Earth observation to support Sendai Framework for Disaster Risk Reduction: 2015-2030

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About UNOOSA



- 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**

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Towards UNISPACE+50 in 2018

- **2018** marks the 50th anniversary of the first UN Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE), held in Vienna in 1968

- **Committee on the Peaceful Uses of Outer Space (COPOUS)** decided in June 2015 to use this milestone anniversary to renew and strengthen its mandate as **a unique platform for interrelationship between major space faring nations and emerging space nations**, supported by the UN Office for Outer Affairs (**UNOOSA**)



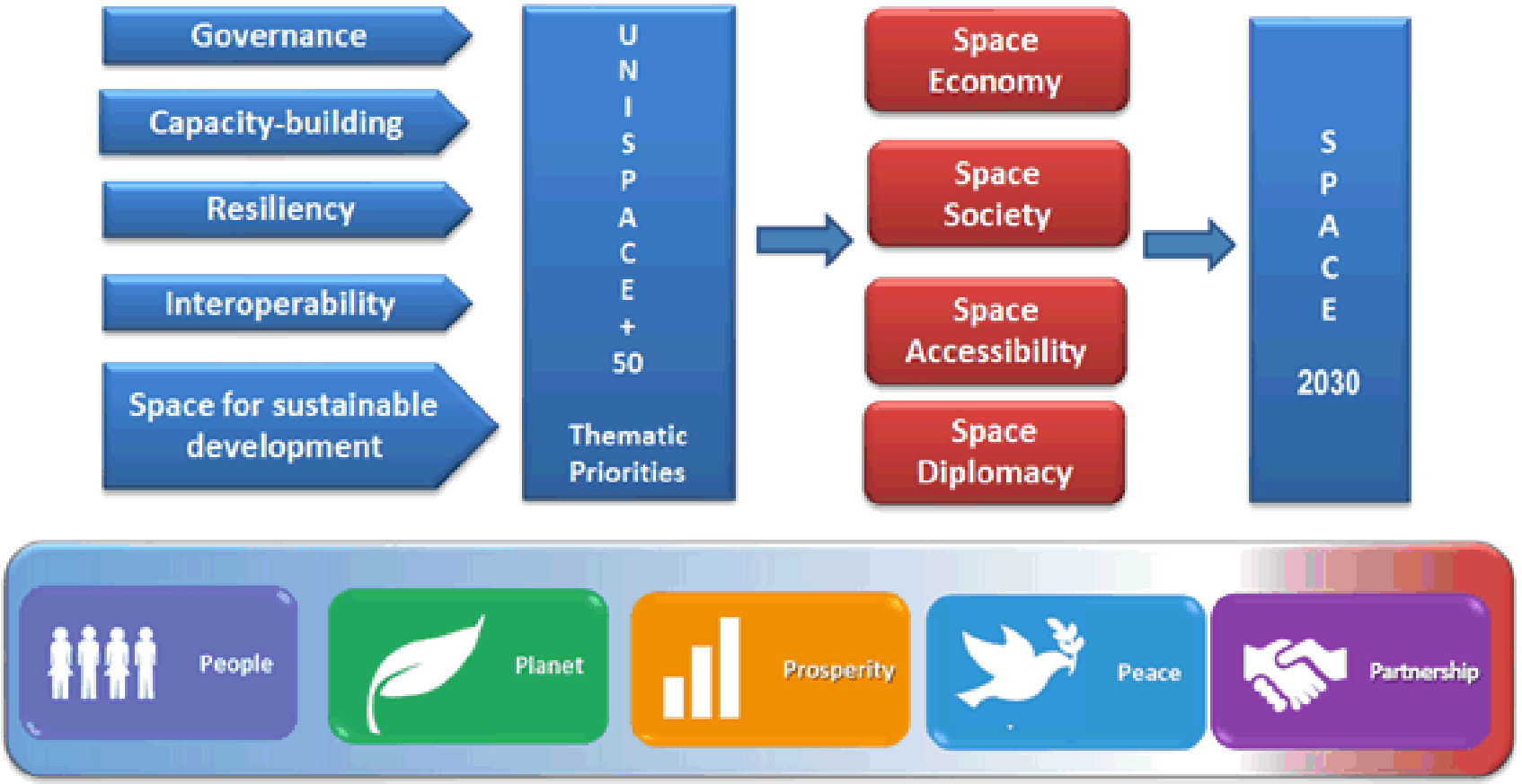
@UN Photo

- **UNISPACE+50 will articulate a long-term vision for Space**

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UNISPACE+50 Process



The UN-SPIDER Programme

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



UN-SPIDER in Vienna



UN-SPIDER Beijing Office



UN-SPIDER Bonn Office

RSO Romania
RSO Ukraine
RSO Russian Federation
RSO Hungary
RSO I.R. Iran
RSO ADRC
ICIMOD
RSO UWI
RSO Algeria
RSO Pakistan
RSO CATHALAC
RSO RCMRD
RSO Indonesia
IWMI
RSO Nigeria
RSO Colombia
RSO Argentina

Network of Regional Support Offices



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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**

UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

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Hyogo Framework for Action 2005-2015:
Building the Resilience of Nations and Communities to Disasters

→ Millennium Development Goals

Sendai Framework for Disaster Risk Reduction 2015-2030

→ **Sustainable Development Goals**

↓

4 Priorities and 7 Global Targets

