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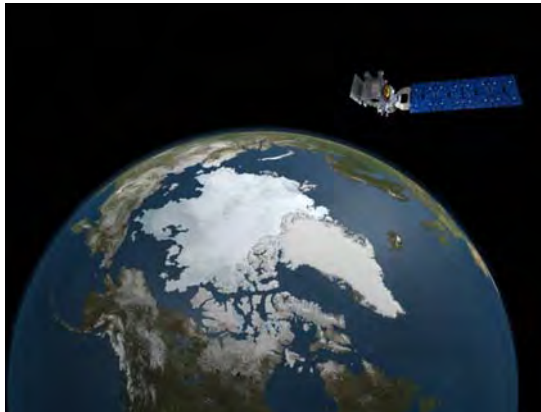
*United Nations Platform for Space-based Information for
Disaster Management and Emergency Response*

Role of space based information in Disaster Risk Reduction: UN-SPIDER Interventions

Shirish Ravan

Head, UN-SPIDER Beijing Office

UN Office for Outer Space Affairs





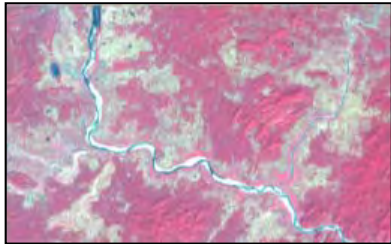
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Disaster Management and Emergency Response*

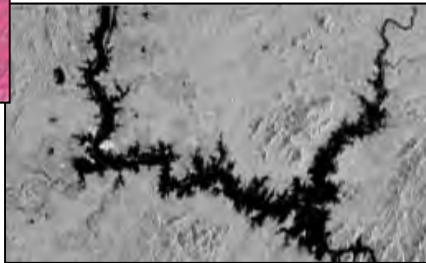
- **How important is space based information in disaster management?**
- **Does Space based OR geospatial information contribute enough in decision making in DRR?**
- **Are NDMOs/NDMAs prepared to leverage on wealth of geospatial information available in the country and region?**
- **What needs to be done?**



Space technologies for Disaster Management



Pre-Flood



During-Flood

Images from earth observing satellites help assess the damage caused by disasters and assess vulnerability to hazards.

Satellite Meteorology help obtain precise weather forecast, thus provides early warning on floods, cyclones, droughts etc.

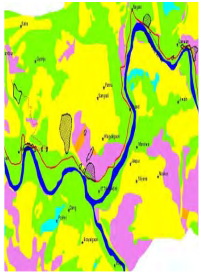
Satellite communications help warn people who are at risk, especially in remote areas. They help connect a disaster zone to the outside world



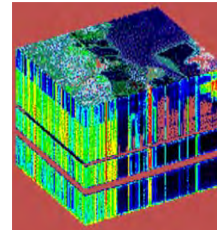
Global navigation satellite systems enable us to obtain positional information on events that have to be mapped



