



**United Nations International Conference on Space-based
Technologies for Disaster Risk Reduction - Building resilience
through integrated applications**

A few success stories of UN-SPIDER

LUC ST-PIERRE

Chief, Space Applications Section

23 October 2017



Myanmar

- 2012 – UN-SPIDER Technical Advisory Mission
- Key recommendation: Establishment of "Hazard Response and Operations Centre"
- Follow up programmes in 2012 & 2016
- Impact:
 - Emergency Operation Centre (EOC) established with "Remote Sensing Unit";
 - Trained personnel in remote sensing/GIS are available at EOC;
 - Disaster Management Training Centre conducts courses in remote sensing/GIS
 - NSDI and one map policy under consideration





Sri Lanka

- 2011 – UN-SPIDER **Technical Advisory Mission** strongly recommended **NSDI**
- 2012 & 2014 – Follow up and capacity building activities
- 2013 – **Sri Lanka Spatial Data Infrastructure (SL SDI)** approved by the Cabinet of Ministers
- 2014 – SL SDI Road map prepared
- NSDI components – Data, Data supply, Data Access & Applications, Governance, Legal and Policy

UN-SPIDER Technical Advisory Mission, Sri Lanka

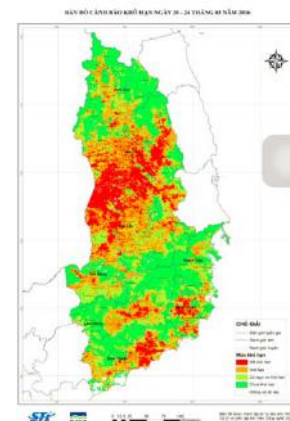


17 – 21 October 2011



Vietnam

- 2013 – UN-SPIDER offered Technical Advisory Mission
- 2014 – Follow up (Geospatially Enabling Communities Collaboration)
- 2015
 - Establishment of Geoinformatics Division at Disaster Management Centre
 - MoU with national and international satellite image providers
- 2016
 - SOP for use of earth observation images during emergency response
 - Data design framework



Disaster Management Centre is used satellite images For Drought Monitoring and other emergencies



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Disaster Response Simulation Exercise on 9 & 10 September

Thursday, 05 September 2013 20:29



05 September 2013 **Early next week residents in some coastal communities at the Eastern side of Tonga will experience a disaster. Fortunately, this won't be a real disaster. It will be a simulated disaster with the key purpose being to better prepare communities for when the real one hits.**



The National Emergency Management Office (NEMO), in partnership with a number of international NGOs, supported by funding from the New Zealand government, are organizing this event. Mr. Leveni 'Aho, NEMO Director, says this is a great opportunity for communities to become involved and be better prepared. "We never know when a real disaster will happen, so it is important that we are ready at all times."



International Charter Space and Major Disasters

Activation and emergency support

a) Charter activations

1. Nepal
2. Sierra Leone

b) Facilitated Charter activations

1. Dominican Republic
2. Haiti
3. Costa Rica
4. Indonesia
5. Sri Lanka



International Charter Space and Major Disasters

Universal Access

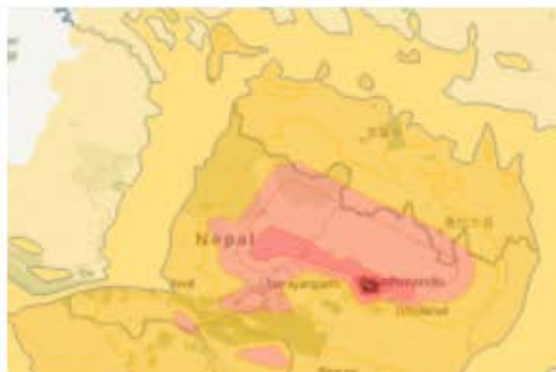
1. Guatemala
2. Colombia
3. Dominican Republic
4. El Salvador
5. Honduras
6. Myanmar
7. Sri Lanka
8. Uruguay



KNOWLEDGE PORTAL

Space-based information for Disaster Management and Emergency Response

Earthquake in Nepal, India, Bangladesh, China



Region:

Nepal

Sat, 25/04/2015

On Saturday, 25 April 2015 6:11UTC, an earthquake with a magnitude of 7.8 and a depth of 15km struck Nepal affecting 6.5 Million people within 100km (cf. [GDACS](#)). Several aftershocks have occurred since then, notably a 6.6. magnitude aftershock

about 30min after the initial earthquake and a 6.7 magnitude aftershock on Sunday 26 April 2015 at 7.09UTC (cf. [JRC Situation report No. 1](#))



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TP6: International cooperation towards low-emission and resilient societies

Disaster risk reduction - Mitigation and adaptation to climate change - Linkages to sustainable development and resiliency of space based systems

- **Focus:** building resilient societies and aligning efforts of the Office to contribute to the Sendai Framework through UN-SPIDER programme as well as to the adaptation efforts of the Paris agreement on climate change and towards the attainment of the SDGs
- **The strategy**, in a form of a report under this TP will be available for the 2018 cycle of the sessions of the Committee and its Subcommittees.
- **Another flagship event:** UN/Germany International Conference on International cooperation towards low-emission and resilient societies, to be held in Bonn, Germany, from 22 to 24 November 2017.



