Third UN World Conference on Disaster Risk Reduction, Sendai, Japan, 17 March 2o15

The global framework bringing socio-economic benefits of space technologies to post-2015 agendas

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United Nations Office for Outer Space Affairs: mandate

- The Office **implements** the decisions of the **General Assembly** and of the United Nations **Committee** on the Peaceful Uses of Outer Space (COPUOS);
- Performs **functions** of substantive **Secretariat** of the Committee on the Peaceful Uses of Outer Space and its Scientific & Technical Subcommittee and Legal Subcommittee;
- **Coordinates** the inter-agency coordination within the United Nations on the use of space technology (**UN-Space**);
- **Maintains** coordination and cooperation with space agencies and intergovernmental and non-governmental organizations involved in space-related activities;
- **Implements** the United Nations **Programme on Space Applications**;
- Is **responsible for** the implementation of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (**UN-SPIDER**) programme;
- Serves as **Executive Secretariat** for the International Committee on Global Navigation Satellite Systems (**ICG**); and
- **Maintains**, on behalf of the United Nations Secretary-General, the **Register** of Objects Launched into Outer Space, and discharges responsibilities of UNSG under the treaties.

Committee on the Peaceful Uses of Outer Space

- Committee on the Peaceful Uses of Outer Space (COPUOS)
  - Scientific and Technical Subcommittee (STSC)
    - 3 Working Groups (Whole; Use of Nuclear Power Sources in Outer Space; Long-term Sustainability of Outer Space Activities): Expert Groups on space weather; global health
  - Legal Subcommittee (LSC)
    - 3 Working Groups (Status of United Nations Treaties on Outer Space; Definition and Delimitation of Outer Space; and Review of International Mechanisms for Cooperation in the Peaceful Exploration and Use of Outer Space)
- Current issues - Space agenda today:

Space and climate change	Disaster Management	Space debris mitigation	National space legislation
International mechanisms for cooperation	Long-term sustainability of outer space activities	Definition and delimitation of outer space	Space applications for socioeconomic development
Near-Earth objects	Global Navigation Satellite Systems	Space Weather	GGE-report

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The 8 Millennium Development Goals

Space technology and its applications: role and potential

- Clean environment, water availability & food security are essential for human health
  - Agriculture & food security: predicting crop yield, land cover & use, soil moisture &type …
  - Assessing extent of desertification, droughts and floods
  - Monitoring of water quality and assessment of wastewater salinity
  - Air composition and quality tracking, greenhouse gases monitoring
  - Ocean observations: sea level, surface winds, sea ice extent, ocean colour, etc.
  - Climate change monitoring
  - Mapping public health situation and environmental influences
  - Tele-medicine for remote and rural areas
- Addressing issues caused by increasing world population and energy demand
  - Optimising and directing the developments of cities
  - Minimising the damage of urban growth
  - Possible new energy sources & estimation of the volume of biomass
  - Coastal mapping and monitoring
- Space inspires people and can act as catalyst for change in society
  - Space science provides job in the high-tech industry
  - Astronauts as role models to increase interest in science