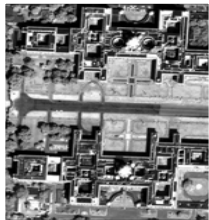
Earth Observation from Space



Spatially extensive mapping



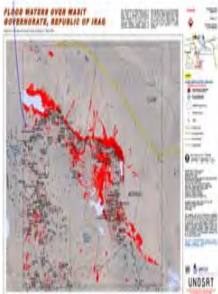
Beyond 'human eye' capability



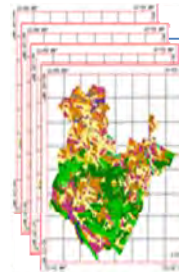
Localised event detection



Access difficult or dangerous sites



Near real time response



Geo-referenced and calibrated

More than 40 nations with imaging satellites -160 sensors

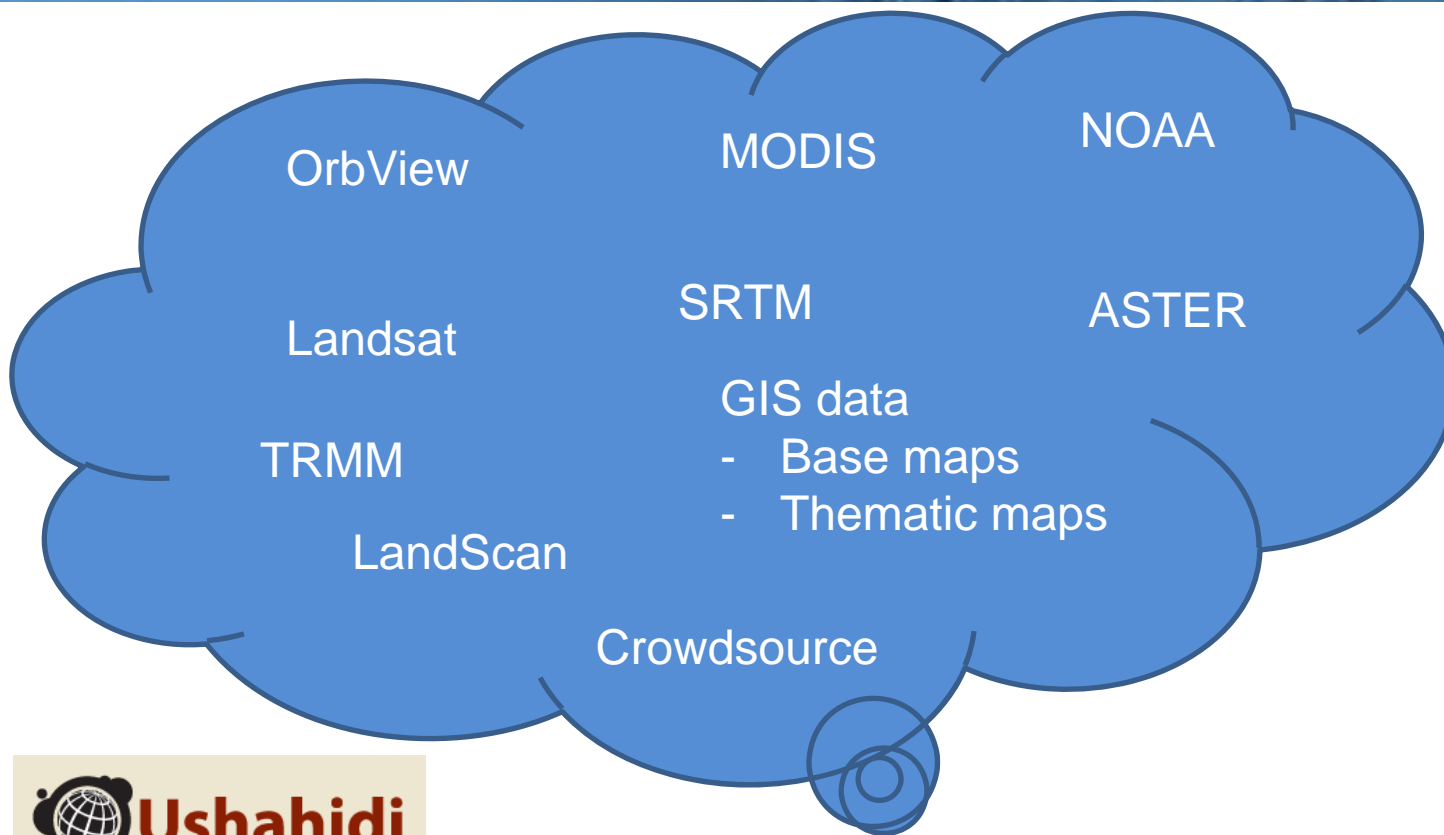


Geospatial information products – Increasing access and availability

GLCF



NOAA



- Predictions of weather extremes
- Early warning
- Monitoring of disasters and risks



