



UNITED NATIONS
Office for Outer Space Affairs

2016.09.07 | Vienna

10th United Nations Workshop on Space Law

Capacity-building models - the case of UN-SPIDER Technical Advisory Missions

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



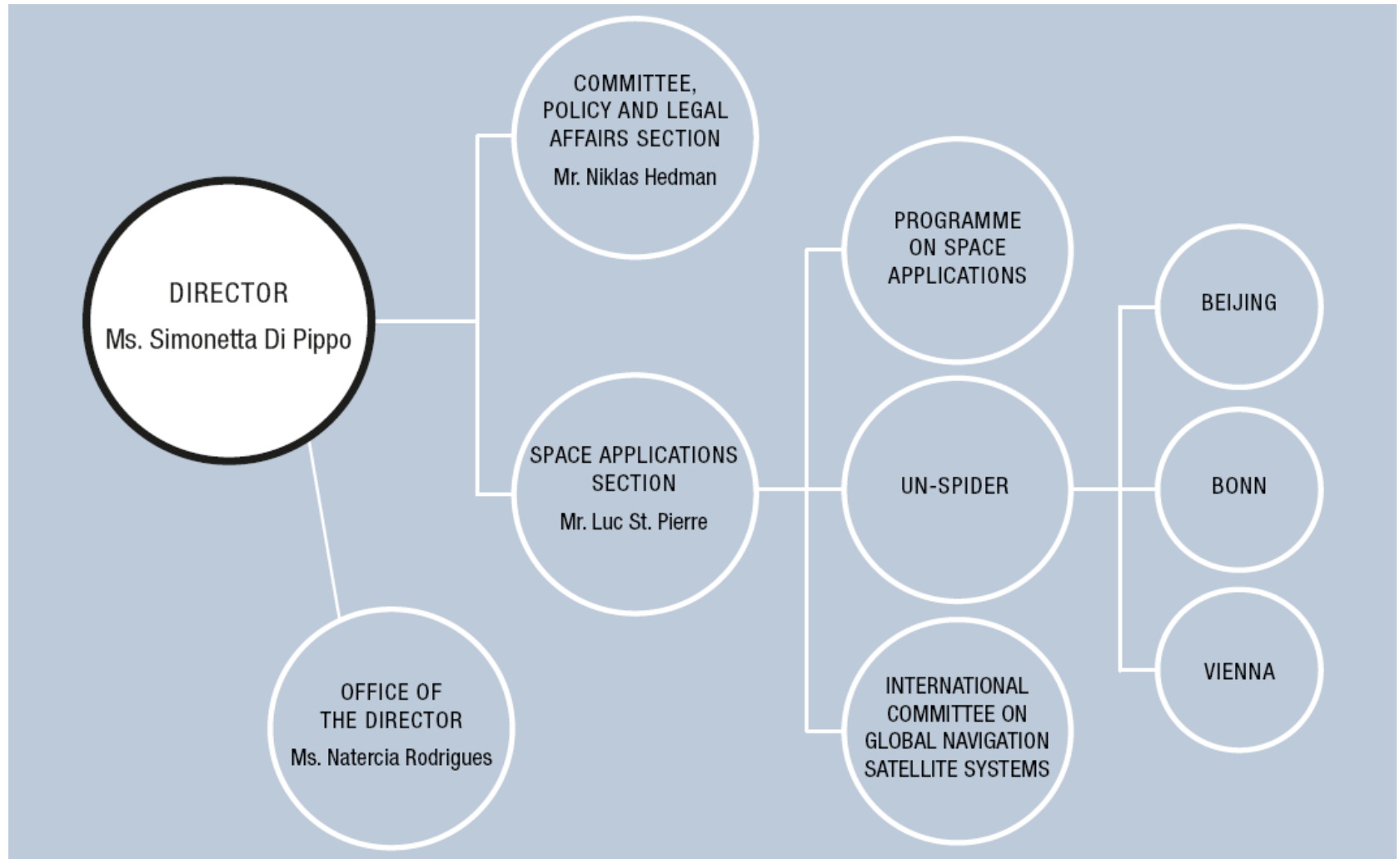
OOSA Mandates & Responsibilities

Secretariat functions of the **Committee on the Peaceful Uses of Outer Space** and its Scientific and Technical Subcommittee and Legal Subcommittee