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UN-SPIDER Activities

Knowledge Portal

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

Fostering Cooperation

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

Capacity Building

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

Technical Advisory Support

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

and many more…

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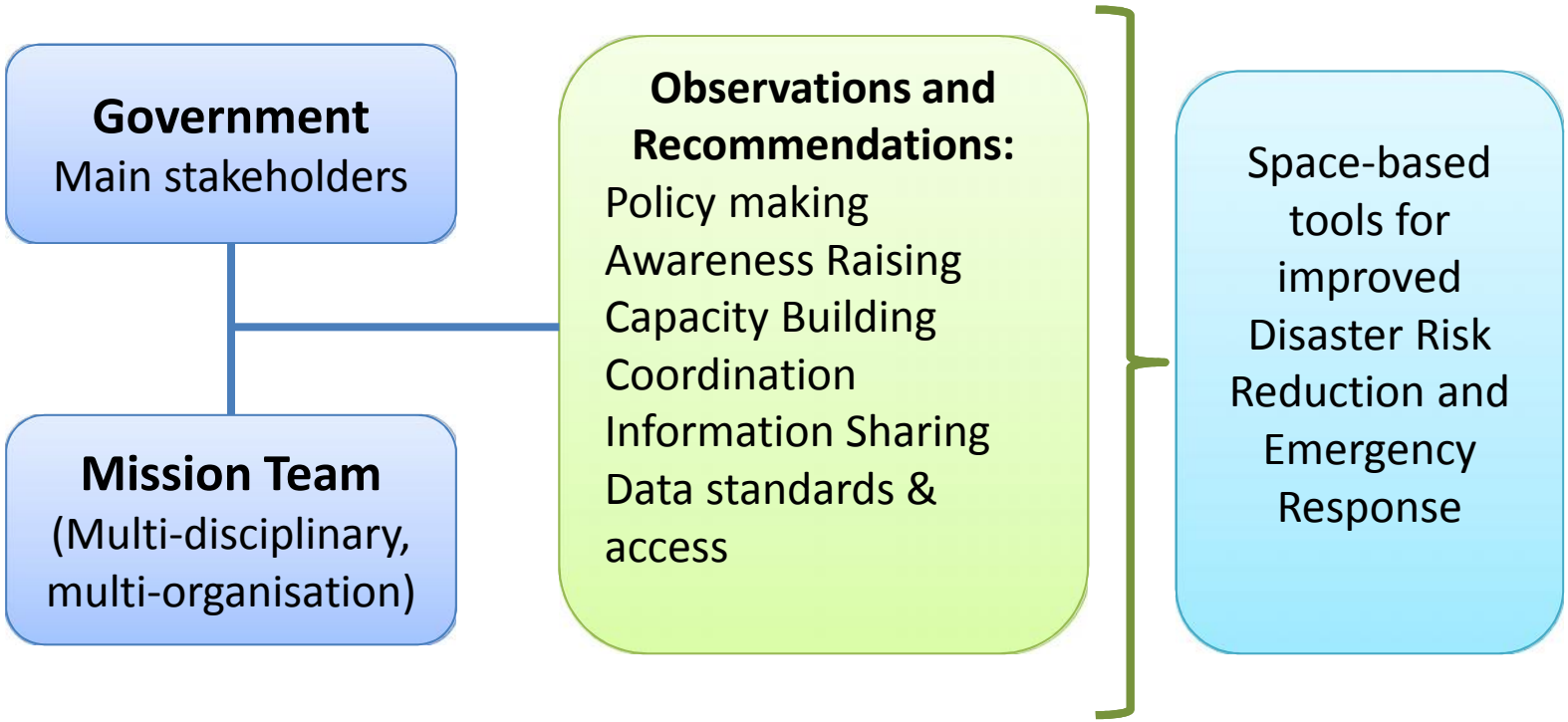
UN-SPIDER Network of Regional Support Offices

UN-SPIDER Technical Advisory Missions



Basic Space Technology Initiative (BSTI)

I. Respond to the growing interest in establishing indigenous space technology development capacities

II. Support capacity-building in space technology development, in particular through small-satellite activities

Mission:
Enhance access to space application tools for sustainable development through building capacity in basic space technology

III. Promote relevant standards and adherence to legal and regulatory frameworks

IV. Promote international cooperation and information exchange

Benefits of small satellite development

- Affordable approach to establish a capacity for space technology development;
- Limited infrastructure and development cost;
- Train and educate engineers and project managers with transferable skills;
- Acquisition of technical capabilities, with potential spin-offs into other industrial sectors;
- Establishment of commercial businesses;
- Opportunities for international space cooperation;
- Stepping-stone in developing and enhancing a country's space capacity;
- Benefits accruing from the actual operational use of small satellites.