'Space' in Disaster Risk Management



Global scale



Local scale



Mitigation & Preparedness Planning

- Vulnerability and risk assessment
- Modelling impact
- Early warning

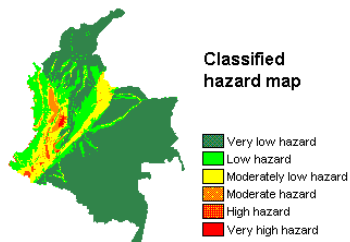
Emergency Response

- Specific event
- Rapid provision
- Map information
- Support crisis management

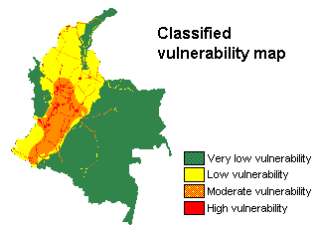
Recovery & Rehabilitation

- Situation maps
- Time series
- Monitoring

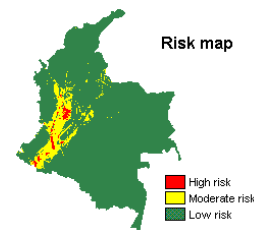
Life Saving Products



Hazard maps



Vulnerability maps



Risk maps



Response maps



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Advanced Earth
Observation
systems provide
accurate '*Spatial
Information*'

Accurate
information
leads to better
understanding of
the '*Facts*'

Strategies based
on '*Facts*' lead to
precise *action
plan*

**HFA & HFA-2
Implementation**

'Space' will play critical role in HFA Implementation



Context



COPUOS

**Committee for Peaceful
Uses of Outer Space**



UN-SPIDER

**Hyogo Framework
for Action (HFA)**



United Nations Platform for Space-based Information for Disaster
Management and Emergency Response



HFA – Priority Actions

Priority Actions: to guide the implementation of HFA and translate political commitment into action

Priority 1: Ensure that disaster risk reduction is a **national and local priority** with a strong institutional basis for implementation.

Priority 2: **Identify, assess and monitor disaster risks** and enhance **early warning**.

Priority 3: Use **knowledge, innovation and education** to **build a culture of safety** and **resilience** at all level.

Priority 4: Reduce the **underlying risk factors**.

Priority 5: **Strengthen disaster preparedness** for effective response at all levels.



