Is space technology contributing enough to DRR – Challenges with respect to implementation of HFA and HFA 2

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UN Office for Outer Space Affairs
1. Critical role of space based information in DRM?
2. Is it contributing enough in decision making in DRR?
3. What’s the gap?
4. What needs to be done?
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
‘Space’ in Disaster Risk Management

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

Global scale

Local scale

Life Saving Products

Hazard maps

Vulnerability maps

Risk maps

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

**HFA Priority 1**

**UN-SPIDER Contribution**

**UN-SPIDER Technical Advisory Support & Missions**

- Recommendations
- Action Plan
- Cooperation
- Emergency support
- Long-term support

- Improved DRR and ER practices involving Space Technology

**Government**
- Main stakeholders

**Meetings, Brainstorms and Workshop**
- Mission Team (Multi-disciplinary, multi-organisation)

**Internal Report**
- Observations and Recommendations

- Policy Coordination
- Capacity Building
- Awareness
- Information Sharing
- Data standards
- Data access
### UN-SPIDER Technical Advisory Support

#### ASIA
1. Bangladesh  
2. India  
3. Indonesia  
4. Myanmar  
5. Sri Lanka  
6. Vietnam

#### 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

#### Pacific
1. Fiji  
2. Samoa  
3. Solomon Islands  
4. Tonga

Support offered to more than 25 countries
Challenges observed through UN-SPIDER Technical Advisory Missions

- No mention of **geospatial information in DM plans, policies, law**
  - leverage on potential of geospatial data
  - enforce mandatory use of geospatial information for DRR
- Lack of **data sharing policies** for DRR purpose
  - Restrictions on maps and images
  - Institutional coordination
- **State of geospatial information** (satellite images, baseline, thematic and operational datasets)
  - Case 1: Does not exist with authorities
  - Case 2: Exists, but not complete and well structured
  - Case 3: Exists but not accessible to other agencies
Challenges observed through UN-SPIDER Technical Advisory Missions

- **Access** to high resolution and all weather data
  - Budget provision to buy post disaster data
  - Access to existing data archives
- **Capacity** to use available space based information products
  - Relevant expertise in Disaster Management agencies
  - Use this information for hazard and risk mapping
- **Lack of information preparedness** for effective response
  - Geospatial Information scattered in different ministries poses challenge
  - Data interoperability, SDI framework needed
HFA Priority 2

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 recommendations
- Capacity building
- Knowledge management (www.un-spider.org)
UN-SPIDER Capacity Building Efforts

2013
Sri Lanka  Mozambique
Myanmar  Cameroon
Bangladesh  China & India (International)

2014
ICIMOD member states (International)
Bangladesh
Vietnam
Sri Lanka
China (International)

...long way to go
Centres for Space Science and Technology Education (affiliated to the United Nations)

Regional Centres offers training in wide range of space applications
HFA Priority 4

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

Reduce the underlying risk factors
Strengthen disaster preparedness for effective response at all levels.

HFA Priority 5

UN-SPIDER Contribution

Regional Support Offices

Partner Organisations

Workshop Report

ASEAN WORKSHOP on "Development of Mechanisms for Acquisition and Utilization of Space-Based Information during Emergency Response"

Organized by the
Indonesian National Institute of Aeronautics and Space (LAPAN)
In collaboration with
United Nations Platform for Space-based Information for Disaster management and Emergency Response (UN-SPIDER)
### Pre-Conference Event

**Investing in Geospatial and space-based information to support DRR & CCA investment**

<table>
<thead>
<tr>
<th>Schedule</th>
<th>09:00 to 12:00 on 22 June 2014</th>
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<td>Theme to be addressed</td>
<td>Subtheme 2: Improving Public Investments for Disaster and Climate Risk Management to Protect and Sustain Development Gains</td>
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**Organizers**

- UN-SPIDER (UNOOSA)
- GFDRR (World Bank)
- Co-leads: Asian Disaster Reduction Centre of China and National Disaster Reduction Centre of China

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**3rd World Conference on Disaster Risk Reduction 2015, Sendai Japan**

Interventions to promote effective use of space based and geospatial information in DRR
Space technology in DRR & climate change

**Trans-boundary Rivers**
- Flood early warning
- Flood plain management
- Water management

**Shared Coastline**
- Cyclone/tsunami early warning
- Threats due to Sea level rise

**Shared Ecosystems**
- Integrated ecosystem management
- Sustained bioresource utilization
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

‘Space’ will play critical role in HFA & HFA 2 Implementation
Announcement

4TH Annual UN-SPIDER Conference in Beijing
United Nations International Conference on Space-based Technologies for Disaster Management - "Multi-hazard Disaster Risk Assessment"

Venue: Beijing, China (Grand Gongda Jianguo Hotel)
Dates: 15-17 September 2014
Bringing benefits of the space to humanity

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