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Office for Outer Space Affairs

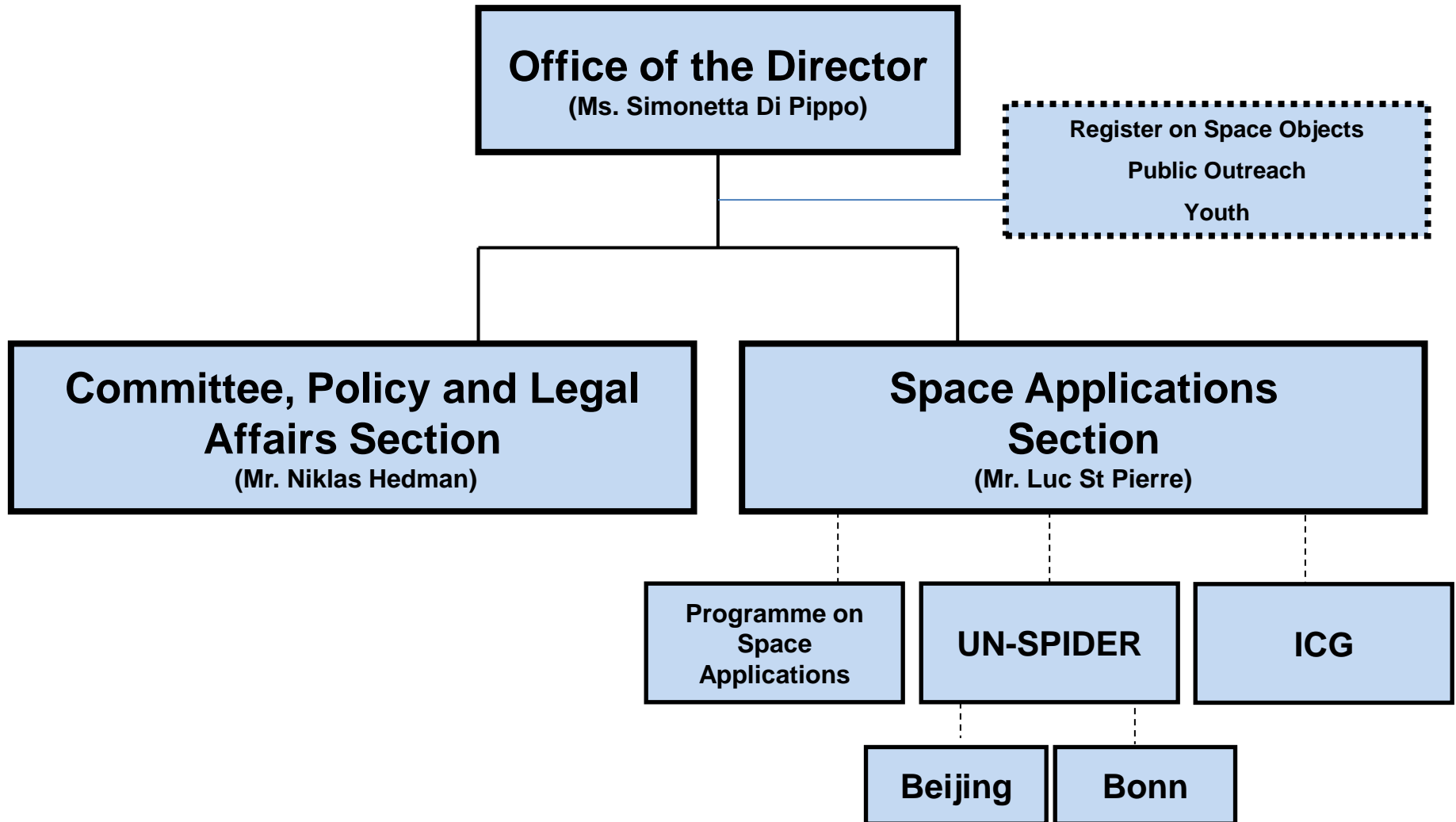
28 February 2018

Role of Satellite Technology in Disaster Risk Reduction and Response UN-SPIDER

United Nations Office for Outer Space Affairs
United Nations Office at Vienna
www.unoosa.org



OOSA structure





UN-SPIDER: Mission statement



„Ensure that all countries have access to and develop the capacity **to use** all types of **space-based information** to support the **full disaster management cycle.**“

General Assembly Resolution 61/110 (2006)



Key tasks



Technical Advisory Support

UN-SPIDER provides support to countries in assessing national capacity and in evaluating disaster and risk reduction activities, policies and plans



Knowledge Portal

The UN-SPIDER Knowledge Portal is a web-based tool for information, communication and process support



Capacity Building

UN-SPIDER facilitates capacity building and institutional strengthening, including the development of curricula and an e-learning platform (e-SPIDER)



Fostering Cooperation

UN-SPIDER fosters alliances and creates forums where both space and disaster management communities can meet

and many more...



