Leveraging digital and geospatial innovations for building capacity in Asia and the Pacific

Mr. Keran Wang
Chief, Space Applications Section
ICT and Disaster Risk Reduction Division of ESCAP
Contents

01
Outcome of the 4th Ministerial Conference on Space Applications

02
Innovative geospatial information applications for sustainable development

03
Leverage digital innovations to accelerate implementing the regional Space Plan of Action

04
Challenges
Members and associate members have taken actions in (a) disaster risk reduction and resilience; (b) management of natural resources; (c) connectivity; (d) social development; (e) energy; and (f) climate change;

Implementation of the Ministerial Declaration on Space Applications for Sustainable Development in Asia and the Pacific and the Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018–2030), through resolution 75/6;

Implementation of the Jakarta Ministerial Declaration on Space Applications for Sustainable Development in Asia and the Pacific, through resolution 79/9.
Geospatial Good Practices Database and Dashboard

ABOUT THE DATABASE AND DASHBOARD
This showcases the good practices and experiences amongst countries and stakeholders in line with the implementation of the Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018-2030).

GOOD PRACTICES
511

ACTIONS IMPLEMENTED
3388

SUB-THEMES IMPLEMENTED
34

Number of Actions by Thematic Area
- Disaster risk reduction: 0.25K (7.38%)
- Management: 0.37K (10.89%)
- Climate Change: 1.48K (43.74%)
- Social Development: 1.05K (30.96%)
- Connectivity: 0.05K (0.16%)
- Energy: 0.05K (0.16%)

Top Contributing Sub-Themes
- Mitigation and Adaptation: 369
- Risk Reduction: 335
- Innovation: 306
- Disaster Assessment: 294
- Water Resources: 185
- Urban Planning: 157

Timeline of Action Implementation

Number of Actions by Action Area
- Capacity-building: 42.68%
- Research and Development: 40.79%
- Intergovernmental Cooperation: 16.53%
Innovative geospatial information applications for sustainable development

Compendium series: sharing knowledge and experience
Building institutional capacity for the use of integrated spatio-temporal data in local SDGs monitoring and decision-making

Pilot cities: Makassar and Bandung, Indonesia; Songkhla, Thailand
Building resilient agricultural in the Lower Mekong Basin
Building the Pan-Asia Partnership for Geospatial Air Pollution information

- Bangladesh: SPARRSO
- Cambodia: MoE
- Indonesia: BRIN
- Lao PDR: MONRE
- Mongolia: IRIMHE
- Philippines: PhilSA
- Thailand: GISTDA
- Viet Nam: MONRE
Central Asia Drought Information System (CADIS) Pilot Project
Leverage digital innovations to accelerate implementing the regional Space Plan of Action

Disaster Risk Hotspot Mapping

Use Big Earth Data, Cloud Computing and AI to decrease the cost and time to generate disaster risk hotspots in Asia and the Pacific.

We are working with countries and cooperation partners to build an ARRAY of tools and apps to address the data and information needs in Asia and the Pacific.

2023

Flood Hotspot Mapping

Wildfire Hotspot Mapping

2026

Flood Mapping Tool (floodmapping.inweh.unu.edu)

- Listed in 2022 UN Climate Change Innovations Compendium
- Won the 2021 Popular Science Best of What's New Award
Massive Open Online Courses (wlc.un.edu)

Participants are from universities, research institutes, and government agencies.

Spatiotemporal Drought Assessment by Leveraging Google Earth Engine Platform
This online course introduces the participants to Earth Engine Code Editor platform and the implementation of drought detection and monitoring algorithm using passive and active remote sensing.

Total number of participants 1820
Completion rate 27%

Total number of participants 1050
Completion rate 23%

Enroll Now
Introduction to Geospatial Data Analysis with ChatGPT and Google Earth Engine

This online course introduces the participants to ChatGPT and Earth Engine Code Editor platform to process and interpret geospatial data.

ENROLL NOW

wlc.unu.edu

Total number of participants 2012

Completion rate 19%

Gender-based distribution of the participants

Average age of the participants: 32 yrs

Total number of countries 110

Avg enrollments per day 58
The VSC will develop a mechanism for sharing satellite imagery within Asia and the Pacific to build resilience in disaster risk hotspots.

Develop a satellite imagery sharing mechanism for enhanced pre-disaster monitoring of risk in high disaster - low risk countries.

Match support and demand for satellite data by the secretariat using the VSC Catalog and form a working group to facilitate data transfer.

Provide technical assistance to the target countries in hosting, storing, processing and analysing the satellite data.

Share the data requests with all the spacefaring nations to ensure that the regional needs are addressed in future satellite and sensor design.

Contribute to the Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018–2030) in the areas of:

- Disaster Risk Reduction and Resilience
- Social Development
- Management of Natural Resources

Set up an informal working group to work out the operational details and conduct a study to map free and commercial remote sensing data providers and share the catalogue with all member States.

Invite spacefaring countries to set aside a percentage of their satellite operational time or data archive for use by high-disaster-risk and low-capacity countries.

Invite target countries to identify disaster risk hotspots for satellite imaging.

Provide inputs to the spacefaring nations on the design of future satellites and sensors which address national and regional data needs.
Leverage the power of Large Language Models (LLMs) to develop an open-access platform to better monitor and manage disaster risks_SatGPT

**Label images:** LLMs will be used to label images with relevant information, such as the type of disaster, the extent of the damage, and the number of people affected.

**Generate reports:** LLMs will be used to generate reports that summarize the findings of remote sensing data analysis and integrate sectoral data to aid decision-making and policy formulation.

**Classify data:** LLMs will be used to classify remote sensing data, such as distinguishing between different types of disasters or different levels of damage.

**Extract features:** LLMs will be used to extract features from remote sensing data, such as the location of a disaster, the severity of the damage, and the risk of future disasters.
Challenges

- How to augment digital innovations and engage end users across multiple sectors, including the private sector, to strengthen the integration of geospatial information for sustainable development.

- How to provide more capacity-building activities, including space applications for youth and knowledge sharing of best practices to promote the adoption of new technologies.

- How to strengthen partnerships at the regional level for more financial and technical supports to countries, in particular, those with special needs.
THANK YOU

Follow us:

Facebook: unescap
Instagram: unitednationsescap
Website: www.unescap.org
Twitter: unescap
YouTube: unescap
LinkedIn: united-nations-escap