Implementing the Sendai Framework for Disaster Risk Reduction 2015-2030 to enhance disaster preparedness for effective response

Professor Virginia MURRAY, UNISDR and PHE United Kingdom,
The purpose of UNISDR STAG is to provide substantive technical advice and support in the formulation and implementation of activities carried out by the broad International Strategy for Disaster Risk Reduction (ISDR) community.

The Scientific and Technical Advisory Group was formed in 2012, succeeding the Scientific and Technical Committee (STC).

https://www.preventionweb.net/organizations/4862
The work of the Scientific and Technical Advisory Group

Better integration of science and technology into policy

• Greater interaction among scientific and technical disciplines
• Promoting greater international collaboration
• Risk modelling, mapping and risk analysis
• A long term (30 to 40 years) perspective on risk
• Using evidence on risk reduction actions to facilitate decision-making
• Capacity building

https://www.preventionweb.net/organizations/4862
### Natural Sciences

### Agricultural sciences

### Engineering and Technology

### Social sciences

### Medical and health care sciences

### Humanities
Sendai Framework for Disaster Risk Reduction 2015 - 2030
Sendai Framework for Disaster Risk Reduction 2015-2030

1 Global Outcome
13 Guiding Principles
4 Priorities for Action at all levels
7 Global Targets

Reduce
- Mortality/global population
  2020-2030 Average < 2005-2015 Average
- Affected people/global population
  2020-2030 Average < 2005-2015 Average
- Economic loss/global GDP
  2030 Ratio < 2015 Ratio
- Damage to critical infrastructure & disruption of basic services
  2030 Values < 2015 Values

Increase
- Countries with national & local DRR strategies
- International cooperation to developing countries
- Availability and access to multi-hazard early warning systems & disaster risk information and assessments

UNISDR
The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries
Sendai Framework for Disaster Risk Reduction 2015-2030

Four priorities for action

1. **Understanding disaster risk**;
2. **Strengthening disaster risk governance** to manage disaster risk;
3. **Investing** in disaster risk reduction for **resilience**;

i) **at National and Local Levels**

ii) **at Global and regional levels**
IV. Priorities for action

20. Taking into account the experience gained through the Framework for Action, and in pursuance of the objectives of the current document, focus action within and across sectors by States at local, national, and regional levels, and the following four priority areas:

Priority 1: Understanding disaster risk

Priority 2: Strengthening disaster risk governance to manage disaster risk

Priority 3: Investing in disaster risk reduction for resilience

Priority 4: Enhancing disaster preparedness for effective response in recovery, rehabilitation and reconstruction.

21. In their approach to disaster risk reduction, States, regional and other relevant stakeholders should take into consideration each of these four priority areas and should implement them, in an appropriate and coherent manner, to know national laws and regulations.

22. In the context of increasing global interdependence, which enables national environments and means of implementing them to develop knowledge, capacities, and methods at international levels, in particular for developing countries.

Priority 1: Understanding disaster risk

23. Policies and practices for disaster risk management should be integrated at all its dimensions of vulnerability, capacity, hazard characteristics and the environment. Such knowledge and policies for disaster risk management, for prevention and mitigation, and implementation of appropriate preparedness and effective response.

National and local levels

24. To achieve this, it is important:

(a) To promote the collection, analysis, management and use of information and ensure its dissemination, taking into account data, as appropriate:

(b) To encourage the use of and strengthening of existing systems for information, vulnerability, capacity, exposure, hazard characteristics, effects at the relevant social and spatial scale on a national and international level.

(c) To develop, periodically update and disseminate an appropriate, location-specific information, including risk maps, to decision-makers, the general public at risk of exposure to disaster in an appropriate format by using, as appropriate, information technology.

(d) To systematically assess, record, share and publicly account for disaster and develop the capacity of institutions at all levels to address impacts, as appropriate, in the context of the event, specific hazard exposure information.

(e) To make non-sensitive hazard exposure vulnerability, risk, disaster and information freely available and accessible, as appropriate.

(f) To promote real-time access to reliable data, make use of space and in, including geographic information systems (GIS), and use information and technology innovations to enhance measurement tools and the collection dissemination of data.

(g) To build the knowledge of government officials at all levels, civil society, communities, academia and the private sector, through training and education on disaster risk reduction, including training and education mechanisms and peer learning.