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Network of Regional Support Offices





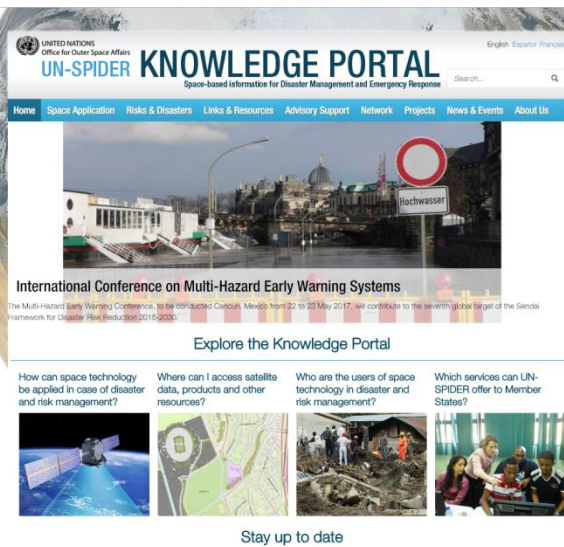
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Facilitating access to knowledge and information

Access



Newsletters and publications



UN-SPIDER
Knowledge Portal



Facilitating the Exchange of Knowledge

Discovery

Access

Exchange

Generation

Transfer



**Conferences, Workshops,
Expert Meetings**



Facilitating the Generation of Knowledge

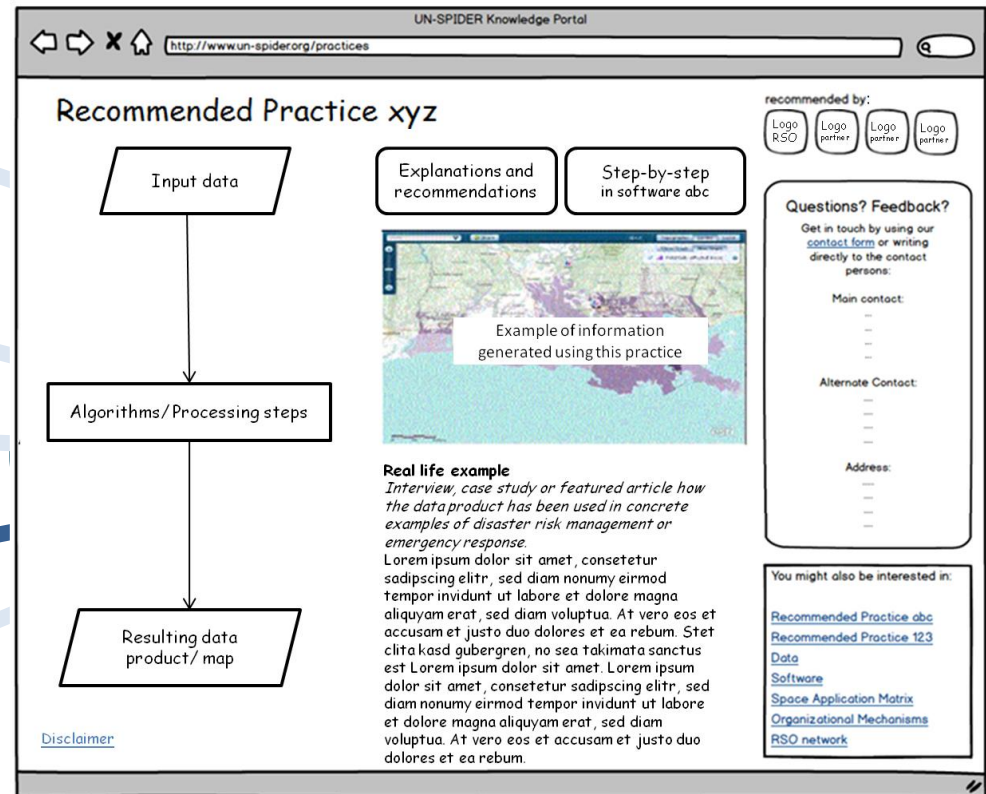
Discovery

Access

Exchange

Generation

Transfer



↑
RSOs



Access to Knowledge

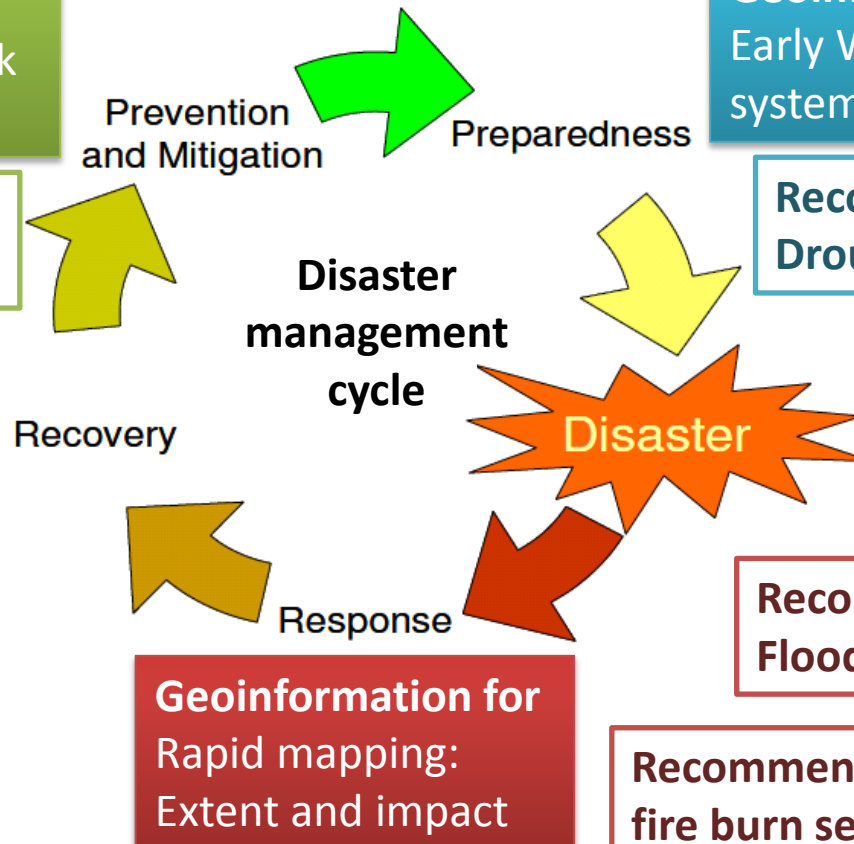
**Geoinformation for
Hazard, exposure,
vulnerability, and risk
assessment**