Nepal
2015 earthquake
9,000 deaths and
22,000 injured persons



Nepal
2017 floods



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Sustainable Development Goals 2016-2030 National (Preliminary) Report



Government of Nepal
National Planning Commission
2015

UN-SPIDER Technical Advisory Mission to Nepal 31 July to 4 August 2017





Nepal and SDGs

extracts from national report (1/2)

- Twenty of Nepal's 5,358 lakes are considered as dangerous glacial lakes with potential for **glacial lake outburst floods**. (p. 25, SDG 15)
- **National Adaptation Programme of Action** for adapting to extreme climate events and climate variability through an extensive country-driven consultative process (MoEn, 2010). **Local adaptation plans for actions (LAPA)** for implementing adaptation actions, and integrating climate change into **local development planning and implementation** (GoN, 2011c). (p. 27, 3.2)
- Existing strong community organizations such as forestry, water resource, and local infrastructure users groups, are important institutions to **implement the SDGs at the community level**. (p.29, 3.2)
- Nepal's forest cover is threatened by human activities and disasters like floods, landslides and forest fires. Illegal logging and the smuggling of timber along with the extraction of firewood for livelihoods also pose a threat to the existing **29 percent forest cover when the national target is to reach 40 percent**. (p.33, 4.3)
- Nepal is prone to earthquakes, floods, landslides, avalanches, fires and disease outbreaks. The achievement of the **SDGs with better human development implies that adequate disaster risk reduction interventions are identified during the SDG needs assessment and financing strategy**. (p.36, 4.6)



Nepal and SDGs

extracts from national report (2/2)

- Income and employment from agriculture, prioritized resource allocation, the improvement of rural infrastructure, and the **use of science, technology and innovation in agriculture** will help achieve several other goals alongside SDG 2. (p.40, SDG 2)
- **Urban communities should prepare and implement disaster risk management plans** enforce the National Building Code and carry out risk sensitive land use planning. (p.44, SDG 11)
- There is a need to take urgent steps to **improve the quality, coverage and availability of disaggregated**. (p. 47, SDG 3)
- **International support** is needed for planning and land development interventions for the production of serviced land in all municipalities. (p.50, SDG 11)
- **Strong international and especially regional support is needed for developing mitigation and adaptation strategies, for the technology**. (p. 51, SDG 13)



- Current Policy and Gaps
- Availability and applications of geospatial Information
- Data sharing practices
- Challenges and constraints
- Existing capacity and needs
- Institutional linkages and coordination

Mission team:

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- Hengxing LAN, **Chinese Academy of Sciences**
- Abhineet Jain, **DigitalGlobe, Singapore**
- Nimesh Mishra, **MoHA, Nepal**
- Arun, **UNDP, Nepal**



Programme

- NEOC, Ministry of Home Affairs
- Armed Police Force
- Department of Survey
- Department of Water Induced Disaster Management
- Nepal Army
- Nepal Police
- Department of Hydrology and Meteorology
- Department of Geology and Mines
- Kathmandu Living Lab
- Nepal Red Cross
- United Nations Offices in Kathmandu
- ICIMOD
- Nepal GIS Society

- One day workshop
- Debriefing to MoHA





Policy - Recommendations

- Integrate space-based and geospatial information **part of DM Act, National Strategy for Disaster Risk Management (NSDRM), 2009 and National Disaster Response Framework (NDRF), 2013;**
- Create a **national data policy** that includes data standards (including geospatial data), which points to a clear need for National Spatial Data Infrastructure (**NSDI**);
- Develop **guidelines for a disaster inventory database** and define who will provide services, who will use them, and for what purpose;
- To ensure the efficient use of resources in support of DRR, **there should be a department or entity that is entirely dedicated to coordination;**
- ...



Data availability and sharing - Recommendations

- “One Nation-One Map” policy to promote the preparation of **base line thematic layers including hazard and risk maps** at highest possible resolution and scale;
- Policy document and related actions to convince key ministries **to invest in Earth observation and geospatial information**, which leads to faster economic growth
- **Data access should be explicitly addressed in high level policy or strategy** so that technology can easily be put in place to facilitate data access;
- Organisations like DWIDM, DHM, DMG needs clear mandate and strategic guidance from MoHA to **undertake hazard/risk mapping**;
- A **portal for discovering national data** assets so data may be shared freely, for cost, or not at all. This will reduce duplication of effort;
- **Overarching plan to generate spatial data** is needed (land use, soil, hydro-geomorphology, water resources, socio-economic etc.);
- ...



Capacity Building and Institutional Strengthening - Recommendations

- Capacity building should be guided by a strategy that **addresses long-term capacity building needs**;
- Use of in-house institutions;
- Develop technological capacity or set up a **dedicated centre**;
- **Incentive** for trained staff to remain in their positions;
- **Capacity existing in other institutions** such as ICIMOD can be used as a valuable resource to maintain capacity within the government;
- Explore opportunities for **Public-Private Partnership**;
- ...

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THANK YOU



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