



UNISDR Science and Technology Conference on the implementation of the Sendai Framework for Disaster Risk Reduction

27-29 January 2016, Geneva International Conference Centre

Key Messages

- ✓ Over 700 participants joined the UNISDR Science and Technology Conference on the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030.
- ✓ The Conference provided new perspectives on how to meet the expectations on science and technology in the Sendai Framework.
- ✓ The Conference outcomes included the launching of the Science and Technology Partnership; and the elaboration of a Science and Technology Road Map to help to deliver on the outcomes.

The following summary gives the key messages from ten topics that emerged from the discussions at the four work streams and general deliberations.

1. Scope of science for disaster risk reduction

- The Conference reflected on the wider scope of the Sendai Framework, which applies to the risk of small and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or man-made hazards as well as by related environmental, technological and biological hazards and risks. The Conference reiterated the need for more integration and promotion of the holistic approach to the science of hazards.
- The support from the science and technology community should include: original research and investigation; the assessment and analysis of hazards, consequences of cascading risks; development and validation of applied tools and standards; the design and use of new technologies; and, a range of education and communication roles.
- The participants emphasised the importance of utilizing both qualitative and quantitative methods, use of indigenous and traditional knowledge as well as applied science that is produced together with decision makers.

2. Mechanisms to accelerate use of science and technology for disaster risk reduction

- The main mechanism is a ‘partnership approach’ to help bring scientists from different disciplines and regions together and to connect them to practitioners and decision makers.
- The involvement of citizens at the local level in understanding risk information and multihazard early warning systems can be enhanced.
- National coordination mechanisms for disaster risk reduction could systematically reinforce science/policy and science/practitioners dialogue. There is a need to create and/or strengthen national disaster risk reduction science-policy councils/platforms.
- Regional science and technology networks help to strengthen science community, support Governments in science- based decision making, and enhance linkages among academic community, decision makers and other stakeholders.
- The Conference welcomed the launching of the UNISDR Science and Technology Partnership as an important global coordination mechanism to support the implementation of the Sendai Framework aided by the Science and Technology Roadmap.
- Participants reinforced the principles of interdisciplinary practice, participatory and inclusivity. A reaching out and engaging of scientists in universities and institutions and the private sector is critical. Priority needed to be given to engaging young scientists, indigenous people, and end users of science

3. Data and data management

- The Conference underlined the need for better accessibility to ‘high quality’ data on multi-hazard risk, exposure and vulnerability, capacities and disaster loss and impact.
- Support to open access and open-source data platforms, standard approaches in data collection and mapping, and a common operating system was underlined. The role of the private sector in these efforts can be further enhanced.
- The science and technology community needed to advocate for national authorities to establish uniform policies on data ownership, maintenance, and data sharing. The sharing of information among the research institutions and professionals was also considered fundamental.
- The participants identified the more systematic collection and management of data as a priority. This includes better coordination and capacity building of local institutions and the range of organisations working on spatial and non-spatial data collection. Also highlighted was the need to integrate data collected by other mechanisms (such as crowd-sourcing, remote earth observations and geo-spatial data) into formal national systems.

- The role of National Statistical Offices in collection of disaster risk reduction data needed to be clarified and enhanced. There are expectations for the provision of official statistics and indicators on extreme events and disasters in close cooperation with specialized agencies, along with demographic, economic and environmental information.
- Coherence is needed between data required under the Sendai Framework, the Sustainable Development Goals, the Paris agreement on climate change and other international instruments.

4. Disaster risk reduction research

- The following priorities for research were identified:
 - Understanding risk this includes systematic risk assessments and profiling, and studies on underlying drivers of risk.
 - Documenting and analysing the effects and impact evaluation of disasters and of disaster risk reduction measures.
 - Emerging disaster risks such as nuclear and technological hazards, and NATEC events.
 - Accountability systems including laws, regulations, and peer reviews.
- The need to apply science for effective decision making including indexes that allow countries to measure progress relative to benchmarks. These also need to be easy to communicate to decision makers so as to enable credible actions.
- A dialogue with indigenous and traditional knowledge-holders was needed in order to reconcile local knowledge with scientific findings.
- The Conference particularly highlighted the ethical implications of scientific research in disaster risk reduction.

5. Understanding needs

- The Conference underlined that synthesizing, producing and disseminating scientific evidence in a timely and accessible manner that responds to the knowledge needs of policy-makers and practitioners is essential. Such evidence should be accessible to end users.
- Providing guidance for the development of national and local strategies and plans for disaster risk reduction is a key priority in helping to understand needs.
- Participants highlighted the importance of social aspects when adopting science and technologies and the need to have a gender lens when addressing disaster risk reduction, including ensuring more women and girls involved in disaster risk reduction science and research.

- Participants called for better understanding of risk perception and behaviour, and encouraging scientists to provide risk information in ways that help people appreciate their risk and take necessary actions.
- The Conference called on knowledge centers and hubs of excellence to foster disaster risk reduction in science and connect with decision makers.

6. Technology and innovation

- Technological innovations need to be made accessible and applied to measure and reduce disaster risk.
- Earth observation satellite data for disaster risk reduction as well as in-situ observations and crowd-sourced data are opportunities to use technology to support regular monitoring of disaster risk, exposure and vulnerability. Such systems also provide technological support to people-centred, low cost multi-hazards early warning systems.
- A nationwide, robust emergency communications system needs be brought to scale.

7. Education, capacity building and the communication of science

- Engagement of the community and integration of science in both formal and informal educational systems requires strong partnership and ongoing review and adaptation.
- Communication needs to be authoritative, relevant, based on multi-hazard risk assessments, warnings and potential impact. Lessons need to be learned on how information is accessed, applied and reacted to and then communication modified as appropriate.
- Define uncertainty parameters as part of the risk assessment and warning and informing processes to ensure delivery of the 'last mile'.
- Participants identified accessible technological innovation for communication, education and capacity building as a priority. This includes, use of social media and learning technologies such as MOOCs and user-friendly web-based interactive platforms, and training of decision-makers on how to use available technologies (e.g. satellite imagery).
- More research needed to be carried out in multiple languages.

8. Standards and standard-setting

- The Conference identified the importance of understanding the different scales (global, national, local) when using data and standards. Research needed to look at the impact and value of standards and to document their use in regulatory frameworks.

- Participants identified the immediate gaps in standards including incorporating key markers of socio-economic vulnerability, risk assessments, disaster loss datasets, and technological and biological hazards. ISO mapping on the implications of the Sendai Framework could be a starting point.
- More collaboration between institutions is required in standard setting, including for technological and biological hazards.

9. Monitoring progress in use of science and technology for disaster risk reduction

- Develop indicators of science and technology contribution to disaster risk reduction, including a gender marker.
- The Conference identified the need for a stock-taking mechanism to assess the current state of data and science to better understand what has been done (and identify gaps). A periodic review of the needs, new science and research gaps was also recommended.
- Adopt a multi-hazard approach to monitoring and evaluation including transboundary, biological and technological hazards.
- Important that the monitoring and evaluation of the Sendai Framework and the implementation of disaster risk reduction efforts in general are linked to the data collection and monitoring systems for the SDGs and the Paris agreement on climate change.

10. Financing and sustainability

- The Conference identified funding disaster risk reduction research and innovation as a high priority.
- More efforts are needed to leverage science for disaster risk reduction through innovative funding schemes that are more flexible, predictable and long-term.
- Private sector funding of innovation and research in disaster risk reduction can provide opportunities to enhance the dialogue between decision-makers, private investors, and researchers.