

Promoting regional cooperation in Asia and the Pacific to integrate geospatial information for disaster resilience

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Our work in Space Applications

UNESCAP is the only UN Regional Commission with long-standing Regional Space Applications Programme for Sustainable Development

ESCAP Commission



Ministerial Conference



Committees on ICTSTI and DRR



ICC of Regional Space Applications Programme (RESAP)



Knowledge products
and geospatial information services

- Analytic reports
- Manual and operation guideline

Capacity building and
technical support

- RESAP and projects
- Regional Drought Mechanism
- Training networks

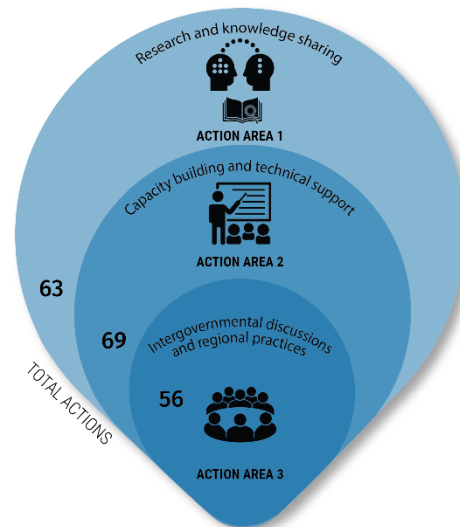
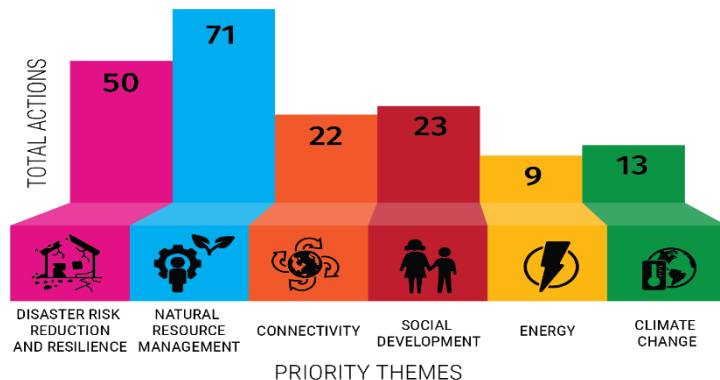
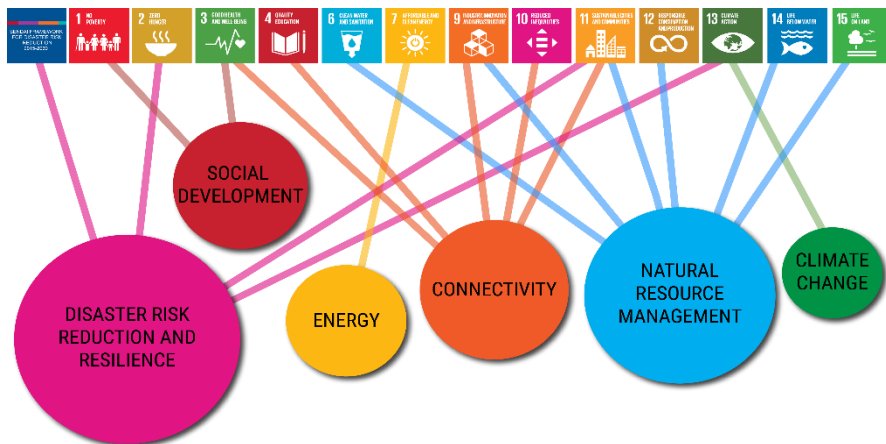
Regional commonality and norms

- Ministerial Conference
- Regional Plan of Action
- Cloud based meta-data platform

Asia-Pacific Plan of Action on Space Applications for Sustainable Development (2018-2030)



Integrating Geospatial Dimensions for a Sustainable Asia-Pacific

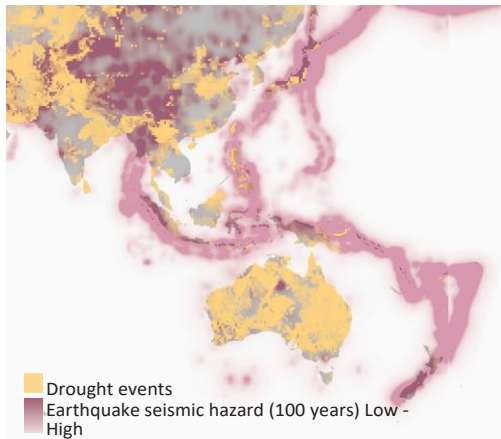


Vision

Member States in the Asia-Pacific region can access and use space science, technology and its applications to the fullest extent at the national and regional levels to achieve the goals set out in the 2030 Agenda for Sustainable Development.