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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**



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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;

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Sendai Framework
Seven global targets

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;

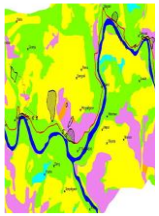
g) Substantially increase the availability of and access to **multi-hazard early warning systems and disaster risk information and assessments** to people by 2030.

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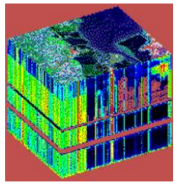
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Earth Observation and Sendai Framework

- **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**



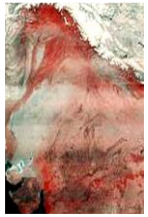
Spatially extensive mapping



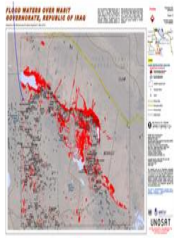
Beyond 'human eye' capability



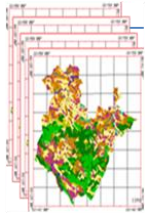
Localised event detection



Access difficult or dangerous sites



Near real time response



Geo-referenced and calibrated

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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. […]**

25(g) […] **disseminate risk information with the best use of geospatial information technology**; […]

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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*



Preparedness for effective response

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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



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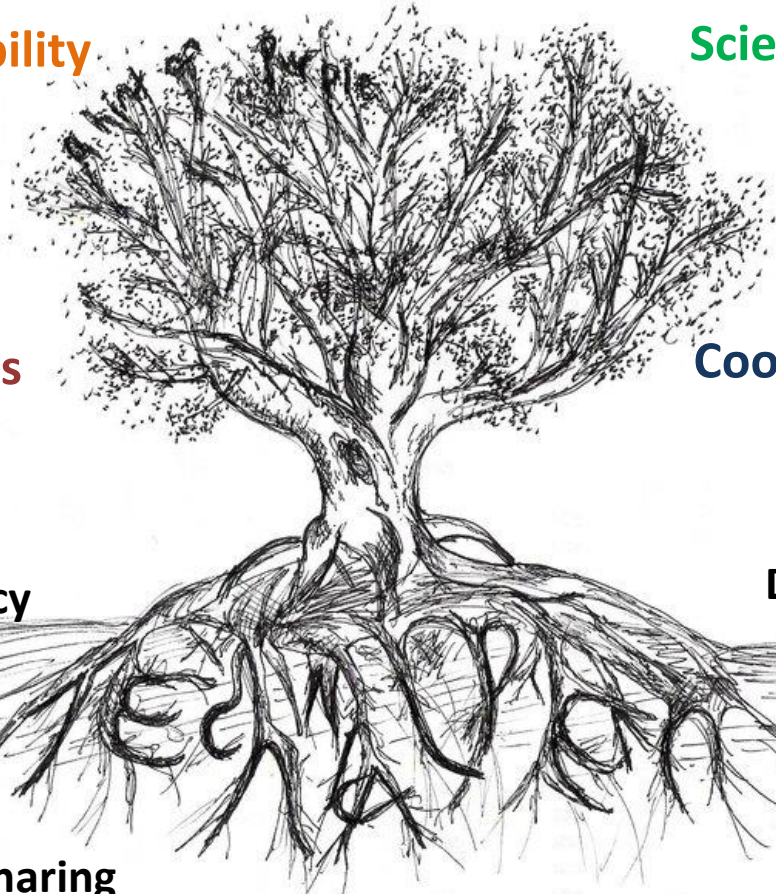
Outcomes from Beijing Conference on Priority 1 – Understanding the risk

- 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.