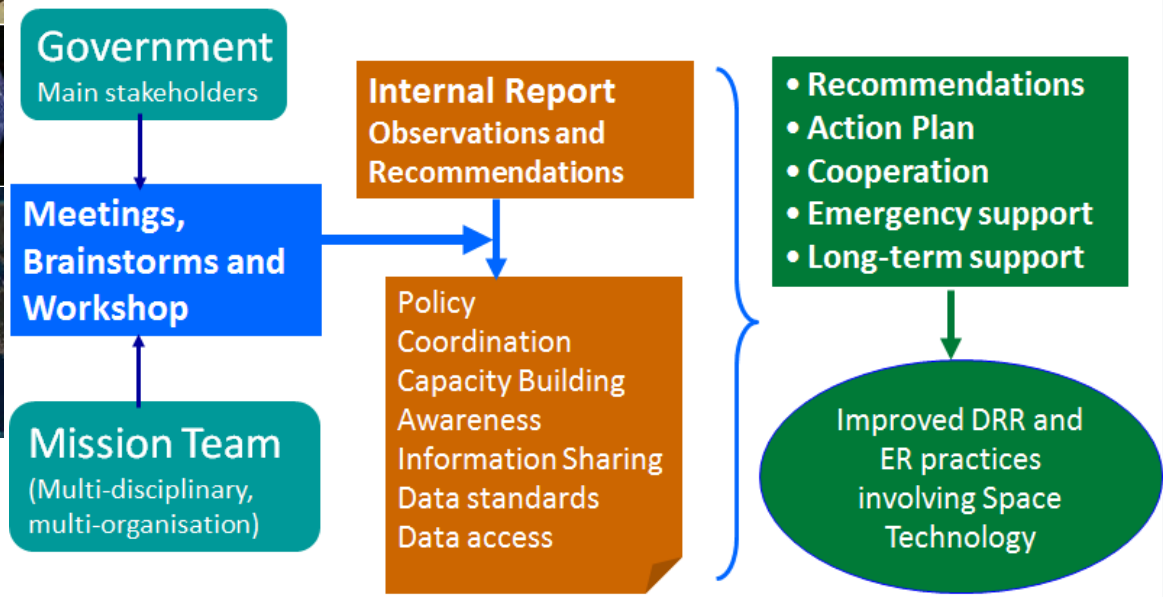
HFA Priority 1

Disaster risk reduction - national and local priority with a strong institutional basis for implementation.



UN-SPIDER Contribution

UN-SPIDER Technical Advisory Support & Missions





UN-SPIDER Technical Advisory Support

ASIA

1. Bangladesh
2. India
3. Indonesia
4. Lao PDR
5. Myanmar
6. Sri Lanka
7. Vietnam

Pacific

1. Fiji
2. Samoa
3. Solomon Islands
4. Tonga
5. Vanuatu



Africa

1. Burkina Faso
2. Burundi
3. Cameroon
4. Cape Verde
5. Chad
6. Congo
7. DR Congo
8. Gabon
9. Ghana
10. Kenya
11. Malawi
12. Mozambique
13. Nigeria
14. Sudan



Support offered to more than 25 countries



Technical Advisory Missions to Vietnam



Mission team

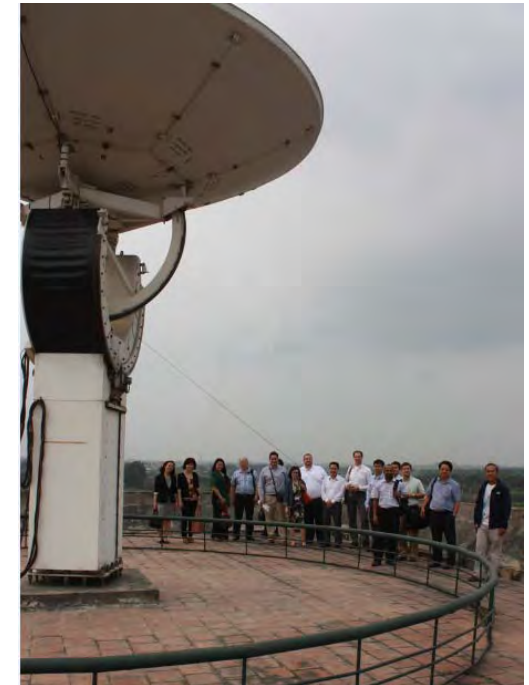
- UN-SPIDER
- UN OCHA
- CANEUS, Canada
- NDRCC, China
- ITC, Netherlands
- CNES-CNRS University, France
- Pacific Disaster Center, USA
- Chinese Academy of Sciences
- Delta State University, USA
- GERENDIS, Spain
- GREEN Mindanao, Philippines



Technical Advisory Missions to Vietnam

Visits to following agencies

- Disaster Management Centre (DMC)
- Department of Dike Management
- Flood Control (Standing Office of Central Committee for Flood and Storm Control - CCFSC)
- National Institute of Agricultural Planning and Projection (NIAAP)
- Spatial Technology Institute (STI), Vietnam Academy of Science and Technology (VAST)
- National Remote Sensing Center (RSC), Ministry of Natural Resources and Environment
- Hydro-Meteorological Forecasting, Ministry of Natural Resources and Environment
- UN Disaster Risk Management team
- Department of Survey and Mapping
- General Department of Land Administration



**One day workshop:
Attended by over 60
officials**





Technical Advisory Missions to Vietnam

Classes of recommendations

- Policy and Coordination
- Data access, availability and sharing
- Capacity Building and Institutional Strengthening
- Specific recommendations to address various stages of disaster management
 - risk reduction,
 - early warning,
 - emergency response etc.