International space technology symposiums

- Symposiums are being held in the regions that correspond to the United Nations Economic Commissions:
  - Africa
  - Asia and the Pacific
  - Latin America and the Caribbean
  - Western Asia
- Symposium objectives:
  - Address international and regional aspects of small satellite programmes and capacity building in basic space technology
  - Develop a United Nations Space Technology Education Curriculum in cooperation with educators and experts
  - Launch and implement BSTI Projects
- The Symposiums build on the recommendations of the UN/Austria/ESA series of Symposiums 2009-2011

UN/Mexico Symposium on Basic Space Technology 2014

- Held in Ensenada, Baja California, Mexico, 20-23 October 2014
- Report on the United Nations/Mexico Symposium on Basic Space Technology: Making Space Technology Accessible and Affordable (A/AC.105/1087, available from January 2014)
- See http://www.unoosa.org/oosa/en/SAP/bsti/mexico2014.html

UN/Mexico symposium objectives

- Review the status of capacity building in basic space technology including lessons learned from the past and on-going small satellite (<100 kg) development activities;
- Examine issues relevant to the implementation of small satellite programmes (capacity building, development and testing infrastructure and launch opportunities);
- Review state-of-the-art small satellite programmes in the field of Earth observation and disaster management;
- Elaborate on regulatory issues of space technology development programmes;
- Elaborate on legal issues and responsibilities;
- Continue the development of an education curriculum for space engineering;
- Review the existing space applications for early warning systems and discuss future collaborative projects in the field;
- Discuss the way forward for the Basic Space Technology Initiative (BSTI).

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Sustainable Development Goals: the relevance of space technology

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A UNOOSA-led partnership "EO for DRR/SD/CC agendas

Benefits of satellite-based Earth observations to DRR

- Contribute to cost savings achieved through adequate preventive actions based on reliable risk information;
- The combinations of satellite EO data with other traditional sources of data improve the quality of the information provided to end users, including decision-makers;
- Satellite EO offers the consistent coverage and scope to provide a synoptic overview of large areas, repeated regularly. Satellite EO can be used to compare risk across different countries and in trans-boundary areas where information might be difficult to collect;
- EO data can be used to represent complex dynamics and processes through detailed, unbiased and up-to-date risk maps and models; and
- Satellite data offers a unique means to monitor the progress of the implementation of the post-2015 Framework for Disaster Reduction, using globally comparable metrics.

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Draft post-2015 framework for disaster risk reduction

As of 28/01/2015

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. […];**

Post-2015 framework for disaster risk reduction - voluntary commitments

Global and regional levels: proposed ways forward

- Proposed partnership involving international, regional and national organizations from the disaster-risk reduction and space communities as a way to facilitate the use of space-based applications, including Earth observation.
- Proposed partnership involving international, regional and national organizations as a way to improve Early Warning Systems worldwide, including through the use of space-based applications and Earth observation.

Sustainable development - New York, Sept. 2015

Efforts to promote the use of space-based applications to:

- **Monitor the environment (land, oceans);**
- **Development in urban / rural areas**
- **Applications in agriculture, ecosystems, etc**

Climate change - COP 21 in Paris, France

Efforts to promote the use of space-based applications in:

- **Essential climate variables (ECVs), work already advanced**
- **Mitigation, work already advanced**
- **Adaptation, in process**
- **Loss and Damage, in process**

And to contribute to monitor the implementation of the new framework to be launched in Paris.

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United Nations/Germany International Conference: Earth observation – Global solutions for the challenges of sustainable development in societies at risk
Bonn, Germany, 26 to 28 May 2015

- To **bring together** space leaders and Earth observation experts and decision makers and stakeholders involved in sustainable development, climate change and disaster risk reduction;
- To outline how Earth observation solutions **should be employed to address sustainable development** in societies at risk that must face the challenges of climate change; and
- To showcase existing solutions, to identify emerging trends that need to be addressed, and **to facilitate collaboration and synergies** among stakeholders involved in these efforts.

What the UNOOSA-led partnership for EO will offer?

- Facilitate the dialogue among stakeholders in EO, satellite-based technologies and the global community of DRR experts and policy makers, including for the dissemination of lessons learned;
- Serve as a collective source and repository of information on efforts carried out worldwide by the EO and Satellite-based technology communities 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 technology to monitor progress in the implementation of the post-2015 framework for DRR;
- Mobilize additional actors and stakeholders to contribute to efforts conducted by the partnership worldwide.

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Thank You

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