- Lead the UN Inter-Agency coordination mechanisms on Outer Space Activities (**UN-Space**)
- Discharge the responsibilities of the Secretary-General under the **UN treaties and principles on Outer space**
- Maintain, on behalf of the United Nations Secretary-General, the **Register of Objects Launched into Outer Space**
- Pursue **Coordination/cooperation** with space agencies, IGOs & NGOs, private sector, academia, involved in space-related activities
- Implement the **United Nations Programme on Space Applications**,
- Serve as Executive Secretariat for the International Committee on Global Navigation Satellite Systems (**ICG**)
- Implement the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (**UN-SPIDER**) programme



Organizational 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**“





... use all types of space-based information



- **Earth Observation**



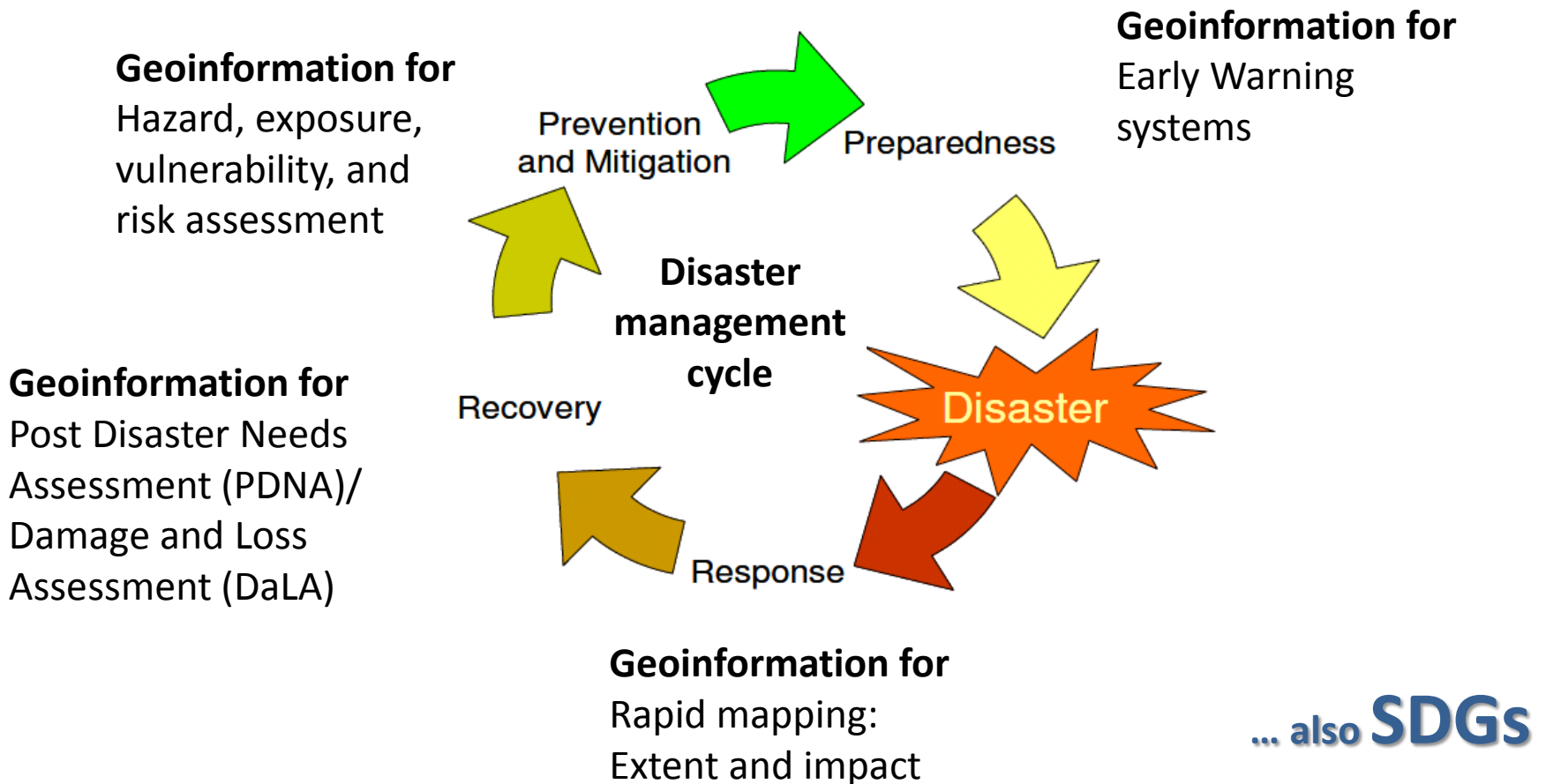
- **Navigation and Positioning**

- **Satellite Communication**





...to support the full disaster management cycle





In which way

Enabling
institutions to
generate and use
space-based
information

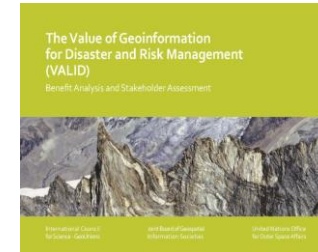
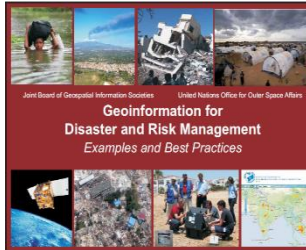




Network of Regional Support Offices



Publications



Optimizing Disaster and Risk Management (DRM) with geoinformation products and services is an increasing global trend and also challenge to the scientific community

- Best practice methodology and benefit valuation successfully addressed by two foregoing joint publications
- Continuation highly recommended by the participants at the VALID booklet launch and presentation in Vienna
- Third booklet plans: How geoinformation is utilized in the context of specific application cases