**Geoinformation for
Early Warning
systems**

**Recommended Practice on
Flood Hazard Mapping**

**Recommended Practice on
Drought Monitoring**

**Geoinformation for
Post Disaster Needs
Assessment (PDNA)/
Damage and Loss
Assessment (DaLA)**





Knowledge Transfer

Discovery

Access

Exchange

Generation

Transfer

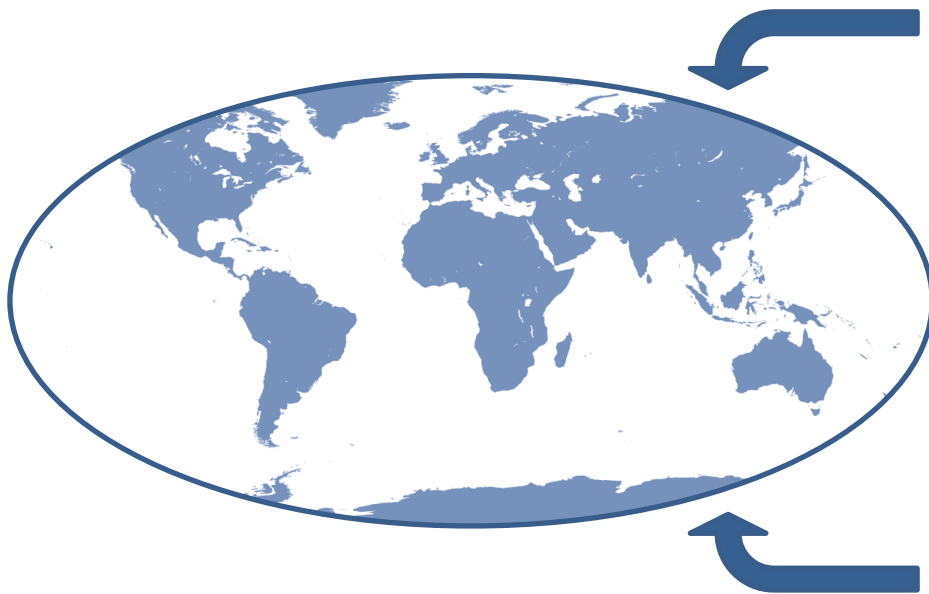


Training courses



Aim

Institutionalizing the generation and use of space-based information:



Establish inter-institutional teams in developing countries

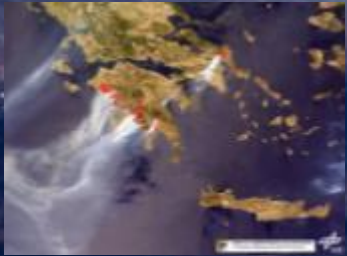
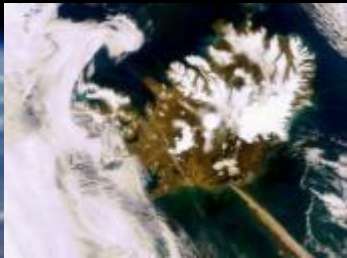
Capacity building and Institutional strengthening



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TP6: International Cooperation towards low-emission
and resilient societies

Examples of space applications





Applications in meteorology



Since the 1970s
satellite imagery are
used to track the
path of hurricanes
and in recent
decades new
satellites provide
additional
information on
extreme weather



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Aumentando el uso de Información espacial

Office for Outer Space Affairs

Reunión Regional de Expertos

TP6: International Cooperation towards low-emission

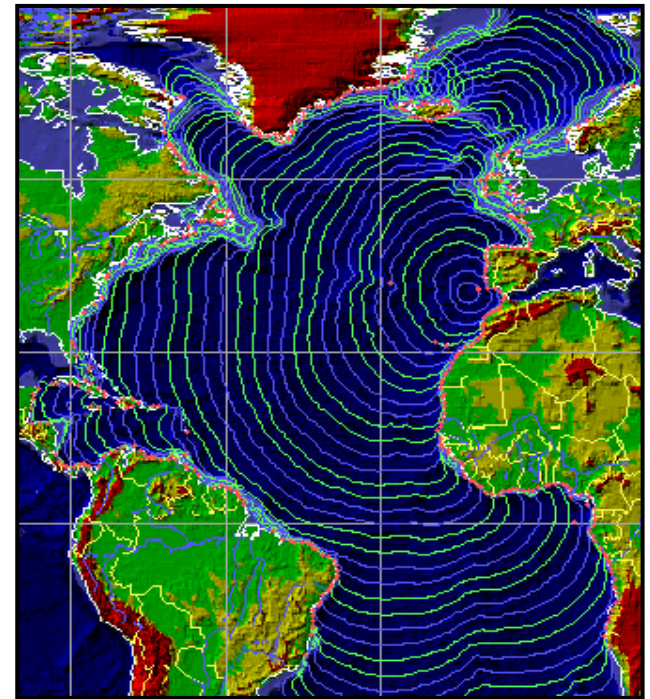
Secretaría de Comunicaciones y Transportes
"SISTEMAS DE ALERTA TEMPRANA Multi-Amenazas"