Disaster Risk Reduction and Resilience

Drought and Earthquake Frequency
(Source: ESCAP)



Asia and the Pacific is the most disaster-prone region in the world.



50 ACTIONS 3SDGs + SFDRR

Sub theme



Innovation



Risk Reduction Disaster



Assessment Emergency



Response



Food Production



Agroecosystem Resilience Precision



Agriculture



Climate Hazards

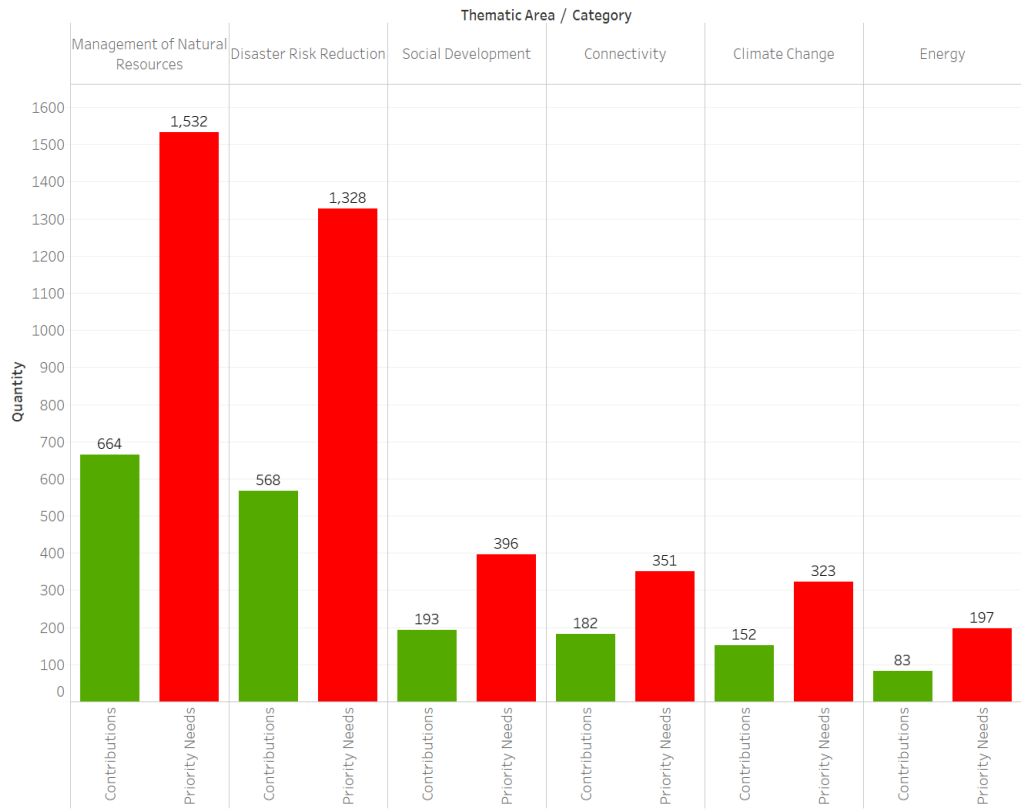
Country priority needs and contributions

Comprehensive survey to prioritize the most urgent steps to be taken during Phase I of the implementation of the Plan of Action (2018-2022)

Disaster Risk Reduction	Management of Natural Resources	Climate Change	Social Development
INNOVATION	WATER RESOURCE MANAGEMENT	MITIGATION AND ADAPTATION	HEALTH MANAGEMENT
	URBAN PLANNING		VULNERABLE GROUPS
DISASTER ASSESSMENT	FORESTS	Connectivity	
		ROAD TRAFFIC INCIDENTS	ENERGY
		INTERNET ACCESS	MODERN AND SUSTAINABLE ENERGY SERVICES