Technical Advisory Missions to Vietnam

Follow up actions

- Wide dissemination of the TAM report and recommendations
- UNDP and UNRC offices in Vietnam to consider the recommendations
- High level intervention (at ministerial level) to encourage data sharing and Data Policy.
- Short term training programmes
- Institutional capacity building of DMC
- Familiarisation study tours to overseas operational "centres of excellence".
- Act as the bridge during emergencies to supply EO products
- Effective utilization of VinAWARE, a tool provided by PDC to facilitate the integration of geospatial and early warning information



After debriefing presentation to the Vice Minister of Agriculture & Rural Development



HFA Priority 2

HFA Priority 2 & 3

Identify, assess and monitor disaster risks and enhance early warning.

Use knowledge, innovation and education to build a culture of safety and resilience



UN-SPIDER Contribution

Follow-up of Advisory Mission outcomes

Capacity building

Knowledge management (www.un-spider.org)



UN-SPIDER Capacity Building Efforts



National training programmes in 2013

Sri Lanka
Myanmar
Bangladesh

China
Cameroon, Mozambique, Sudan

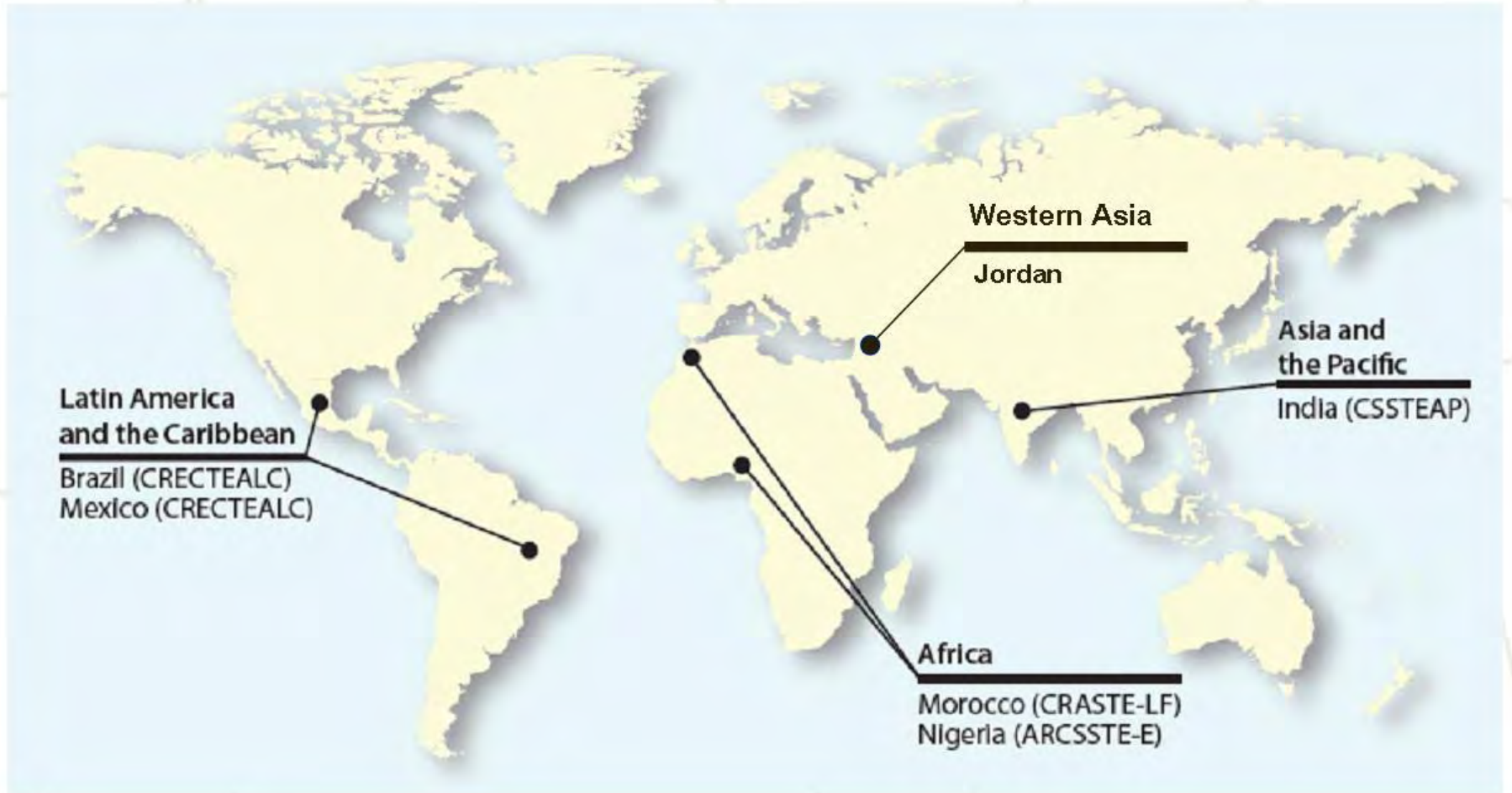
International training programmes in 2013