UNITED NATIONS Office for Outer Space Affairs

UN-SPIDER REGIONAL SUPPORT OFFICES

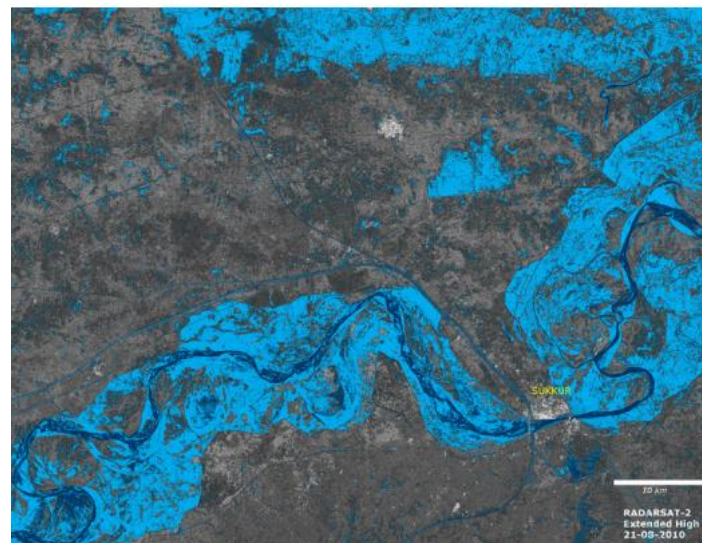


Effective use of Space-based information to monitor disasters and its impacts

Lessons Learnt from Drought in Iran

prepared by Iranian Space Agency

UN-SPIDER REGIONAL SUPPORT OFFICES



Effective use of Space-based information to monitor disasters and its impacts

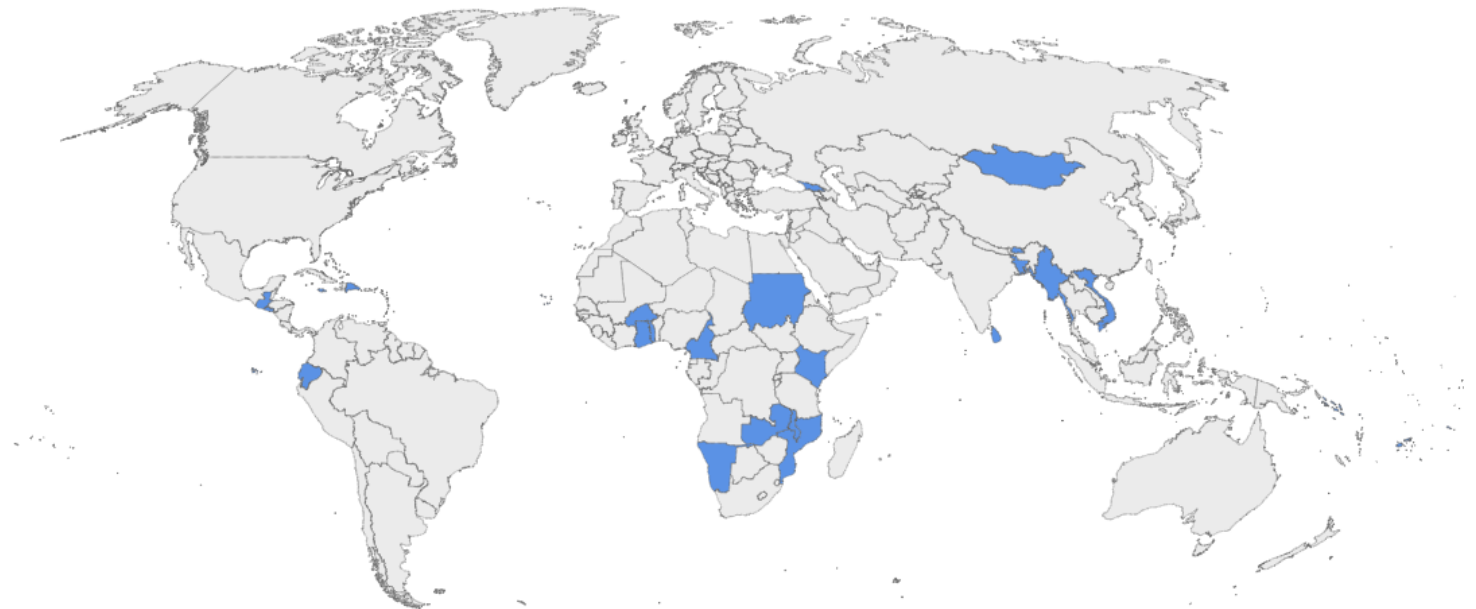
Lessons Learnt from Floods in Pakistan

prepared by SUPARCO, Pakistan