(h) To promote and improve dialogue and cooperation among scientific, academic, communities, other relevant stakeholders and policymakers in order to facilitate effective decision-making in disaster risk management, avoid duplication and maintain and strengthen in situ and remotely sensed earth and climate observations, and strengthen the utilization of media, including social media, traditional media, big data and other innovative methods.

(i) To ensure the use of traditional, Indigenous and local knowledge appropriate, to complement scientific knowledge in disaster risk assessment and development and implementation of policies, strategies, plans and programs, with a cross-sectoral approach, which should be tailored to local context.

(j) To strengthen technical and scientific capacity to capitalize on and knowledge and to develop and apply methodologies to assess vulnerabilities and exposure to all hazards.

(k) To promote investments in innovation and technology development in disaster risk reduction and, driven research in disaster risk management to address interdependencies and social, economic, educational and environmental disaster risks.

(l) To promote the incorporation of disaster risk knowledge, including data, mitigation, preparedness, response, recovery and rehabilitation, in formal and non-formal education, as well as in civil education at all levels, as well as in professional training.

(m) To promote national strategies to strengthen public education and awareness campaigns, disaster risk information and knowledge, social media and community mobilization, taking into account specific needs.

(n) To apply risk information in all its dimensions of vulnerability, capacity and exposure, hazard characteristics, effects at the relevant social and spatial scale on a national and international level.

(o) To enhance collaboration among people at the local level to disseminate information through the involvement of community-based organizations.

25. To achieve this, it is important:

(a) To enhance the development and dissemination of science-based methodologies and tools to record and share disaster issues and relevant disaggregated data and statistics, as well as to strengthen disaster risk monitoring, assessment, mapping and capture and multi-hazard early warning systems.

(b) To promote the conduct of comprehensive surveys on multi-hazard disaster risks and the development of regional disaster risk assessments and maps, including climate change scenarios.

(c) To promote and enhance, through international cooperation, including technology transfer, including access to and the sharing and use of non-sensitive data and information, as appropriate, communicating strategies and plans, and the use of space-based technologies and related information, to maintain and strengthen in situ and remotely sensed earth and climate observations, and strengthen the utilization of media, including social media, traditional media, big data and other innovative methods.

(d) To promote the development of common efforts in partnership with the scientific and technological community, academia and the private sector to establish, disseminate and share good practices internationally.

(e) To support the development of local, national, regional and global user friendly systems and services for the exchange of information on good practices, cost effective and easy to use disaster risk reduction technologies and lessons learned on policies, plans and measures for disaster risk reduction.

(f) To develop effective and global and regional campaigns as instruments for public awareness and education, building on the existing ones (for example, the “One million safe schools and hospitals” initiative, the “Making Cities Resilient: My city is getting ready!” campaign, the United Nations Sendai Award for Disaster Risk Reduction, and the annual United Nations International Day for Disaster Risk Reduction) for the exchange of information on good practices, cost effective and easy to use disaster risk reduction technologies and lessons learned on policies, plans and measures for disaster risk reduction.

(g) To develop effective and global and regional campaigns as instruments for public awareness and education, building on the existing ones (for example, the “One million safe schools and hospitals” initiative, the “Making Cities Resilient: My city is getting ready!” campaign, the United Nations Sendai Award for Disaster Risk Reduction, and the annual United Nations International Day for Disaster Risk Reduction) for the exchange of information on good practices, cost effective and easy to use disaster risk reduction technologies and lessons learned on policies, plans and measures for disaster risk reduction.

(h) To enhance the scientific and technical work on disaster risk reduction and mitigation through the coordination of existing networks and scientific research institutions at all levels and in regions, with the support of the United Nations Office for Disaster Risk Reduction.

(i) To strengthen the availability of relevant data, including through the use of the best use of geospatial information technology, provide guidance on methodologies and standards for risk assessments, disaster risk modeling and the use of data, identify new knowledge gaps and set recommendations for research priority areas, disaster risk reduction, promote and support the availability and application of science and technology to decision-making; contribute to the update of the publication entitled “UNISDR Terminology on Disaster Risk Reduction,” use participatory assessment and monitoring for annual reviews, as opportunity to enhance learning and public policy, and disseminate studies.

(j) To encourage the availability of copyrighted and patented materials, including through negotiated concessions, as appropriate.