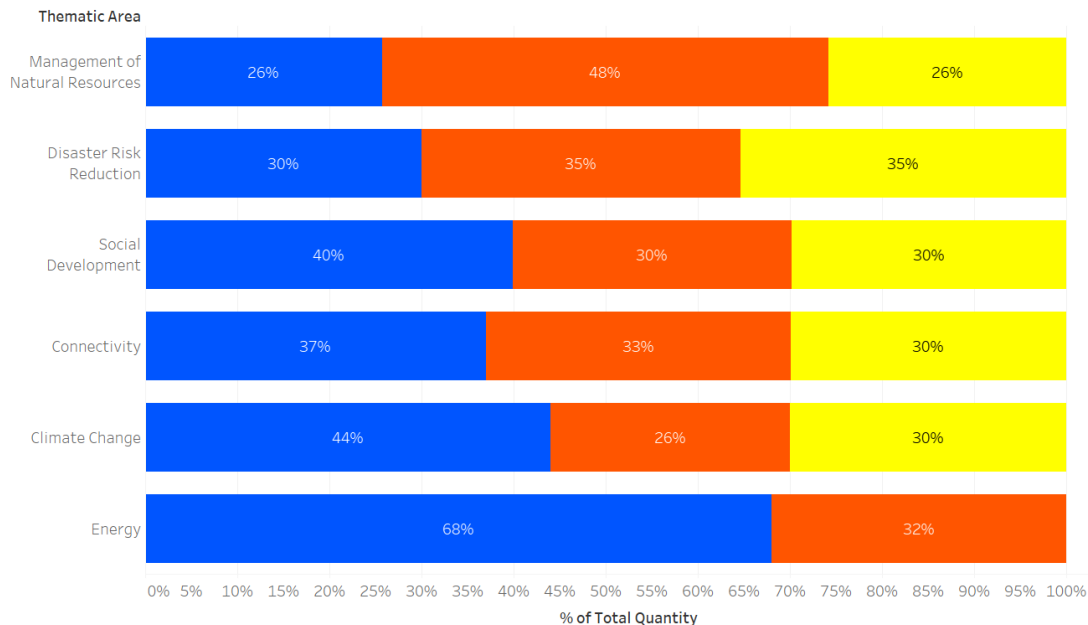
Management of Natural Resources is the prioritized thematic area for 50% of the countries

Total Priority Needs and Contributions across six Thematic Areas



Priority Needs outnumber the potential Contributions across all six Thematic Areas

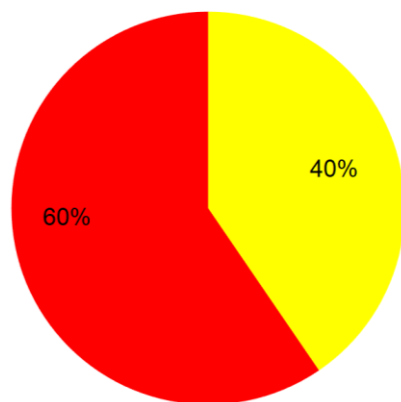
Top Priority Needs by Action Area



Management of Natural Resources is the Thematic Area that requires the most Capacity building and Technical support

