ICT and Space Applications for Disaster Risk Reduction

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ESCAP is the regional development arm of the United Nations for the Asia-Pacific region.

62 Governments - from Turkey in the west to Kiribati in the east, and from the Russian Federation in the north to New Zealand in the south.

The largest United Nations body serving the Asia-Pacific region with over 600 staff.

ESCAP has more than five decades of experience integrating disaster risk management with economic and social development.

Regional approach for cooperation specific focus on Asia Pacific LDCs, SIDS, LLDCs.
ESCAP : Regional development arm of the United Nations system

- Eight subsidiary Committees, with two on
  - Information and Communications Technology
  - Disaster Risk Reduction
- Information and Communications Technology and Disaster Risk Reduction Division (IDD)
  - Regional Space Applications Programme, > 16 years
  - Recent focus: regional cooperative mechanism to assist build national capacity on space-based technical tools for disaster management
    - Satellite information products and services
    - Disaster communication capacities
ICT and Disaster Risk Reduction Division

- To service the two committees
- To implementer ESCAP Subprogramme on Information and Communications Technology and Disaster Risk Reduction
- Three sections
  - ICT and Development Section (IDS)
  - Disaster Reduction Section (DRS)
  - Space Applications Section (SAS)
- One regional institution
  - United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development (APCICT)
ICT and Disaster Risk Reduction Division

- The ESCAP promotes regional cooperation mechanisms, provides analytical support and technical assistance to address the major issues and policy challenges in the area of information and communications technology (ICT) development, including space applications and disaster risk reduction.

- Through policy analysis, knowledge sharing and advocacy, ESCAP encourages and enables the member Countries to use strategically ICT and disaster risk reduction for inclusive and sustainable development.

- The Subprogramme supports the achievement of internationally agreed development goals especially those related to the World Summit on Information Society (WSIS) and the Hyogo Framework of Action (HFA).
ESCAP – Key Deliverables

Evidence based Analytical Study
- Mainstreaming Disaster Risk Reduction, Strategic Investments
- Climate Change Adaptation through DRR
- Strategically using innovative technologies – ICTs, Space

Information/knowledge Sharing
- Repository of best practices from region
  -- Focus on mainstreaming disaster risk reduction
  -- Policies, Standard Operating Procedures etc..

Capacity development
- AVA Module 9 & 10 disaster risk management and Climate change abatement
- Regional Space Applications – Education and Training
- Networks established in China, India and Indonesia
Space enabled ICTs for Development and Disaster Management

- Around 57% of satellite resources (of total 697 satellites launched so far) are communication satellites
- Earth Observation and Navigation Satellites are useful for mapping and developing the precision products – disaster risk assessment...

Satellites Resources for Asia and the Pacific Region - past and present (Till Jan 2011) - 697

- Communication: 57%
- Earth Observation: 21%
- Meterological: 13%
- Navigation: 8%
- Oceanographic: 1%
## Satellite Resources: Major Players of Region

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- Through Regional Cooperation engaging the major players – it is possible to harness satellite resources for Disaster Reduction and Development
- There are experimental, thematic and research satellites – which could be utilized for pilot projects – efforts are on for capacity development on satellite imagery training to support disaster management efforts in Pacific
ESCAP Regional Space Applications Programme (RESAP) – Since 1994

- Institutional Mechanism - Intergovernmental Consultative Committee (ICC) – Members Space and User Agencies, Regional Working Groups - addressing development and DRR issues
- Regional Networking – National Focal Points for ICC; National Contact Points for Regional Working Groups
- Promoting Regional Cooperation Mechanisms
  - RESAP Education and Training Networks for capacity building (China, India and Indonesia)
  - To assist regional countries’ affordable access and effective use of SCOP
RESAP: Initiatives for sharing EO information

- **Regional cooperation initiatives**
  - Sentinel-Asia with resources of India, Japan, Korea, Thailand
  - Using both earth observation and communication satellites
    - Asia Pacific Satellite Cooperation Organisation (APSCO) with 9 founding members
    - 8-satellite constellation for disaster monitoring
      - First phase – 3 satellites: 2 launched

- **Other global initiatives**
  - UN Platform for Space-based Information for Disaster Management and Emergency Response (SPIDER)
  - International Charter on Space and Major Disasters

- China, India and Thailand to support drought disaster management
Regional Cooperative Mechanism on Disaster Monitoring and Early Warning, Particularly Drought

The mechanism was launched by ESCAP in September 2010 and since then it is moving towards its operational phase with the efforts also on to expand the scope of the mechanism to cover floods, other disasters.

It aims at providing member countries substantive technical support, including satellite information products and services, an information portal and capacity-building activities, for the development of national drought disaster monitoring and early warning capabilities and services.

The mechanism draws the support expressed by China, India, Japan, the Philippines, the Russian Federation and Thailand as well as relevant international organizations, such as WMO and the Asia-Pacific Space Cooperation Organization.
RESAP: Regional Cooperative Mechanism for Drought monitoring and early warning

- Drought Monitoring is neither covered under Sentinel Asia nor Space Charter – and thus a critical gap for information sharing
- Support of China, India and Thailand to share free of cost drought products from their Earth Observation Satellites for drought-prone countries of the region.