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UN-SPIDER Technical Advisory Missions offer interventions at policy and coordination level



Data services

Data interoperability

Scientific solutions

Planning inputs

Data sharing

Products/Services

Meta data

Coordination

Data access

Remote sensing data policy

Disaster Management Law

Standing orders

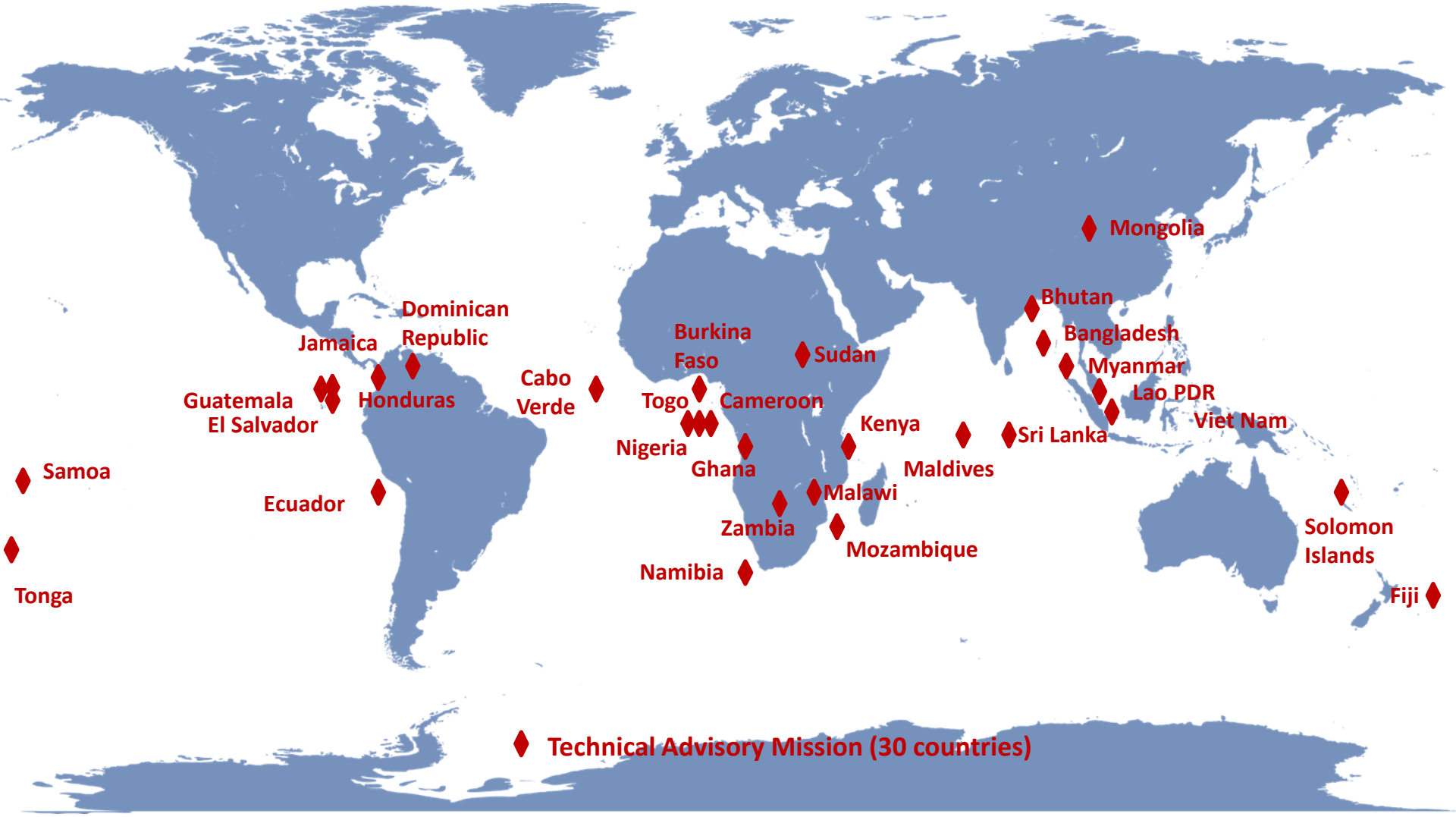
Geospatial policy

Framework for Data sharing

Plans and strategies

Spatial Data Infrastructure

UN-SPIDER Technical Advisory Missions (2008 – 2015)