60% of Country Needs are clustered under just 12 sub-thematic areas

Priority Needs across Top-12 sub-areas



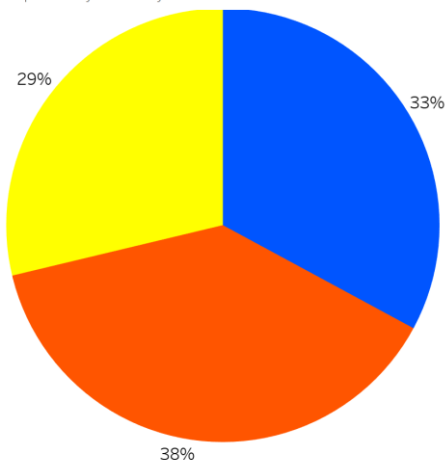
■ Top-12 Sub-areas
■ Other 22 Sub-areas

Most popular Priority Needs by Sub-Area

Sub-area	Thematic Area	Rank	
Mitigation and Adaptation	Climate Change	1	■ 323
Innovation	Disaster Risk Reduction	2	■ 282
Disaster Assessment	Disaster Risk Reduction	3	■ 224
Water Resource Management	Management of Natural Resources	4	■ 214
Modern and sustainable Energy Services	Energy	5	■ 197
Food Production	Disaster Risk Reduction	6	■ 196
Urban Planning	Management of Natural Resources	7	■ 192
Risk Reduction	Disaster Risk Reduction	8	■ 189
Health Management	Social Development	9	■ 188
Forests	Management of Natural Resources	10	■ 159
Biodiversity and Endangered Species	Management of Natural Resources	11	■ 156
Agroecosystem Resilience	Disaster Risk Reduction	12	■ 137
Climate Hazards	Disaster Risk Reduction	13	■ 130
Vulnerable Groups	Social Development	14	■ 101
Road Traffic Incidents	Connectivity	15	■ 100
Emergency Response	Disaster Risk Reduction	16	■ 97
Marine and Ocean Pollution	Management of Natural Resources	17	■ 89
Infrastructure	Management of Natural Resources	18	■ 88
Coastal Ecosystems	Management of Natural Resources	19	■ 87
Waste Management	Management of Natural Resources	20	■ 82
Poverty including human poverty and income poverty	Social Development	21	■ 77
Consumption and Production	Management of Natural Resources	22	■ 77
Land use change	Management of Natural Resources	23	■ 76
Land Degradation and Desertification	Management of Natural Resources	24	■ 76
Precision Agriculture	Disaster Risk Reduction	25	■ 73
Access to the Internet	Connectivity	26	■ 73
Scholarships	Connectivity	27	■ 70
Marine Ecosystems	Management of Natural Resources	28	■ 69
Natural and Cultural Heritage	Management of Natural Resources	29	■ 67
Water Quality	Management of Natural Resources	30	■ 60
Transport Systems	Connectivity	31	■ 57
Migration	Connectivity	32	■ 51
Sustainable Fisheries	Management of Natural Resources	33	■ 40
Contamination and Pollution	Social Development	34	■ 30

DRR is a common theme for all respondents,
while Natural Resource Management needs are more plentiful but felt in specific countries

Top Priority Needs by Action Area



■ Research and knowledge sharing
■ Capacity building and technical support
■ Intergovernmental discussions and regional practices

Top Priority Needs by Country

↓ Thematic Area

Country	Climate Change	Connectivity	Disaster Risk Reduction	Energy	Management of Natural Resources	Social Development
Armenia	24		19			
Bangladesh	18	7	70	4	104	13
Bhutan	18	38	136	20	156	45
Hong Kong, China	15	15	90	10	4	
India	14	31	50	11	140	24
Indonesia	9	3	42		84	
Japan	31		113	20	159	38
Myanmar			90			
Pakistan	14	1	19	23	11	37
Philippines	21	66	150	27	213	60
Solomon Islands	36	19	133	13	164	39
Sri Lanka	45	73	141	30	205	59
Tajikistan	39	61	143	27	162	60
Thailand	39	37	92	12	130	21
Vanuatu			40			



