

Tokyo Statement 2017

Science and technology action for a disaster-resilient world

With this declaration, we, the participants at the Global Forum on Science and Technology for Disaster Resilience 2017, held in Tokyo from 23-25 November 2017, commit to join and lead efforts by the science and technology community to work closely with stakeholders and partners at local, national, regional and global levels towards the achievement of a disaster resilient world where nobody is left behind.

A new era on disaster risk reduction has begun. The Sendai Framework for Disaster Risk Reduction 2015-2030 emphasizes the importance of a scientific basis for risk-informed development and investment. It highlights the important linkages and mutual reinforcement for disaster risk reduction with the 2030 agendas: the Sustainable Development Goals (SDGs), the Paris Agreement on Climate Change, the Addis Ababa Action Agenda (AAAA) for financing and the New Urban Agenda. The importance of a science-based risk-~~informed~~^{sensitive}-planning and decision-making has been pronounced more than ever before.

The 2017 Global Forum builds on the outcomes of the First Science and Technology Conference in January 2016, namely the Science and Technology Roadmap to Support the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 and accompanying Science and Technology Partnership. The outcomes of the 2017 Global Forum should be incorporated in the 6th Session of the Global Platform for Disaster Risk Reduction in Geneva, Switzerland, in May 2019.

In support of the implementation of the Science and Technology Roadmap, we identify the following needs under the four priorities for action of the Sendai Framework:

- 1) We need to contribute to knowledge on disaster risk.** Through enhancement and extension of the existing research programs we need to develop a system for collection, archiving, management, analysis, modelling, and use data concerning root causes, risk drivers, disaster risk and disaster damage and losses. In support of policy makers and practice, establish and use reliable scientific frameworks and networks for evaluating disaster risk on a regular basis, as a function of the identification and assessment of hazards, vulnerability, and exposure including single and ~~cascading concatenated~~ events. The use of scientific tools, including geospatial information and earth observation systems, should be promoted to provide and share disaster risk information at different scales before, during and after disasters. In addition, participatory research methods involving grassroots and indigenous communities ~~and systematically organized education for improving disaster literacy~~ should be encouraged.
- 2) We need to contribute to strengthening disaster risk governance and accountability.** Promote dialogue in local languages on disaster risk reduction between scientific sectors and policy makers; facilitate networking between them; ~~and~~-create and implement a systematic framework in which disaster risk assessment is used to make decisions for planning and development based on scientific evidence; ~~with appropriate data use governance.~~ improve data collection in proper ways and share them for research which could discover root causes of vulnerabilities; and gain the necessary trust to ensure collaboration among all actors in the reduction of risk by co-design of projects and co-production of solutions.
- 3) We need to encourage investment in disaster risk reduction and adaptation for resilience.** Develop and implement tailor-made methods to assess disaster risks and share those among relevant Government agencies and key stakeholders including international financial institutions and the private sector at large as the main investor in all countries; propose policies that are highly effective as ex-ante investment and technologies that deliver a high return on the investment; ~~–~~create and provide incentives for investment in human capital; develop application criteria for each disaster prevention measure; propose reasonable plans for the develop methods for an optimal, risk-based allocation of limited resources; monitor the effectiveness of investments in DRR; and strengthen the capacity of scientific and technological disaster research and education in particular. Also we need to support implementation of sustainable observation infrastructure.
- 4) We need to promote "Build Back Better" in recovery, rehabilitation and reconstruction.** Take actions for sharing common paradigms including– “rebuilding lives”, “rebuilding livelihoods”, “rebuilding economy” and

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"rebuilding regional communities"; developing indicators and guidelines based on scientific evidence; and make plans for disaster recovery, rehabilitation and intelligent reconstruction processes. To implement these effectively, support the development of legislation and procedures, based on enhanced scientific evidence, prior to disasters and based on scientific scenarios for possible disaster damage. We urge to actively invest in research with long vision.

Successful disaster risk reduction depends on innovation and interdisciplinary approaches. The Science and Technology Community has a responsibility in this effort to co-create and co-implement new types of science and technology in society.

- 1) **-We need to promote and implement interdisciplinary and transdisciplinary collaboration.** To assess the full spectrum of disaster risks, including those associated with natural hazards and vulnerability as well as anthropogenic and technological risks, we should develop innovative, integrated approaches and technologies for risk assessment that embrace all science, including citizens' health and mental conditions, as well as other relevant stakeholder groups. Specifically, this should include efforts to advance an-intergenerational collaboration approach. The risks of highly complex mega or widespread small and medium-size disasters should be addressed seamlessly through collaboration among all stakeholders, at all times in a seamless manner. The definition and usage of existing terminology should be clearly confirmed to avoid misunderstandings.
- 2) **We need to produce periodic synthesis reports on the state of science and technology for risk-sensitive development and investment.** To understand and measure the status and progress of science and technology, we propose producing an online synthesis system with periodic reports incorporating "cognizing" science and "designing" science in a transdisciplinary way. The online and participatory report system would be multilayered (from global to local), with diversity in language, user group (policy makers to practitioners) and age group (including the young scientists). A specific science communication and maintenance strategy will be developed at the inception stage of the synthesis report. Enhance resilience by promoting science and evidence-based policies and practices for disaster risk reduction that clearly factor in prediction, prevention and response strategies.
- 3) **We need to contribute to national platforms for more effective use of science and technology.** Reflecting the call for an all-of-society approach in The Sendai Framework, a wide range of knowledge and expertise available within the national science and technology community should be effectively integrated into national platform activities, where policy makers and practitioners may indicate their specific needs regarding science and technology. Contributions from science and technology should include: translating the Sendai Framework into local languages; providing appropriate scientific advice for the collection, assessment and analysis/archiving of annual disaster records; assisting the national platform in compilation and publication of case studies on interactive dialogue between local authorities and scientists & engineers which led to successful disaster risk reduction, for replication in the country and for sharing internationally; and assisting the Government in compiling and publishing their national reports on disasters, including Sendai Framework Monitoring.

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As a first step to pursue steady implementation of these actions, we commit to work closely with relevant stakeholders to develop and implement the following documents:

- 1) **Guidelines for strengthening national platforms for DRR and coordination mechanisms through enhanced contribution of science and technology.**
- 2) **Periodic synthesis reports on the state of science and technology for reducing disaster risk.**

International research programs and alliances commit to implementing the outcomes of this meeting of experts to focus their research priorities and strengthen their contributions to the Sendai Framework to enhance the understanding of disaster risk, supporting governance and prioritizing investments in disaster risk reduction, and enhancing disaster preparedness for effective response. Particular focus must be placed on the engagement and harnessing of the potential of grassroots communities, women and youth, as well as other groups such as persons with disabilities.

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Increased disaster risk demands an urgent response. Inaction is no longer an option. The support of all stakeholders is necessary.