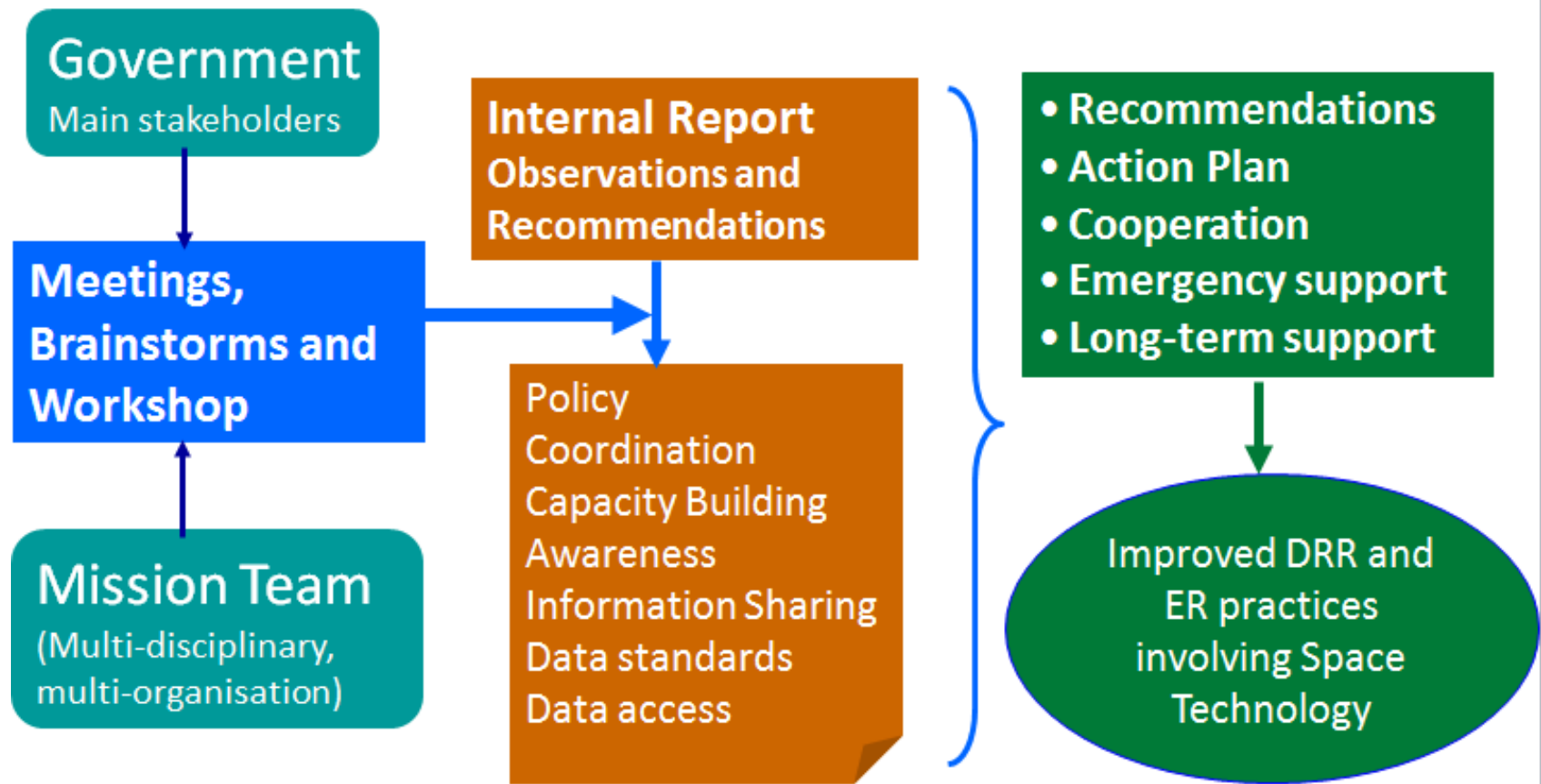
Technical Advisory Support

- Over 55 countries supported
- 34 national Technical Advisory Missions (by end 2016)
- **Over 350 recommendations made, with limited implementation**
- With modest financial support from the governments of Austria, China and Germany, the UN Regular Budget, in-kind contributions of network of Regional Support Offices and various (many) other partners





Technical Advisory Missions





Technical Advisory Missions (2008 - 2015)