THE DISASTER RISKScape ACROSS ASIA-PACIFIC

PATHWAYS FOR RESILIENCE, INCLUSION AND EMPOWERMENT



Asia-Pacific Disaster Report 2019

EXECUTIVE SUMMARY FOR POLICYMAKERS

Asia Pacific Disaster Report 2019



KEY FINDINGS

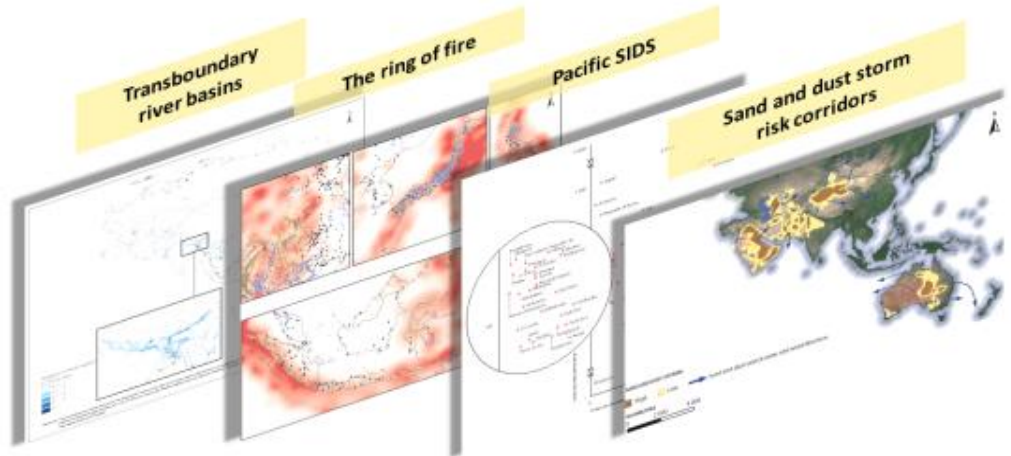
- **Message 1** Asia-Pacific faces a new climate reality
- **Message 2** Disaster risks accumulate and cluster in four risk hotspots
- **Message 3** Disasters widen inequalities in incomes and opportunities

POLICY ACTIONS

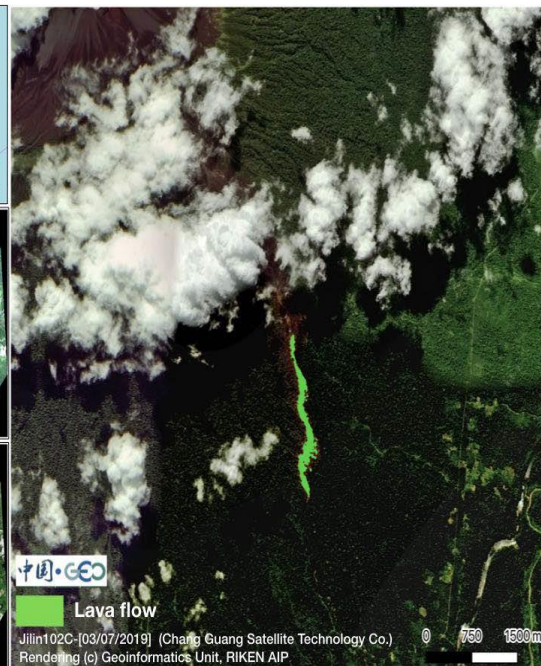
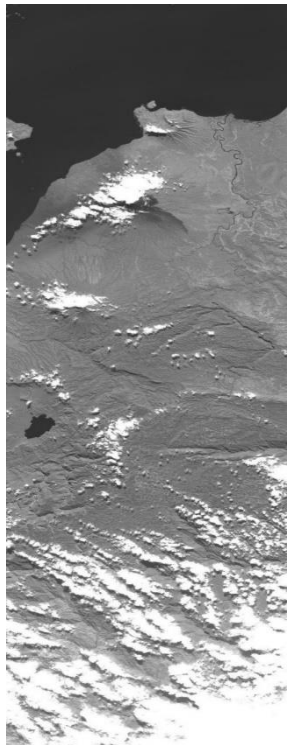
- **Message 4** Invest in resilience to outpace risk
- **Message 5** Empower the poor through big data and new technologies
- **Message 6** Operationalize the Asia-Pacific Disaster Resilience Network

Environmental fragility, poverty and disaster risk converging in four risk hotspots

Hotspots are emerging in which environmental fragility, poverty and inequality are converging in a 'perfect storm'.



Mount Ulawun volcano eruption in Papua New Guinea June 2019



Flood impact in Iran



Satellite detected waters extents, as of 18 January 2020 over Konarak District in Sistan Va Baluchestan Province of Iran

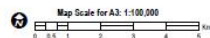
This map illustrates satellite-detected water surface in Konarak District in Sistan Va Baluchestan Province of Iran as observed from Sentinel-2 imagery acquired on 18 January 2020. Within the analysed extent of about 590 km², a total about 55 km² of land appear to be flooded.

This is a preliminary analysis and has not yet been validated in the field. Please send ground feedback to UNITAR - UNOSAT.