11 al 13 de julio 2017

Ciudad de México

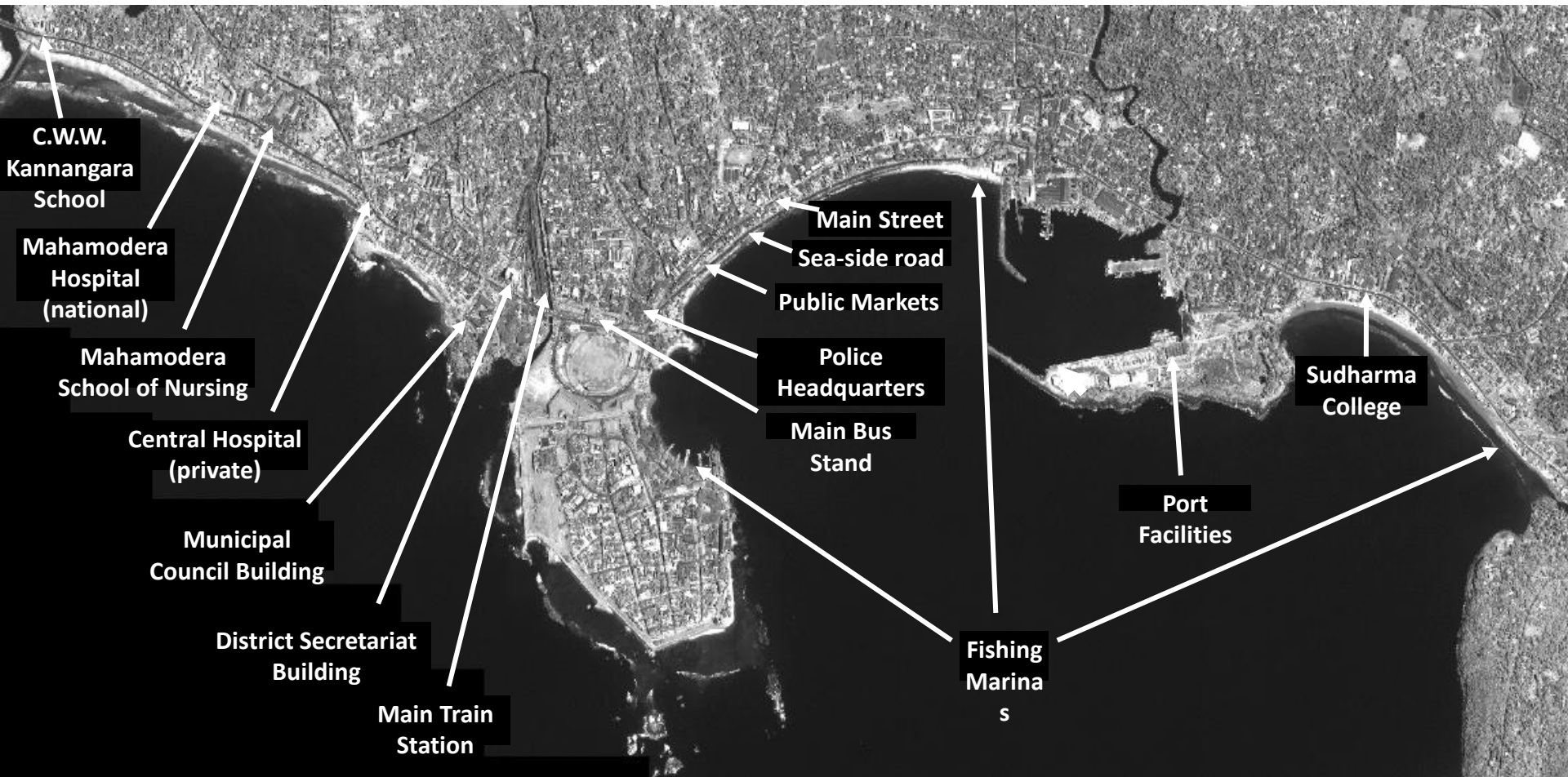
AGENCIA
NACIONAL
DE
DEFENSA
CIVIL
MEXICANA

Satellite telecommunications in case of tsunamis (WMO)





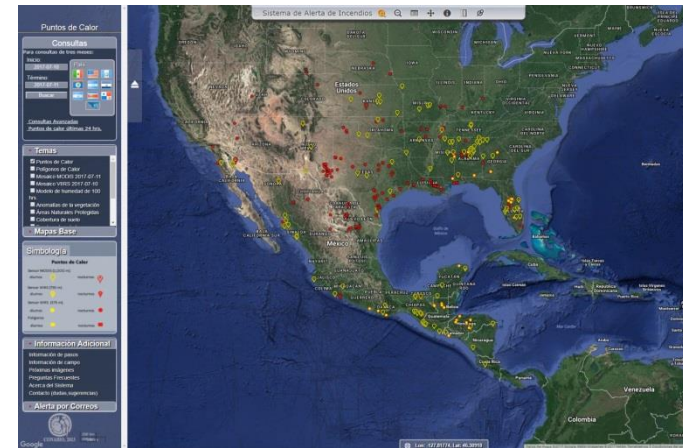
Earth observation to track exposure of infrastructure