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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
- 2016
  - Spatial Data Infrastructure
  - Data design framework
  - SOP for emergency response



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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

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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.**



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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**

International Charter Space & Major Disasters
Charte Internationale Espace et Catastrophes Majeures

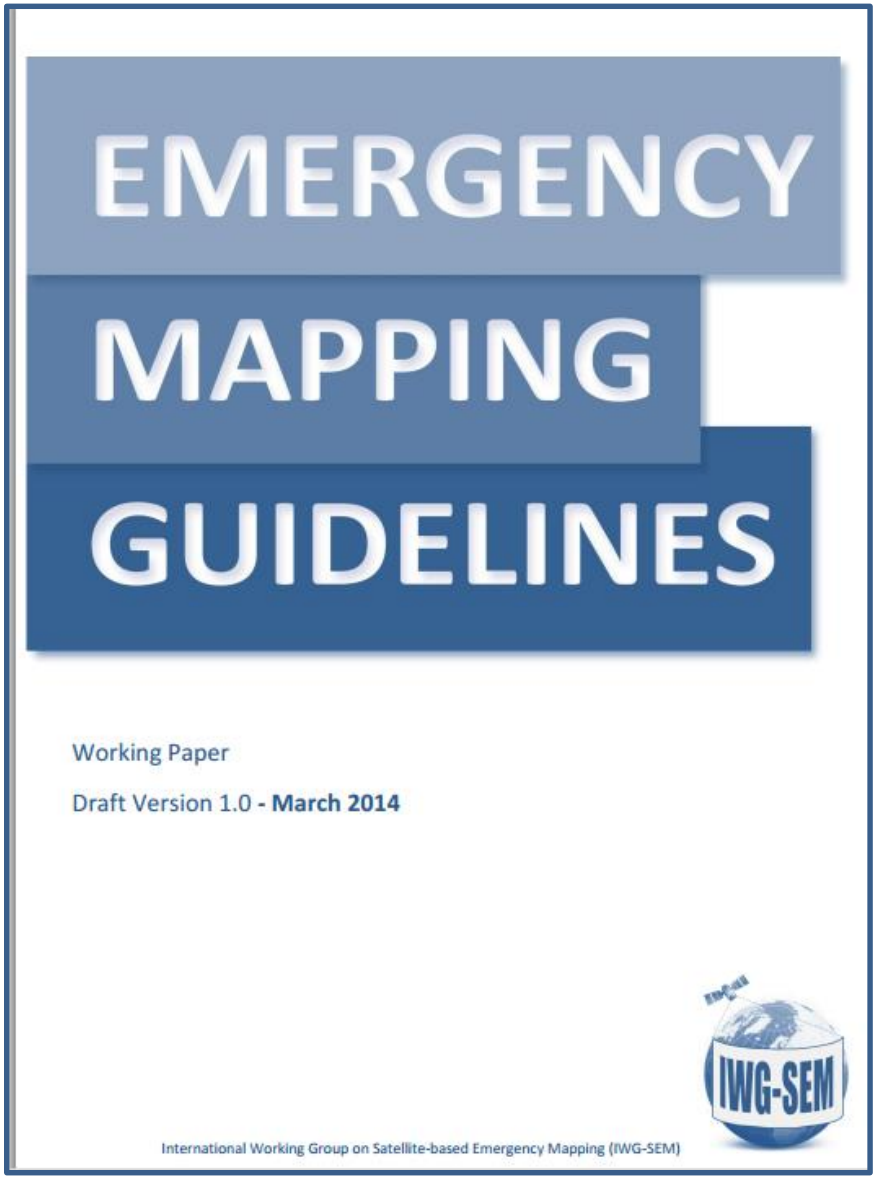
Copernicus

SENTINEL ASIA

United Nations (UN-SPIDER, ESCAP, UNOSAT)

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International Working Group on Satellite based Emergency Mapping (IWG-SEM)

