Earth observation to support Sendai Framework for Disaster Risk Reduction: 2015-2030 – Efforts in Asia

Shirish Ravan
Head, UN-SPIDER Beijing Office
shirish.ravan@unoosa.org, www.unoosa.org
In 2015 the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS, for which UNOOSA is the Secretariat), adopted the **UNISPACE+50 initiative**.

UNISPACE+50 seeks to **develop stronger space governance and supporting structures at all levels**.

It builds on the **2030 Agenda for Sustainable Development**.

UNISPACE+50 will consider ways and means for **strengthening the role of the UNOOSA and the Committee within the United Nations system and the global space community**.

It prioritises **improved governance, capacity-building, resilience, interoperability of systems** and space for sustainable development.
The UN-SPIDER Programme

- UN-SPIDER Team
- Network of Regional Support Offices (RSOs) (19’)

Network of Regional Support Offices

UN-SPIDER in Vienna
UN-SPIDER Beijing Office
UN-SPIDER Bonn Office

RSO Algeria
RSO Nigeria
RSO I.R. Iran
ICIMOD
RSO Ukraine
RSO Ukraine
RSO Romania
RSO Hungary
RSO Russian Federation
RSO ADRC
RSO CATHALAC
RSO UWI
RSO Argentina
RSO Colombia
RSO Pakistan
RSO RCMRD
IWMI
RSO Indonesia
The Third United Nations World Conference on Disaster Risk Reduction (March 14-18, 2015)

187 countries adopted **Sendai Framework for Disaster Risk Reduction 2015-2030**

Sendai Framework provides a strong foundation for the continued work on reducing disaster risk and impacts for the coming 15 years.

It is also an essential part of the **Post-2015 Development Agenda**
Hyogo Framework for Action
2005-2015:
Building the Resilience of Nations and Communities to Disasters

Sendai Framework for Disaster Risk Reduction 2015-2030

4 Priorities and 7 Global Targets
Four Priorities for action - Sendai Framework

1. Understanding disaster risk;
2. Strengthening disaster risk governance to manage disaster risk;
3. Investing in disaster risk reduction and resilience;
4. Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction
Sendai Framework
Seven global targets

a) Substantially reduce **global disaster mortality** by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015;

b) Substantially reduce **the number of affected people** globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015;

c) Reduce direct **disaster economic loss** in relation to global gross domestic product (GDP) by 2030;

d) Substantially reduce **disaster damage to critical infrastructure and disruption of basic services**, among them health and educational facilities, including through developing their resilience by 2030;
e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020;

f) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030;

g) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.
Earth Observation and Sendai Framework

- Unique tool to identify and map risks (*Priority 1*)
- Emergency response mapping and damage assessment (*Priority 4*)
- Contributes in measuring Indicators to monitor *Global Targets* of Sendai Framework

- Spatially extensive mapping
- Beyond ‘human eye’ capability
- Localised event detection
- Access difficult or dangerous sites
- Near real time response
- Geo-referenced and calibrated
Sendai Framework Priority 1

Understanding disaster risk

National and local levels

24(c) Develop, update periodically and disseminate, as appropriate, location-based disaster risk information, including risk maps, to decision makers, the general public and communities at risk to disaster in an appropriate format by using, as applicable, geospatial information technology;

24(f) Promote real-time access to reliable data, make use of space and in situ information, including geographic information systems (GIS), and use information and communications technology innovations to enhance measurement tools and the collection, analysis and dissemination of data;

Global and regional levels

25(c) Promote and enhance, through international cooperation, including technology transfer, access to and the sharing and use of non-sensitive data, information, as appropriate, communications and geospatial and space-based technologies and related services. Maintain and strengthen in situ and remotely-sensed earth and climate observations. [...]
Sendai Framework Priority 4
Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction

• Develop and strengthen, as appropriate, coordinated regional approaches and operational mechanisms to prepare for and ensure rapid and effective disaster response in situations that exceed national coping capacities
United Nations International Conference on Space-based Technologies for Disaster Management – “A consolidating role in the implementation of the Sendai Framework on Disaster Risk Reduction: 2015-2030”
14-16 September 2015, Beijing, China
Outcomes from Beijing Conference on
Priority 1 – Understanding the risk