China- with NDRCC and APSCO
UN Affiliated Regional Centre in India (With ESCAP and IWMI)





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



Regional Centres offers training in wide range of space applications



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UN-SPIDER Knowledge Portal

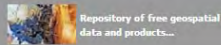


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United Nations Platform for Space-based Information for Disaster Management and Emergency Response

- HOME
- SPACE APPLICATION
- ADVISORY SUPPORT
- KNOWLEDGE BASE
- NETWORK
- PROJECTS
- ABOUT US

IN FOCUS



Repository of free geospatial data and products...



China: Interactive training for disaster risk...



Indonesia: Stakeholder Meeting for disaster...



www.un-spider.org

Joint Board of Geospatial Information Societies United Nations Office for Outer Space Affairs

Geoinformation for Disaster and Risk Management

Examples and Best Practices

The Value of Geoinformation for Disaster and Risk Management (VALID)

Benefit Analysis and Stakeholder Assessment

International Council for Science - GeoUnions Joint Board of Geospatial Information Societies United Nations Office for Outer Space Affairs



HFA Priority 4

HFA Priority 4

Reduce the
underlying risk
factors



UN-SPIDER Contribution

UNOOSA covers wide range of thematic areas of space applications

- ✚ Disaster Management
- ✚ Natural Resources Management
- ✚ Environmental Monitoring (Climate Change)
- ✚ Tele-health/Tele-medicine
- ✚ Global Navigation Satellite Systems
- ✚ COSPAS-SARSAT
- ✚ Space Law
- ✚ Socio-Economic Benefit



HFA Priority 5

HFA Priority 5

Strengthen disaster preparedness for effective response at all levels.