UN-SPIDER Technical Advisory Mission, Sri Lanka



- 1. Ministry of Disaster Management (MDM)**
- 2. Ministry of Technology and Research**
- 3. Ministry of ICT and Telecommunication (ICTA)**
- 4. National Building Research Organisation (NBRO)**
- 5. International Water Management Institute (IWMI)**
- 6. UN Country Team Information Management Group (UNCT IM):**
- 7. Department of Meteorology**
- 8. Coast Conservation Department**
- 9. Telecommunication Regulatory Commission**
- 10. Department of Survey and Mapping**
- 11. Ministry of Public Administration and Home Affairs**



Classes of recommendations from Advisory Missions

- **Policy and Coordination**
- **Awareness Raising**
- **Capacity Building and Institutional Strengthening (also legislation)**
- **Accessing and Processing of Data**
- **Information Flow and Management**
- **Strengthening International Cooperation**
- **Specific recommendations to address various stages of disaster management (risk reduction, early warning, emergency response etc.)**



TAM recommendations list excerpt

| Policy and Coordination | # |
|--|----|
| PC_010 Review disaster management policy and consider provision that highlight the importance of geospatial and space-based information | 11 |
| PC_011 Space-based information and technology elements should be introduced into national multi-risk contingency plan | 6 |
| PC_012 Disaster management laws should be adopted to focus on disaster risk reduction taking into account new technologies, incl. space technology and geospatial info. | 6 |
| PC_013 National Disaster Risk Reduction platform should be established | 1 |
| PC_015 Incorporate in the law: "free access to all space-based information and data in case of disaster" | 1 |
| PC_016 An open-data policy for all data relevant to disaster management and DRR activities has to be implemented at the national level. Such data policy improvements must be applicable to all sub-fields of disaster management. | 1 |
| PC_020 Establishing a policy which creates a National Spatial Data Infrastructure (NSDI) should be a top priority to ensure optimal use of existing resources | 11 |
| PC_021 Make the central governmental organization for promoting the use of space-based technology operational | 1 |
| PC_025 Revitalize National Spatial Data Infrastructure/ augment implementation of NSDI | 5 |
| PC_026 Revive the MAGIC platform as an independent geospatial user group/platform to facilitate the exchange on NSDI issues | 1 |
| PC_030 Facilitate the creation of a professional body or association bringing together geospatial experts | 3 |
| PC_040 Disaster Management agencies / authorities keep record of the support offered by UN-SPIDER and establish mechanism to coordinate with UN-SPIDER (e.g., Sentinel, International Charter) | 3 |
| PC_041 Focal points for the national platform and for UN-SPIDER should be identified | 1 |
| PC_043 Establish a list of actors involved in the full disaster cycle | 1 |
| PC_045 Clarify and formalize points of contacts and role of institutions in the use of international mechanisms | 1 |
| PC_050 Coordinate all the organizations using early warning systems using geospatial data, and improve dissemination of spatial information | 5 |
| PC_051 State the role in information management of all the linked disaster related entities and organizations managing geographic information | 2 |
| PC_052 Provide clear guidelines on baseline geospatial information to be used to develop new portal/tools and establish inter-operability between portals of different ministries. | 1 |
| PC_055 Stronger coordination, cooperation and resource sharing policy of all relevant agencies and governmental institutions, the UN Country Team and Academia as well, with a strong backing | 2 |

Number of countries recommendation applies to



Select priority issues to be addressed under Policy and Legal:

- Adjustments of current legislation or drafting new laws to include space and geospatial technologies in national disaster management and risk reduction policies;
- High level advocacy meetings to engage ministerial and policy-making levels in a country about the utility of space based technologies;
- Preparing procedural guidelines, standard operating procedures, facilitating establishment of inter-agency coordination groups;
- Support the development of national governance mechanism such as mandated emergency management centres, National Action Plans for Disaster Risk Reduction addressing space-based technologies;
- Establishment by law of National Spatial Data Infrastructures (also relevant to SDGs);
- Development of specific legislation or regulations for EO and other spatial data procurement procedures and sharing among national institutions
- Formalize links between national mandated entities and international support mechanisms addressing provision of and support with space-based technologies etc.



