



Statement on Science and Technology for the Third Session of the Global Platform for Disaster Risk Reduction

This statement presents recommendations related to science and technology in support of the outcomes of the Third Session of the Global Platform for Disaster Risk Reduction. It includes emerging priority issues in support of the implementation of the Hyogo Framework for Action (Annex 1) and a report on the work of the ISDR Scientific and Technical Committee (STC) (Annex 2).

The statement is prepared by the ISDR Scientific and Technical Committee (STC) based on work with scientific, technical and thematic networks, the Global Assessment Report 2011 (GAR), the Mid Term Review of the Hyogo Framework for Action, the Intergovernmental Panel on Climate Change Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX), the outcomes of the International Disaster Risk Conference (IDRC, Davos 2010), the work of the Integrated Research on Disaster Risk (IRDR) programme and many other scientific and technical partners. A preparatory workshop for the Global Platform for Disaster Risk Reduction Third Session on science and technology was held in Pavia, Italy, 5-6 April 2011.

This statement also builds on the report 'Reducing Disaster Risks through Science: issues and action' presented at the Second Session of the Global Platform by the ISDR STC. The report is available at: www.preventionweb.net/globalplatform/2009/background/documents

Recommendations

Recognizing that the insufficient level of implementation of known disaster risk reduction principles and existing knowledge contributes to high disaster risk in many countries.

Noting that recent disasters have stressed the existence of emerging, interrelated risks with cascading effects highlighting the importance of adopting an integrative risk reduction and disaster management process based on scientific and technical evidence.

The STC recommends that governments, national platforms and science councils, research institutions, the private sector, local communities, NGOs and the many more institutions involved in disaster risk reduction consider the following points in their actions to support the implementation of the Hyogo Framework for Action and the outcomes of the Third Session of the Global Platform for the coming biennium:

1. Intensify efforts to follow a science based decision making process in disaster risk reduction through:
 - Ensuring the scientific and technical knowledge is mainstreamed into the activities of ISDR national and regional platforms and into the work of sector and local

based institutions responsible for disaster risk reduction, particularly on risk assessment and cost-benefit analysis;

- Promoting local capacity building for fast transfer of emerging knowledge and technologies into practice and provide feedback to science;
 - Promoting the implementation of validated, evidence-based, best practices which are simple, do-able, economically affordable, socially acceptable and ecologically compatible;
 - Promoting enhanced collaboration between scientific institutions and networks in support of disaster risk reduction and between research and practice through an annual disaster risk reduction science forum to be organised in collaboration with relevant initiatives such as IDRC and IRDR.
2. Support a process of comprehensive and rigorous review of the status of science and technology for disaster risk reduction, to be carried out in collaboration with IRDR, IRDC and other mechanisms and the results of which should be presented at sessions of the Global Platform for Disaster Risk Reduction through:
- Developing recommendations on advancing disaster risk reduction knowledge based on the findings emerging from the IPCC Special Report on Extreme Events (SREX);
 - Contributing with guidance and support regarding emerging applied science and technical issues for the next GAR 2013 based on a review of the role of science and technology initiatives in GAR 2011;
 - Reviewing the findings of the report 'Reducing Disaster Risks through Science: issues and action' presented at the Second Session of the Global Platform by the ISDR STC for the 2013 Global Platform Session and consider how recommendations have been implemented;
 - Establishing a process for a comprehensive review of science and technology for disaster risk reduction leading up to the discussion on the future of disaster risk reduction after 2015.
3. Ensure that national, regional and international funding mechanisms for science and technology support the development of integrated research into disaster risk management, particularly in disaster prone developing countries and including comparative transnational and transregional research. In particular, it is suggested to hold a science and technical forum at the fourth session of the Global Platform in 2013.

Prepared in Geneva, May 2011

Annex 1

Emerging priority areas for science and technology for the ISDR and in support of the implementation of the Hyogo Framework for Action

The Scientific and Technical Committee (STC) of the United Nations International Strategy for Disaster Reduction (UNISDR) proposes emerging priority areas in terms of science and technology for disaster risk reduction to serve as a basis to guide future work of the ISDR and in support of the implementation of the Hyogo Framework for Action (HFA).

a. Understanding of the structural, social, health, environmental, political, and financial vulnerability drivers of risk

There is still strong need for better understanding of risk and emerged across all types of hazards:

- Strengthening research on resilience: How to quantify? How to increase?
- Social protection instruments to increase resilience locally
- Modalities for multi-disciplinary and trans-disciplinary research
- Modelling disaster triggering mechanics
- Convey ideas, including traditional views as way to reach communities
- Risk governance challenges in political terms

b. Standardizing and enhancing global modeling methods for understanding hazard risks

Progress has been achieved to refine and harmonize methods for assessing risk of natural hazards. However, there is need to clarify for policy makers that model does not produce exact predictions because of difficulties and problems to be solved as follows.