Trends in Earth observation applications

- Open data policies by the space community, facilitating access to satellite imagery;
- Gradual migration from processing satellite imagery to the use of web-based services offering space-based products (digital elevation models, land-use information, etc)
- Greater involvement of the private sector (commercial satellite imagery and products).





The Sendai framework for DRR (2015 – 2030)



Support from space
technologies

Priorities for Action:

1. Understanding disaster risk;
2. Strengthening [governance / institutional arrangements / organizational, legal and policy frameworks] to manage disaster risk;
3. Investing in disaster risk reduction for resilience;
4. Enhancing disaster preparedness for effective response, and to Build Back Better in recovery, rehabilitation and reconstruction.



The Sendai framework for DRR (2015 – 2030)

Priority 1: Understanding disaster risk

National and local levels

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

Global and regional levels

- 23(c) Promote and enhance, **through international cooperation and technology transfer** [...] access to, and the sharing and use of, [...] data, information, [...] communication and **geospatial and space-based technologies and related services. Maintain and strengthen in situ and remotely-sensed earth and climate observations. [...]**;



The Sendai framework for DRR (2015 – 2030)

Global partnership using Space Technology Applications for Risk Reduction (GP-STAR): A Voluntary commitment

- **Continue facilitating the dialogue among stakeholders** in EO, satellite-based technologies and the global community of DRR experts and policy makers;
- **Serve as a collective source and repository of information** on efforts carried out worldwide by the EO and the satellite-based technology communities, including surveys and guidelines to improve the applications of existing and emerging technology to monitor hazards, exposure and risks;
- **Generate policy-relevant advice** to contribute to the integration of EO and satellite-based technologies into development process and public policies relevant to DRR;
- **Facilitate the use of EO and related satellite-based technology** to monitor progress in the implementation of the post-2015 framework for DRR.



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Global partnership – Space Technology Applications for Risk Reduction (GP-STAR)



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UNISDR

The United Nations Office for Disaster Risk Reduction



UNOSAT
satellite imagery for all
www.unosat.org

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific



GFDRR
Global Facility for Disaster Reduction and Recovery



esa



Copernicus

**Deutsches Zentrum
für Luft- und Raumfahrt**
German Aerospace Center



AEM
AGENCIA ESPACIAL
MEXICANA



ICIMOD



MEXT

MINISTRY OF EDUCATION,
CULTURE, SPORTS,
SCIENCE AND TECHNOLOGY-JAPAN



Disaster Management Centre



The Sendai framework for DRR (2015 – 2030)

An International Network on Multi-Hazard Early Warning Systems (IN-MHEWS): A Voluntary commitment

- **To identify effective strategies and actions** to promote and strengthen MHEWS in support of the implementation of the Sendai Framework;
- **To facilitate the sharing of good practice** and making available to governments and key stakeholders expertise and policy-relevant guidance to enhance and sustain MHEWS and related services;
- **To promote synergies and partnerships** between and among stakeholders at national, regional and international levels and those in charge of MHEWS at the national and local levels;
- **To advocate the usefulness of MHEWS** in regional and international platforms and among key stakeholders.