(k) To encourage access and to support for innovation and technology, as well as in long-term, multi-hazard and solution driven research and development in the field of disaster risk management.
Priority 1 Understanding Disaster Risk

25 (g) Enhance the scientific and technical work on disaster risk reduction and its mobilization through the coordination of existing networks and scientific research institutions at all levels and all regions with the support of the UNISDR Scientific and Technical Advisory Group in order to:
• strengthen the **evidence-base** in support of the implementation of this framework;
• promote **scientific research of disaster risk patterns, causes and effects**;
• **disseminate risk information** with the best use of geospatial information technology;
• promote and support the availability and **application of science and technology to decision-making**;
• use **post-disaster reviews** as opportunities to enhance learning and public policy; and **disseminate studies**
UNISDR SCIENCE AND TECHNOLOGY CONFERENCE

Mobilising science to implement the Sendai Framework

27-29 JANUARY 2016 | GENEVA, SWITZERLAND

Community will best support the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030.

The UNISDR Science and Technology Conference on the implementation of the Sendai Framework.
The Science and Technology Roadmap to support the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030

The Sendai Framework for Disaster Risk Reduction 2015-2030 was agreed at the Third UN World Conference on Disaster Risk Reduction in Sendai, Japan in March 2015 and endorsed by the UN General Assembly in June 2015.

The goal of the Sendai Framework is to prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.

The expected outcome till 2030 is to achieve substantial reduction in disaster risk and losses in lives, livelihoods and health in the economic, physical, social, cultural and environmental aspects of persons, private sector, communities and countries. There are four priorities.

Key statements in the Roadmap

• Establish a **global database of existing hazards**, including information on exposure and vulnerability to build awareness and knowledge of changing disaster risk and to better disseminate risk information, including for **public health emergencies**.

• **Promote scientific focus** on disaster risk factors and scenarios, including **emerging disaster risks and public health threats**.
Reflections on a Science and Technology Agenda for 21st Century Disaster Risk Reduction


Amina Aitsi-Selmi¹ · Virginia Murray¹,² · Chadia Wannous³ · Chloe Dickinson¹ · David Johnston⁴ · Akiyuki Kawasaki⁵ · Anne-Sophie Stevance⁶ · Tiffany Yeung⁷

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Abstract The first international conference for the post-2015 United Nations landmark agreements (Sendai Framework for Disaster Risk Reduction 2015–2030, Sustainable Development Goals, and Paris Agreement on Climate Change) was held in January 2016 to discuss the role of science and technology in implementing the Sendai Framework for Disaster Risk Reduction 2015–2030. The risk reduction (DRR) science and technology. This article describes the evolution of the role of science and technology in the policy process building up to the Sendai Framework adoption that resulted in an unprecedented emphasis on science in the text agreed on by 187 United Nations member states in March 2015 and endorsed by the United Nations General Assembly in June 2015. Contrib
Way forward

• Need for formal “national DRR science-policy councils/platforms” or a form of national focal points for science to support disaster risk reduction and management plans identified. Focal points could include platforms or chief scientific advisors function.
Global Forum on Science and Technology
Disaster Resilience 2017

Science Council of Japan, Tokyo, Japan
23rd - 25th November, 2017

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**News**

- Revised versions of Tokyo Statement and Policy Brief available (May 2018)
- Forum Photos are available
- Forum Presentation Files are available
- Tokyo Statement Draft and Policy Brief Documents available
- Prefinal Detailed Agenda available

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**Organizers**

United Nations Office for Disaster Risk Reduction
International Council for Science
Science Council of Japan

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**Draft 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 solid evidence and a scientific basis for risk-informed development and investment. It also highlights the important linkages and mutual reinforcement for disaster risk reduction with the 2030 agenda: the Sustainable Development Goals (SDGs), the Paris Agreement on Climate Change and the New Urban Agenda.

This has been reflected by the recognition of disaster risk reduction as central to fulfilling a transformative agenda for sustainable development and building prosperity, by politicians and policy makers worldwide. The growing linkages between the post-2015 frameworks, not least through their common monitoring and reporting processes, clearly showcase this commitment. In this era, the importance of a solid scientific base for risk-sensitive planning and decision-making and the critical role of science and technology has been pronounced more than ever before.

The Global Forum on Science and Technology for Disaster Resilience 2017 in Tokyo provided the best opportunity to assert our contribution and future actions through discussion among global scientists and to share the message with all stakeholders, including policy makers and the private sector. It thereby builds on and expands the discussions of the science and technology community, as well as other stakeholders at the First Science and Technology Conference held 27-29 January 2016 in Geneva, which resulted in the adoption of the Science and Technology Roadmap to Support the Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 and accompanying Science and Technology Partnerships, facilitated by the UN Office for Disaster Risk Reduction (UNISDR).