- Quantitative risk assessment on relationships and interactions with different hazards and multi-risk environment
- Improving spatial and temporal resolution of earth observation systems
- Establishing some consistent framework for comparison of risks associated with different types of natural- and man-made hazards, as well as multi-hazard, multi-risk assessment
- Promoting an open access with open source software, transparent tools and accessible global datasets
- Close interaction with the private insurance sector and a community of experts and users, who are involved in designing and implementing the hazard risk assessment procedures, software, tools, methods, data collection
- Educating the society and policy makers on the strengths and limitations of the models
- Pull of society for information and understanding, rather than push of information

c. Methodologies for assessing disaster losses and understanding the causes

Assessing disaster losses and understanding the causes is another key emerging priority area. The advances in systematic risk data depend heavily on progress in approaches to collect effectively and systematically disaster loss data.

- Harmonization of instruments, tools and institutions for systematically recording and documenting disaster losses
- Enhance data availability on local losses with a challenge in national compilation efforts as well as some framework for standardization of methods and comparisons of the products
- Better integration of databases of losses across different hazard types with multi-hazard and multi-risk assessments
- Applying and reviewing a potential global frame for reviewing the causes of different disaster events based on real case studies
- Ensuring the availability of sufficiently robust disaster event information

These are related to capacities and institutional challenges rather than issues related to science and technical methods and tools.

d. Enhancement of hazard predicting and early warning systems

Great progress has been made in the modeling, prediction and early warning of several hazards, especially in weather and climate early warning led within the WMO systems or national/private weather service in each country, while those related to Tsunami, floods, landslides, volcano eruption, etc. are obtained from some other related international/ domestic organizations. To be able to take full advantage of the available good practices and lessons from the prediction and early warning systems, we need:

- Improvement in predicting specific time, location and magnitude rather than probability based, where feasible.
- Raising public awareness and improve education of the society and policy makers by giving good practices and lessons from historical events in all over the world
- Assessing, compiling and disseminating indigenous, traditional knowledge and technologies for early warning of hazardous events such as tsunami, tornado, flood, debris flow and volcano eruption.

e. Strengthening research on interdependent, cascading events

There is need to enhance research on risk and its reduction during a series of interdependent and cascading events in an area.

- Clarifying cause and effect of successive events such as earthquake and tsunami, rainfall and flood, earthquake and landslide, rainfall and debris flow, and volcano eruption and haze
- The interrelation between natural and technological hazards
- Clarifying impacts of natural hazards to technological/social system and resultant possible technological disasters or societal disasters.
- Assessment of total damages through the cascading events

Research is required at all levels yet capacity of many developing countries to undertake such research is relatively low. There is need to enhance the capacity of the developing countries not only to be able to undertake the required risk research and also to be able to take maximum advantage of available science and technology in any parts world to reduce local risks in support of HFA.

Annex 2

UNISDR Scientific and Technical Committee - Summary of activities 2009-2011

Principle activities are summarised below:

The UNISDR requested volunteers from the Scientific and Technical Committee (STC) to contribute to the joint Intergovernmental Panel on Climate Change and UNISDR Joint Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) available at <http://www.ipcc-wg2.gov/AR5/extremes-sr/index.html> . Two members of the STC are Co-ordinating Lead Authors of this report. The report is due for publication in early 2012. .

A member of the UNISDR STC was invited to join the Hyogo Framework for Action Mid Term Review Advisory Group and she participated in the meetings which has resulted in the final report – available at http://www.preventionweb.net/files/18197_midterm.pdf

The UNISDR requested volunteers from the STC to contribute case studies to the Hyogo Framework for Action Mid Term Review. Two case studies were offered and these are:

- Evidence for Disaster Risk Management – Information and knowledge needs for policy makers and field – available at http://www.preventionweb.net/files/18197_205murray.evidencefordisasterriskma.pdf
- Assessing the role of vertical and horizontal communication in disaster risk reduction learning and planning: The case of the Spanish Tous dam-break, 1982 available at http://www.preventionweb.net/files/18197_204chabayetal.assessingtheroleofver.pdf

A member of the STC joined the Global Assessment Report 2011 (GAR) Advisory Board and contributed as a Review Editor to the report.

<http://www.preventionweb.net/english/hyogo/gar/2011/en/home/index.html>

The UNISDR became a co-sponsor, with the International Council for Science and the International Social Sciences Council, of the Integrated Research on Disaster Risk (IRDR) Programme which is developing an integrated research program. A member of the UNISDR Scientific and Technical Committee is Chair of the IRDR Science Committee and UNISDR is represented on the Steering Committee. <http://www.irdrinternational.org/scientific.php>

The UNISDR STC participated in a Preparatory Workshop on Science and Technology for the Global Platform for Disaster Risk Reduction Third Session at Pavia, Italy on 5-6 April 2011. This meeting addressed a wide range of issues including hearing the feedback from the Hyogo Framework for Action Mid Term Review and the related case studies. They also heard a review of progress in science and technology for Disaster Risk Reduction. All the presentation and outcomes of the Pavia workshop are available at:

<http://www.preventionweb.net/english/professional/trainings-events/events/v.php?id=19684>