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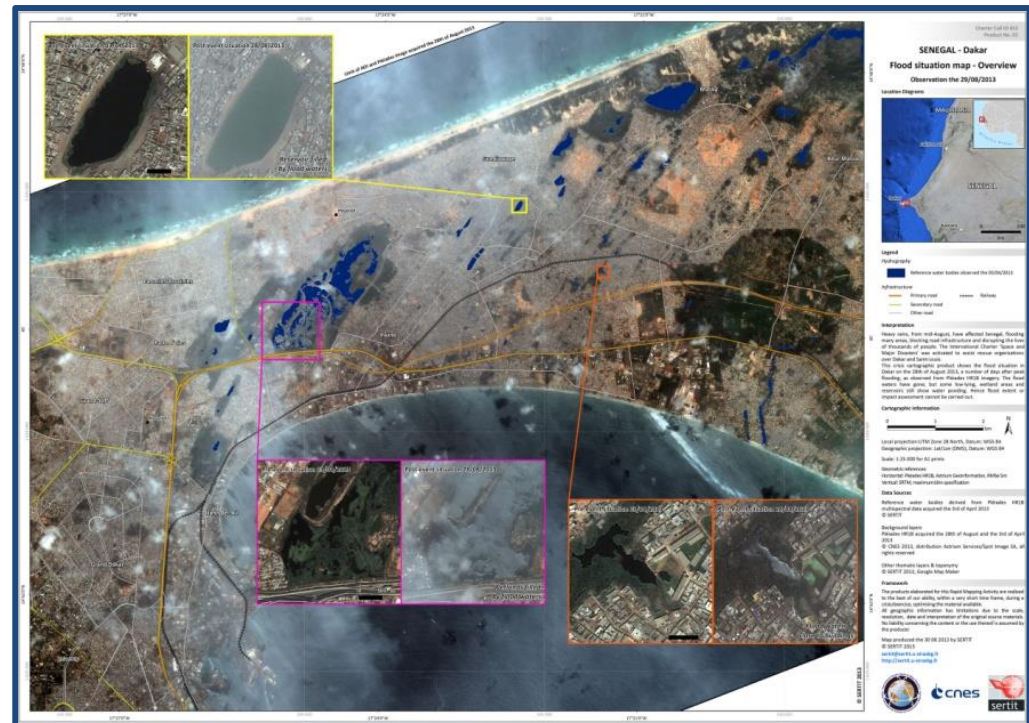
International Network on Multi-Hazard Early Warning Systems (IN-MHEWS)





Supporting the DMC and other institutions in rapid mapping efforts

- Providing training to staff of DMC and other government agencies on the use of space technologies and Earth observation for rapid mapping of areas affected by disasters;
- Facilitating the incorporation of the DMC as Authorised User with the International Charter Space and Major Disasters





Technical Support to DMC of Sri Lanka

Strengthening Sri Lanka's national drought early warning system

- Elaborating maps of the Vegetation Condition Index (VCI) and the Standard Vegetation Index (SVI) every 16 days for the period from June 2000 to March 2017;
- Suggestions on ways to improve early warning efforts in Sri Lanka.

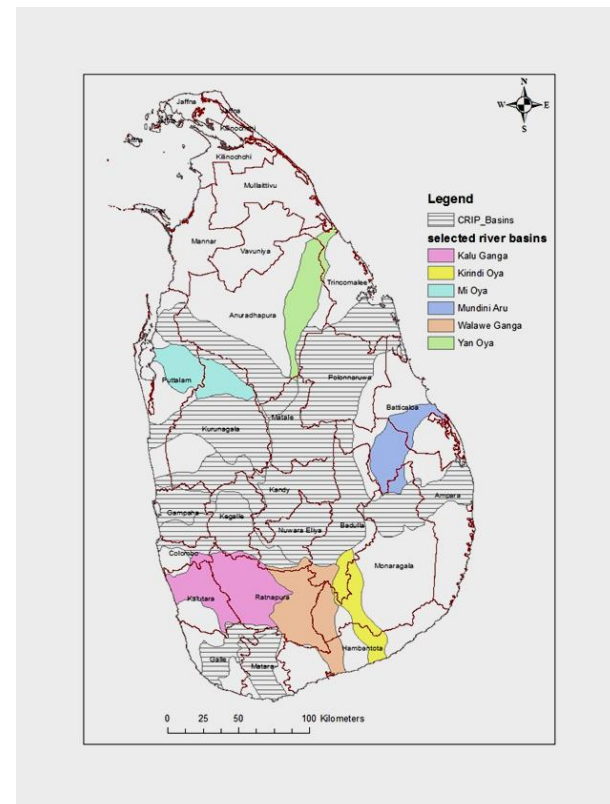




Technical Support to DMC of Sri Lanka

Contributing to the National Risk Assessment Project

- Contribution to the analysis of hazards, vulnerability, exposure and their combination to generate risk information;
- Facilitating the visualization of such risk information (geo-viewers, etc).