In support of the implementation of the Science and Technology Roadmap, we identified the following needs under the four priorities for action of the Sendai Framework to be urgently addressed by our community:

1. We need to contribute to knowledge on disaster risk. The Integrated Research on Disaster Risk (IRDR) Program, co-sponsored by the International Council for Science, International Social Science Council and UNISDR, together with the Future Earth (FE), Urban Health and Well-Being (UHW) and World Climate Research Programme (WCRP) and related science and technology communities should be supported to contribute to knowledge and to collaborate with disaster management institutions at the national level to develop a system for collection, archiving, management, analysis, and use data concerning disaster risk and disaster damage and losses. In support of policy makers and practitioners, we should establish and use scientific tools for evaluating disaster risk on a regular basis, as a function of the identification and assessment of hazards, vulnerability, and exposure including single and connected events. The use of geographical information systems should be promoted for providing and sharing disaster risk information at different scales before, during and after disasters.

2. We need to contribute to strengthening disaster risk governance to reduce disaster risk. In local and national disaster management platforms with well-defined responsibilities and authorities, we should 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.
2nd Asian Science and Technology Conference for Disaster Risk Reduction

MAIN ORGANIZER(S): THE EXPERT COMMITTEE OF NATIONAL COMMISSION FOR DISASTER REDUCTION (NCDR-CHINA)

MAIN HOST(S): BEIJING NORMAL UNIVERSITY (BNU)
MINISTRY OF CIVIL AFFAIRS
UNITED NATIONS OFFICE FOR DISASTER RISK REDUCTION (UNISDR)
Confirmed new members of the UNISDR Science and Technology Advisory Group (STAG) 2017-2018

21 members representing institutions and organizations, geographic regions, types of hazards, DRR disciplines, and stakeholders for the first-term of two years, renewable for one time only (2017-2018 and 2019-2020) and for the tasks specified in the Terms of Reference¹ and the Science and Technology Roadmap²
30 June 2017

2 representative from Europe region

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<td>9</td>
<td>Mr. Ian Clark</td>
<td>Head of Unit, Joint Research Centre of the European Commission (JRC)</td>
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<tr>
<td>10</td>
<td>Dr. Guoyi Han</td>
<td>Research Fellow and Theme co-leader, Reducing Climate Risk- Managing Environmental Systems., Stockholm Environment Institute (SEI)</td>
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European scientists convene on disaster risk

Forest fires are a major concern for European scientists working on disaster risk.

By Rosalind Cook

BRUSSELS, 27 April 2018 - A new European Science and Technology Advisory Group (E-STAG) convened this week in Sofia, Bulgaria, to focus on improving disaster risk knowledge in 55 countries across Europe and Central Asia.

UNISDR and the European Commission’s Joint Research Centre have established the group to tackle new emerging challenges.

Opening the meeting, Mr. Abhilash Panda, Deputy Chief of the UNISDR Regional Office for Europe, commented: “This first meeting of the European Science and Technology Advisory Group kicks off an important partnership that will help improve disaster risk reduction knowledge across the continent.”


https://www.unisdr.org/archive/58028
Ensure science, evidence and knowledge to underpin decision-making and strategies for disaster risk reduction at local, national and European regional levels. Initiate an EFDRR Science and Technology Alliance/Network to enable use of science in the implementation of the Sendai Framework.
The 2018 CASC 2018 platform is expected to host participants from Central Asia and South Caucasus countries, Ministers, Sendai Framework focal point, intergovernmental organizations, United Nations and international organizations, and stakeholder groups including National Societies of Red Cross and Red Crescent organizations, Children and Youth, Civil Society and Community Practitioners, Women, Parliamentarians, Local Authorities, **Science and Technology and Academia**, Private Sector, Media, Disability, etc. Experts beyond the sub-region will be engaged based on the topic to share good practices and build partnerships.