UN-SPIDER Contribution



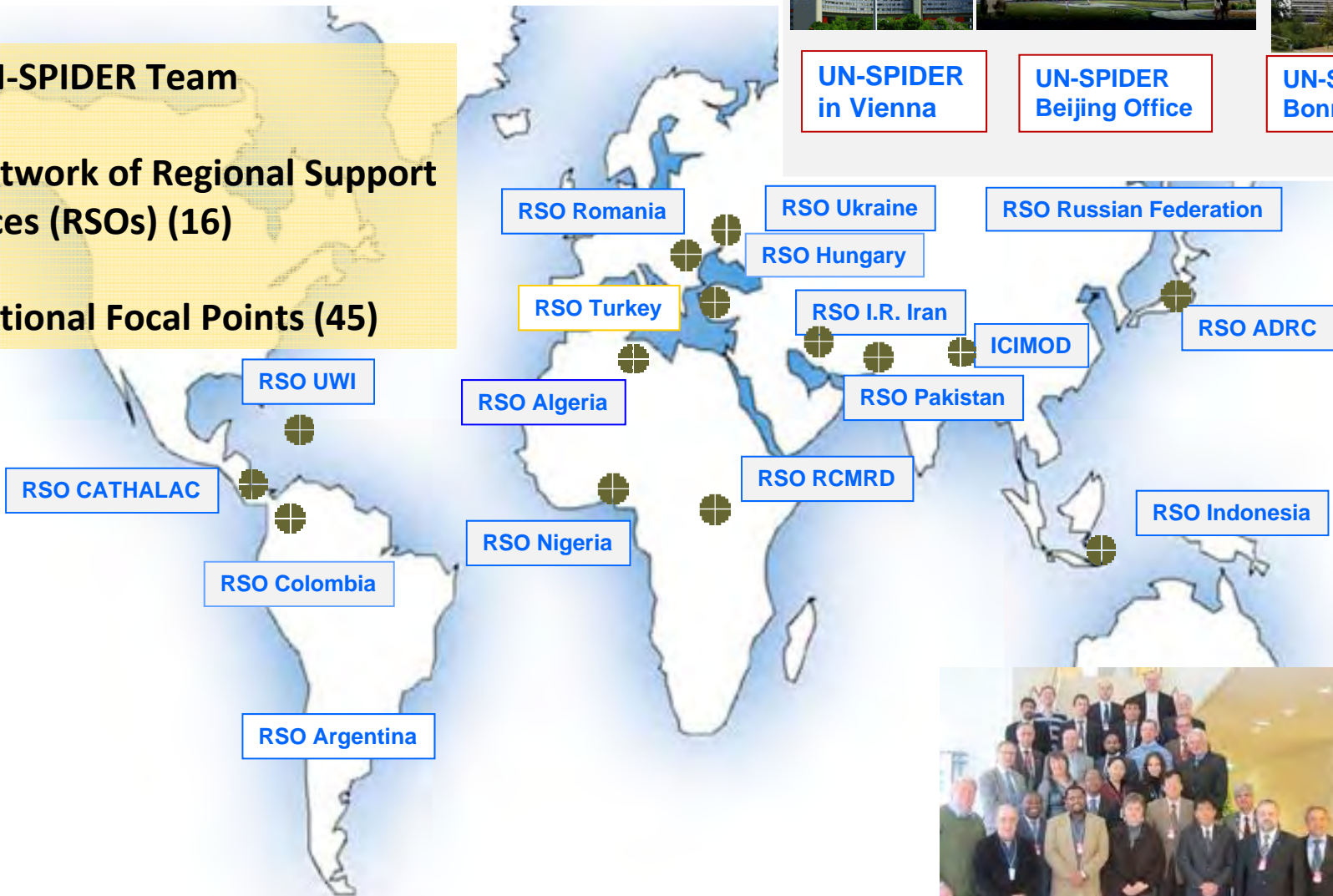
UN-SPIDER

Regional Support Offices

Partner Organisations
ESCAP, OCHA, UNOSAT, UNDP...

The UN-SPIDER Programme

- UN-SPIDER Team
- Network of Regional Support Offices (RSOs) (16)
- National Focal Points (45)



 Network of Regional Support Offices



UN-SPIDER in Vienna



UN-SPIDER Beijing Office



UN-SPIDER Bonn Office





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UN-SPIDER Conference – 2-5 Sept 2014



23-25 October 2013- United Nations International Conference on Space-based Technologies for Disaster Management - "Disaster risk identification, assessment and monitoring" in Beijing.



Activities in 2014

Technical Advisory Missions

- Bhutan and Mongolia

Regional Workshops

- ASEAN - to prepare mechanism for Emergency Response (With AHA centre and LAPAN)
- ICIMOD and South Asia Regional training and brainstorm on preparedness for flood disaster

International Workshops

- Side event in AMCDRR
- UN-SPIDER Conference in Beijing

Capacity Building programmes

- Sri Lanka and Vietnam
- International training programme in Beijing



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*United Nations Platform for Space-based Information for
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Bringing benefits of the space to humanity

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