Technical services
- General monitoring using Earth Observation satellite data
- Dedicated products for identified high drought disaster risk areas

National capacity building
- Development of localized operational products
- Development of national service networks
- Human resources development
RESAP: Regional Collaboration for Satellite based Emergency Communication

- Joint inter-agency efforts of ESCAP, ITU and APT with
  - Other UN entities
  - Governmental and non-governmental organizations
  - Development assistant agencies
- A substantive technical supporting mechanism
  - Through shared infrastructure and services resources
  - Used collaboratively when needed
- Two major arrangements for:
  - Rapid deployable stand-by equipment and services for emergency response
  - Pre-disaster distributed capacity for reporting and early warning
- Multi-stakeholder and public-private partnership approaches
Collaborative building of regional disaster communication capacities

ESCAP, through the regional Inter-Agency Working Group on Information and Communication Technology (ICT) which has more than 20 members representing United Nations entities and international organizations, facilitated at its 14th meeting, held on 11 August 2010, to make joint efforts to promote an Asia-Pacific regional platform for disaster communications capacities, with collaborative emergency communications capacity as its core component.
Broadening the base of ESCAP Trust Fund

- The “Multi-Donor Voluntary Trust Fund on Tsunami Early Warning Arrangements in the Indian Ocean and Southeast Asia”, established in 2005, broadened its scope to include overall disaster and climate preparedness within the Fund’s core areas of support. The expanded scope was approved by Fund’s Advisory Council in November 2010, and with the agreement between ESCAP and Thailand signed subsequently.

- The Fund had conducted six rounds of funding and received 70 proposals from various regional, sub-regional and national organizations. Sixteen projects had been approved with a total budget of approximately US$ 11.3 million.

- Through these projects, the Fund has balanced programming of different aspects of early warning arrangements, including monitoring and warning services, risk knowledge, education and awareness, dissemination and communication of warnings, and response capacity.
Linking the Pacific to the Asian Space Network as part of ICT for Pacific Connectivity

- To promote capacity development for enhanced Pacific Connectivity, ESCAP and ITU jointly have put in place a plan to assist 15 Pacific Island Countries and Territories (PICTs) for comprehensive capacity development.

- The framework of Asia Space Network which is built upon ESCAP’s legacy of Regional Space Applications (RESAP) wherein space agencies of China, India, Japan, Republic of Korea, Russian Federation and Thailand form a network for cooperation to share their space resources for development and disaster reduction is planned to be harnessed.

- As a part of ICT for Pacific Connectivity, ESCAP has strategically put in place a concrete plan to link up PICTs with Asia Space Network in different phases.
Central Asia DRR Knowledge Network

With the support from Russian Federation, the Central Asia Disaster Risk Reduction Knowledge Network for Flood Risk Reduction was initiated following the recommendations of the Regional Workshop on ICT Applications for Disaster Risk Reduction and Sustainable Economic Development, Astana, Kazakhstan during 28-30 September 2010.

It is an online network for sharing of information and knowledge that will improve disaster risk reduction and management in the subregion [http://www.unescap.org/idd/projects/Central-Asia-DRR/index.asp].

Participating in this network are Central Asian and neighbouring countries. They include Afghanistan, Azerbaijan, China, India, Kyrgyzstan, Mongolia, Pakistan, the Russian Federation, Tajikistan and Uzbekistan, as well as organizations within and outside the subregion that are engaged in disaster risk management.
ESCAP Response to Pakistan Floods 2010

- ESCAP’s efforts on long term Capacity Building to manage water related disasters with special reference to extreme flood events led to organizing the High-level Expert Group Meeting towards Developing a Roadmap to Reduce Flood Disaster Risks in Pakistan, held in Islamabad on 9 to 10 November 2010.

- With the support from UN Country Team Pakistan, the Workshop helped in strategizing the future activities on developing capacity for resilience to water-related disasters through space applications and flood risk management techniques among relevant government agencies in Pakistan, including Space and Upper Space Atmosphere Research Commission (SUPARCO), Pakistan Metrological Department (PMD), Institute of Space Technology (IST), National Disaster Management Authority (NDMA), Federal Flood Commission (FFC) and Water and Power Development Authority (WAPDA).

- It was followed up by specific ESCAP activities on Developing Capacity for Resilience to Water-related Disasters in Pakistan through Space Applications and Flood Risk Management.
RESCAP: Proposed Regional Cooperative Mechanism for Flood Management

- Region’s vulnerability to floods
  - > 75% flood related damage & losses reported in the region, particularly Bangladesh, China and India
  - Pakistan Flood 2010 has triggered this concept
- Based on ESCAP’s convening authority and institutional strength
- Taking use of ESCAP’s legacy of
  - Regional Space Applications Programme (RESAP)
    - Training Network in China, India & Indonesia
  - Panel on Tropical Cyclone, Typhoon Committee, Mekong River Commission, Tsunami Trust Fund, ...
  - Sub-programmes on Disaster Risk Management & on ICT
  - APCICT for Capacity Building
Key Partners

ITU
APT
APSCO
DESA
UNCTAD
OOSA
UNDP
ISDR
ADB
International Space Charter
Sentinel Asia
Disaster Management Support System in the Asia-Pacific Region
ADRC
Harnessing ICT and Space Applications for Disaster Risk Management

Need for Capacity Development based on a Holistic Approach involving Global, Regional, National and Local Actors /Agencies

Networking for knowledge & Capacity building  Preparedness  Response & Action

Regional  National  Local