European Forum for Disaster Risk Reduction 2018

MAIN ORGANIZER(S): COUNCIL OF EUROPE (COE)
DIPARTIMENTO DELLA PROTEZIONE CIVILE
EUROPEAN COMMISSION (EC)
UNITED NATIONS OFFICE FOR DISASTER RISK REDUCTION - REGIONAL OFFICE FOR EUROPE (UNISDR EUR)

Securing Europe’s Prosperity – Reducing Risks of Disasters
European Forum for Disaster Risk Reduction
2015-2020 Roadmap for the Implementation of the Sendai Framework

Introduction

The Sendai Framework for Disaster Risk Reduction 2015-2030, adopted at the 3rd UN World Conference for Disaster Risk Reduction in March 2015 in Sendai, Japan and endorsed by the UN General Assembly in June 2015, has provided disaster risk management actors with a series of new guidelines. It highlights the role and relevance of regional platforms for disaster risk reduction, and of regional support for national and local efforts. To guide Europe’s implementation of the four priorities of action and seven global targets of the Sendai Framework, the European Forum for Disaster Risk Reduction agreed to develop a roadmap...
Priorities identified for the Road Map 2015-2020

1) The development or review of national and local-level strategies for disaster risk reduction:

   • Focus will be target 18e of the Sendai Framework: to substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
   • To ensure the development of national and local strategies, risk assessments and disaster loss databases have been identified as essential building blocks.

2) The integration of disaster risk reduction in different sectors to focus on climate change, environment, private sector, health, and persons with disabilities at national and local levels.
# National Risk Assessment

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<thead>
<tr>
<th>Impact</th>
<th>Catastrophic (5)</th>
<th>Significant (4)</th>
<th>Moderate (3)</th>
<th>Minor (2)</th>
<th>Limited (1)</th>
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<tr>
<td>Low (1)</td>
<td><img src="image1" alt="Catastrophic terror attacks" /></td>
<td><img src="image2" alt="Coastal flooding" /></td>
<td><img src="image3" alt="Public disorder" /></td>
<td><img src="image4" alt="Severe space weather" /></td>
<td><img src="image5" alt="Severe wildfires" /></td>
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<tr>
<td>Medium Low (2)</td>
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<td></td>
<td><img src="image6" alt="Medium (3)" /></td>
<td><img src="image7" alt="Medium (4)" /></td>
<td><img src="image8" alt="High (5)" /></td>
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<tr>
<td>Medium (3)</td>
<td><img src="image9" alt="Pandemic influenza" /></td>
<td></td>
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<td></td>
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<tr>
<td>Medium High (4)</td>
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<td></td>
<td><img src="image10" alt="Cyber attack: Confidentiality" /></td>
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**Relative Likelihood/Plausibility**

- Low (1)
- Medium Low (2)
- Medium (3)
- Medium High (4)
- High (5)
What does Sendai address?

(j) To strengthen technical and scientific capacity to capitalize on and consolidate existing knowledge and to develop and apply methodologies and models to assess disaster risks, vulnerabilities and exposure to all hazards;
Primary Categories of Macro-Threats

1 Financial Shock
2 Trade Dispute
3 Geopolitical Conflict
4 Political Violence
5 Natural Catastrophe
6 Climatic Catastrophe
7 Environmental Catastrophe
8 Technological Catastrophe
9 Disease Outbreak
10 Humanitarian Crisis
11 Externality
12 Other Shock

http://cambridgeriskframework.com/downloads
National Risk Register
Of Civil Emergencies
2017 edition
Concept Note

Global expert consultation on
the zero draft of the Global Capacity Development Strategy in support of the
implementation of the Sendai Framework for Disaster Risk Reduction

Geneva, 14-15 March 2018

Introduction

The Sendai Framework for Disaster Risk Reduction 2015-2030 has set ambitious targets for 2020 and 2030. At varying levels, Member States, particularly least developed nations, small Island developing states, landlocked countries and middle-income countries facing particular conditions of vulnerability will require support in their efforts to implement the Sendai Framework and achieve its target of preventing new and reducing existing disaster risk and to strengthen resilience.
Implementing the Sendai Framework for Disaster Risk Reduction 2015-2030 to enhance disaster preparedness for effective response

• The Sendai Framework provides a method to build research outputs to enhance capabilities to plan and prepare for, respond to, and recover from disasters and other emergencies

• Offers an opportunity to engage at a global level with stakeholders on guidance and policy issues that will impact regional and local preparedness
Thank you!

Sebastien Penzini  penzini@un.org
United Nations Office for Disaster Risk Reduction
Regional Office for Europe
Office : +32 (0)2 290 4954
UN House, 14 Rue Montoyer, 1000 Brussels, Belgium

Virginia.Murray@phe.gov.uk