Sample of UN-SPIDER Activities, 2014

Technical Advisory Missions

- **Kenya**, 3-7 March 2014
- **El Salvador**, 2-4 April 2014
- **Zambia**, 26-30 May 2014
- **Bhutan**, 2-6 June 2014
- **Mongolia**, 11-15 August 2014

Training

- **Vietnam**, 3rd week September 2014
- **Sri Lanka**, 1st week November 2014

Workshops/conferences

- Regional Expert Meeting/CEPREDENAC to Central America, **El Salvador**, 31 March and 1 April
- Regional workshop ASEAN region (Partners – LAPAN, AHA), **Indonesia**, 15-17 April
- International training with ICIMOD on flood forecast and hazard mapping, **Nepal**, 9-13 June
- United Nations/**Germany** Expert Meeting on Space Technologies for flood and drought risk reduction, 5-6 June
- UN/**China** International Conference on Space-based Technologies for Disaster, 15-17 September
- Course in space-based applications for Disaster Risk Reduction, **China**, 18-23 September



UN-SPIDER capacity building efforts

UN-SPIDER
Technical Advisory Missions



Follow up actions
(Capacity Building):

- Institutional Strengthening
- Technical Training Workshops



Myanmar



Cameroon



Mexico



UN-SPIDER activities in Namibia 2008 - 2010



2nd UN-SPIDER
Bonn WS



Technical Expert
Meeting Bonn



Regional Meeting Namibia



1st Charter
activation



1st Technical
Advisory Mission



3rd Charter call



2nd Charter call



3rd UN-SPIDER
Bonn WS



2008

2009

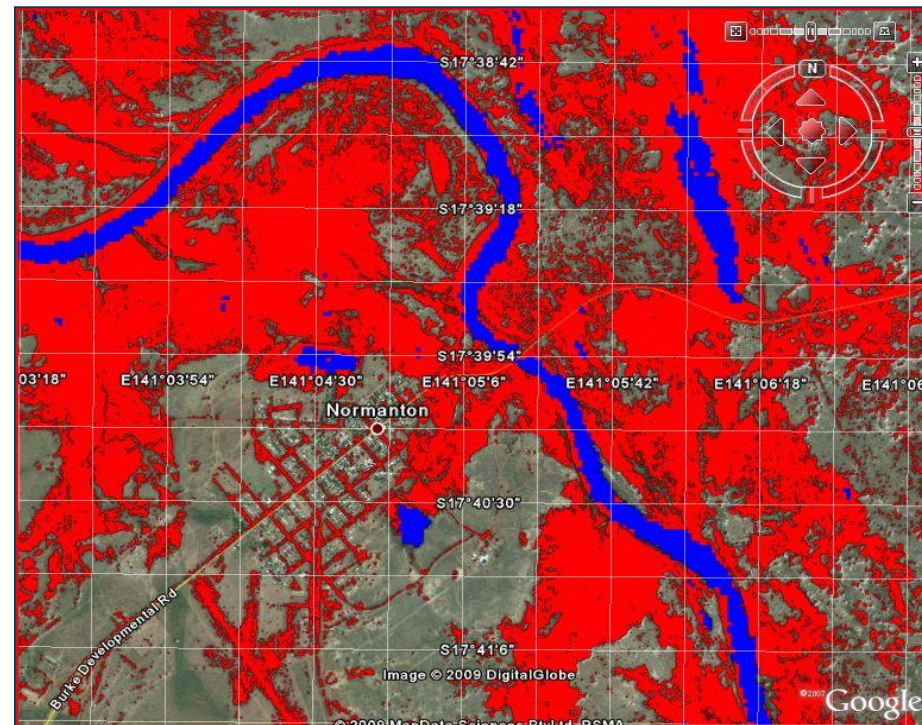
2010



Long-term Technical Advisory Support

Example Namibia: Pilot project on integrated flood management and water related vector borne disease modelling