IWG-SEM

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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

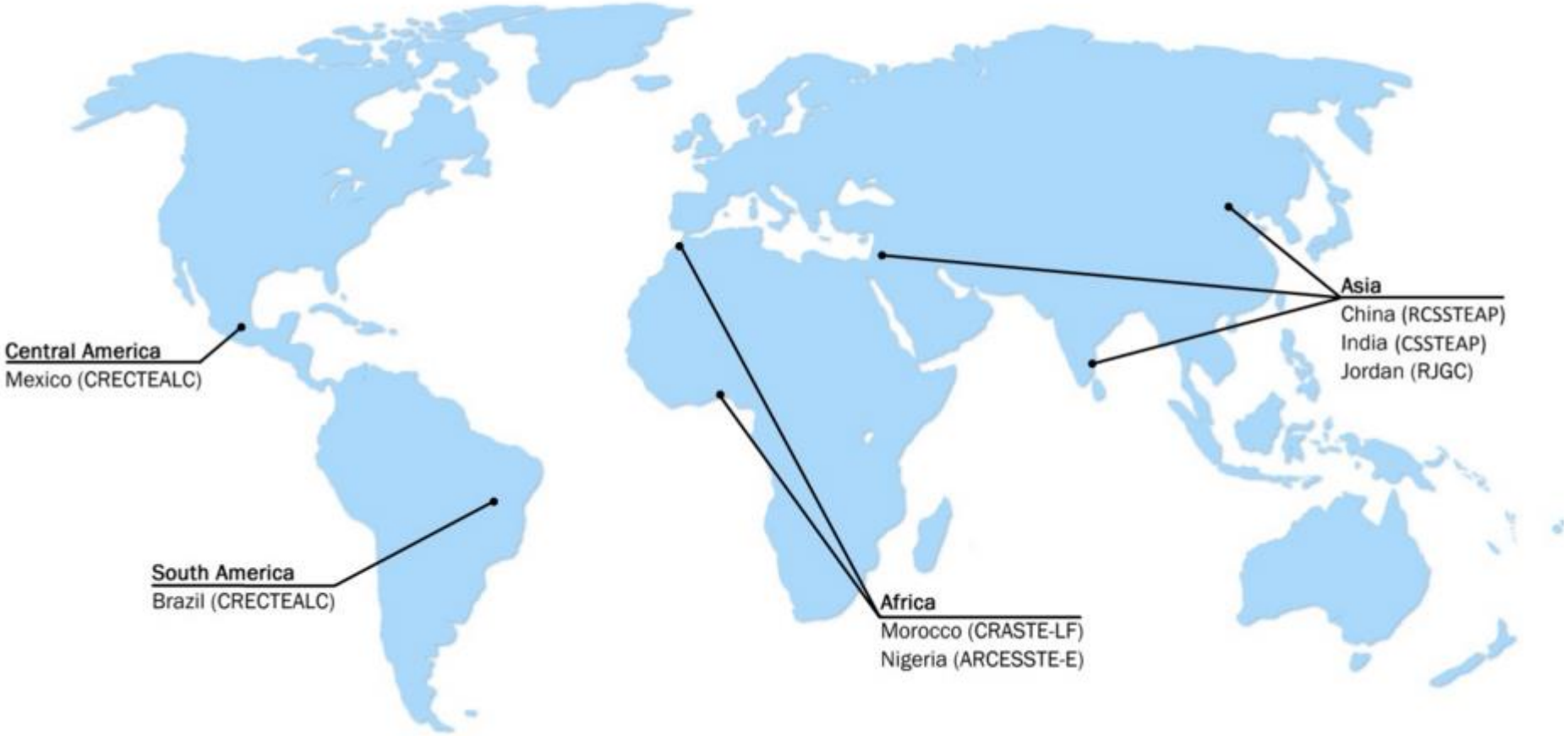
- ***Procedural Guidelines** for ASEAN countries to access Earth observation information during emergency response*
- *Promoting universal access to International Charter*

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Capacity building initiatives of UNOOSA

Regional Centres for Space Science and Technology Education (affiliated to the United Nations)



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- **Recommended practices**
- **Booklets- Lessons learned**
- **Literature archive**
- **Standard procedures**
- **Events**
- **Community news**
- **Much more…**

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