine coproduction of both knowledge and policies.

The CIRRR seeks to contribute to the post-2015 science-policy agenda by asking these questions regarding the interface of science and policy and specifically in relation to communication, coproduction and reflexivity. However, how do we put this into practice and support coproduction and reflexivity? Is it through dynamic debate and partnerships across sectors? Will the UNISDR conference in 2016 pave the way for these exchanges? The CIRRR, among other research centres, has been invited to contribute to the implementation of the Sendai Framework but will this be enough? Is there an opportunity here for even greater innovation?

Sophie Rigg

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King's Centre for Integrated Research on Risk and Resilience is affiliated with the ICSU/ISSC/ISDR programme Integrated Research on Disaster Risk as an International Centre of Excellence