- UN-SPIDER co-lead efforts with NASA's GSFC and NOAA's CREST (Sensor Web Initiatives) together with DLR
- Derivation of flood forecasting models based on weekly EO-1, Formosat and QB collections
- Useful for future flooding seasons
- Technical experts meeting hosted in Bonn in October 2009 followed by field visits
- Regional Project Proposal developed (submitted to WB, UNDP); CEOS continued





Cameroon Capacity Building

- Follow-up of Technical Advisory Mission in 2011
- Requested after similar successful training in Burkina Faso
- 35-40 local participants (Civil Protection, UNDP, Universities, Meteo services staff)
- 5 international participants also (Civil Protection staff from Gabon, Burundi, Congo, DR Congo)
- Customized in French language on request



- Trainers from the Regional Centre for Training in Aerospace Survey (RECTAS) and UNU-EHS
- Geographic Information System & Remote Sensing analysis software donated by Esri (ArcGIS 10, French); ILWIS Academic version also used
- Sample imagery provided by RECTAS for the training modules
- Digital Globe Inc. provided recent very high resolution sample images of hotspots in Cameroon, as tasked; direct download and processing during training
- The training covered basic elements of remote sensing, GIS, simple data extraction and geo-referencing





Awareness raising - Digital Outreach

10,000 visits per month

17,000 subscriptions

8,000 Social Media followers



How fire-detecting satellites could prevent wildfires

WED NOV 6 2013

A fire-detecting satellite has been designed by scientists from University of California, Berkeley with the goal of preventing hot spots from growing to out of control fires in the future. Through the use of state-of-the-art sensors and an analysis software to snap pictures of the ground every few seconds, the satellite called the Fire Urgency Estimator in Geosynchronous Orbit (FUEGO), would...

[read more](#)

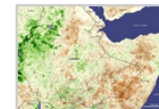


Official launch of AfriGEOSS at AfricaGIS2013/GSDI14

WED NOV 6 2013

During the AfricaGIS2013/GSDI14, held this week in Addis Ababa, AfriGEOSS was launched on 5 November 2013. AfriGEOSS is an initiative by the intergovernmental Group on Earth Observations (GEO) aimed at building infrastructural capacities in Africa to benefit from geospatial data for sustainable development. GEO states: "The intergovernmental Group on Earth Observations (GEO) is playing a key...

[read more](#)

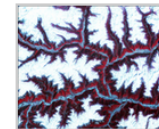


AfricaGIS 2013 and GSDI World Conference inaugurated in Ethiopia

TUE NOV 5 2013

The combined AfricaGIS 2013 and GSDI World Conference was inaugurated in Addis Ababa on 4 November 2013. The conference is jointly by EIS-Africa, the GSDI Association, the International Geospatial Society, the United Nations Economic Commission for Africa (UNECA) and Addis Ababa University and takes place from 4 to 8 November 2013. AfricaGIS is the largest regularly occurring GIS conference in...

[read more](#)



ICIMOD: Grants Programme for utilizing geospatial Tools and Services

MON NOV 4 2013

UN-SPIDER's Regional Support Office located in Nepal, the International Centre for Integrated Mountain Development (ICIMOD), has announced a Request for Proposals for the SERVIR-Himalaya Small Grants Program. The goal of the programme is to help growing the network of organizations, universities and institutions within the Hindu Kush-Himalaya region that utilize geospatial tools and services...

[read more](#)



In conclusion:

- The UN-SPIDER capacity building model for space-based solutions is extendable to domains beyond disaster management
- A well-tested (35 countries), results-based model – it can also be used for space law related capacity building
- Increasingly, developing countries aim for establishment of space agencies, and seek UN support as well in that process
- Numerous TAM recommendations address policy and legislative issues, and related capacity building or institutional strengthening could be jointly organized with space law components when required



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THANK YOU

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