• Build and enhance the **capacity for using Earth observation (EO)** data at all levels;
• promote a culture of **continuous risk assessment using EO** at the national and local levels;
• promote a culture of **sharing non-sensitive data** at all levels;
• **raise awareness among politicians** of the usefulness of Earth observation data in disaster risk reduction;
• enhance the **political will** of Governments at the highest level **to carry out risk assessments and promote the effective use of Earth observation data**;
• Government agencies should **include Earth observation technology in their disaster management strategies**, plans and policies, as those are further transformed into implementable actions.
UN-SPIDER Technical Advisory Missions offer interventions at policy and coordination level.

Technical Advisory Mission (30 countries)
Sri Lanka

- 2011 – UN-SPIDER **Technical Advisory Mission** strongly recommended **NSDI**
- 2012 & 2013 – Follow up and capacity building activities
- 2013 – **Sri Lanka Spatial Data Infrastructure** (SL SDI) approved by the Cabinet of Ministers
- 2014 – SL SDI Road map prepared
- NSDI components – Data, Data supply, Data Access & Applications, Governance, Legal and Policy
Vietnam

- 2013 – UN-SPIDER Technical Advisory Mission
- 2014 – Follow up (Geospatially Enabling Communities Collaboration)
- 2015 –
  - Establishment of Geoinformatics Division
  - MoU between WRD - VAST – JAXA to benefit Disaster Management
Establishment of Technical Working Group (TWG) on Landslide

- Keep know how of plans and programmes of all agencies related to landslides
- a platform to discuss issues such as availability of landslide hazards map, mapping needs, procedures, methodology, sharing of landslide hazard/risk/vulnerability maps, coordination for avoiding duplication
- The **TWG is one of the Working Groups under the inter-ministerial task force** formed as per the **Disaster Management Act 2013**.

### Bhutan

- 2014 – UN-SPIDER Technical Advisory Mission
- 2015 - Training workshop on ‘Landslide hazard mapping, risk and vulnerability assessment’
Outcomes from Beijing Conference on Priority 4 - Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction

• At the national level, **geospatial information**, which during emergencies was often needed in conjunction with Earth observation information, was rarely well organized.

• **Earth observation and geospatial information** needed to be integrated with ground-based information

• Disaster response agencies needed an **institutional framework** for utilizing space-based information during emergencies

• Set out **common standards for disaster impact assessment**, so as to **avoid a duplication of mapping efforts**. At the same time, data should be served through a single portal to avoid miscommunication and confusion.

• The **technical capacity of disaster management authorities** needed to be enhanced through sustainable long-term activities
Outcomes from Beijing Conference
Lessons learned from Nepal earthquake

• A massive amount of information was generated.
• The challenge was to integrate such information into the decision-making process.
• Doing so called for standard operating procedures for data collection and analysis, and supplying the information products needed for decision-making.

• A need for base maps and common operational data sets for key cities and locations- Base maps should be readily available when disaster strikes.

• Key lesson: Defining a mechanism for coordinated information management ahead of time to prepare for disasters was essential.
Earth observation during emergencies

- Access to EO data within the country and region
- Capacity to use EO data
- Rapid response mapping – standards procedures
- Systems and tools
Regional level effort in with ASEAN countries

- 1st Workshop: 15-16 April, Yogyakarta, Indonesia
- 2nd Workshop: 4-5 June 2015, Hangzhou, China
- 3rd Workshop/expert meeting: December 2015, Sriracha, Thailand
- 4th Workshop: April 2016, Bogor, Indonesia

Outcomes

- **Procedural Guidelines** for ASEAN countries to access Earth observation information during emergency response
- **Promoting universal access to International Charter**
Outcomes from Beijing Conference
Public private Partnership

• Advanced Earth Observation Systems
• Innovative and efficient ways to transmit images and products to the end users
• Role in harnessing potential of crowd
• Sharing of responsibilities
Capacity building initiatives of UNOOSA
Regional Centres for Space Science and Technology Education (affiliated to the United Nations)
- Recommended practices
- Booklets- Lessons learned
- Literature archive
- Standard procedures
- Events
- Community news
- Much more...

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