Technical Support to DMC of Sri Lanka

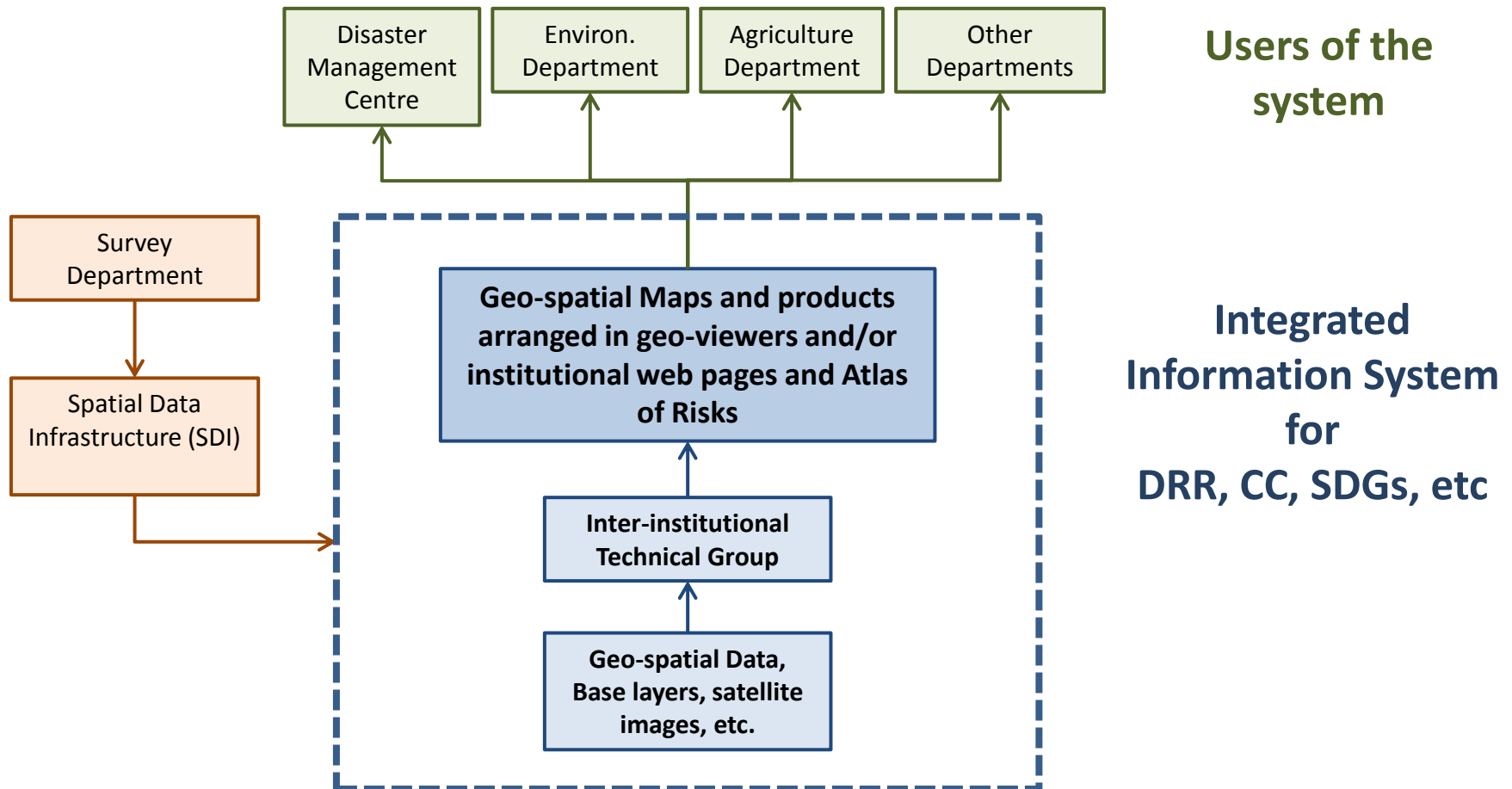
Inter-institutional technical team:

- Identifying which other institutions could join this effort;
- Developing Terms of Reference for the Team (aims, how to work together, expected products, etc);
- Developing a standard procedure for the operation of the team;
- The team consolidated through a Memorandum of Understanding.





The way forward: some suggestions





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THANK YOU

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