Legend

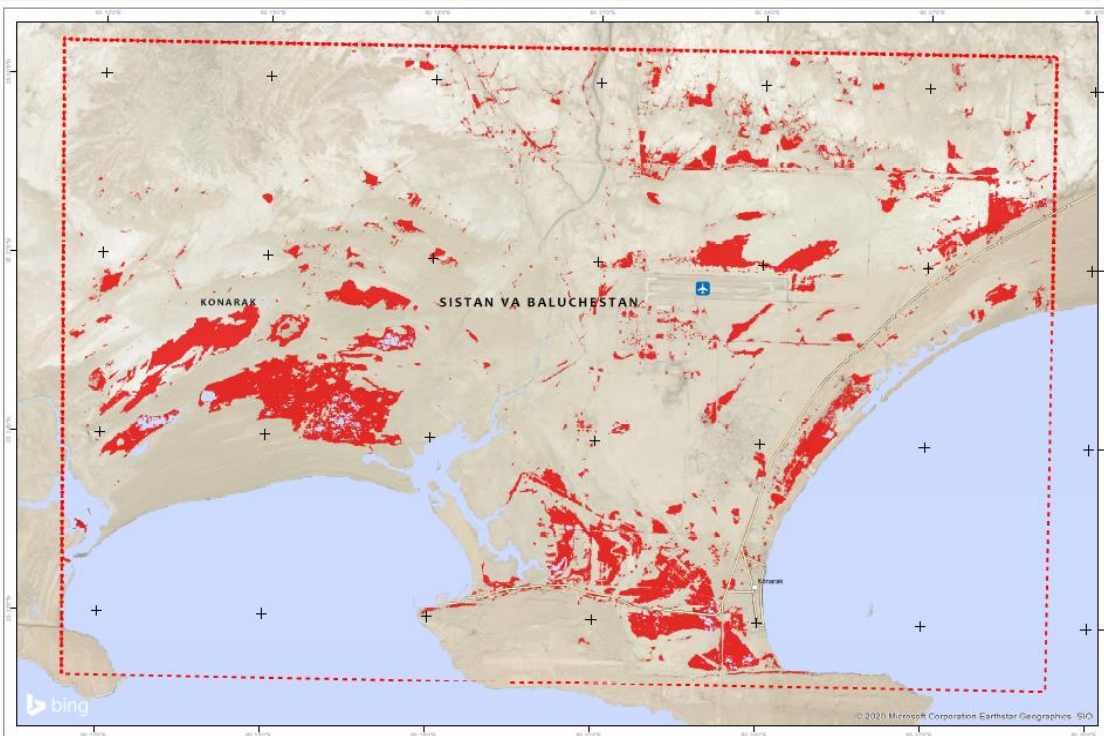
-  Town
-  Airport
-  Road
-  Analysis extent
-  Reference water
-  Satellite detected water (18 January 2020)

Province	District	Road Extent (km ²)	Population Potentially Exposed
Sistan Va Baluchestan	Konarak	55	3,700



Analysis conducted with ArcGIS v10.7

Coordinate System: WGS 1984 UTM Zone 41N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter



Satellite Data: Sentinel-2
Imagery Date: 18 January 2020
Resolution: 10 m
Copyright: Contour modified Copernicus Sentinel data (2019)
Source: ESA

Boundary data: COHA ROMENA, HDX
Population data: WorldPop (2020)
Road data: OpenStreetMap
Reference water: Global Surface Water Explorer
Analysis: UNITAR - UNOSAT
Production: UNITAR - UNOSAT

The depiction and use of boundaries, geographic names and related data shown here are not warranted to be error-free nor do they imply official endorsement or acceptance by the United Nations. UNOSAT is a program of the United Nations Institute for Training and Research (UNITAR), providing satellite imagery and related geographic information, research and analysis to UN humanitarian & development agencies & their implementing partners. This work by UNITAR-UNOSAT is licensed under a CC BY-NC 3.0.



CENTRE FOR SPACE SCIENCE AND TECHNOLOGY
EDUCATION IN ASIA AND THE PACIFIC (CSSTEAP)
Affiliated to the United Nations

Friday, August 23, 2019 - 8:44 am IST

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Space Science & Technology

On a mission of capacity building, under the initiative of the UN, for Asia and the Pacific region in space science and technology, through excellence in education, training and research.

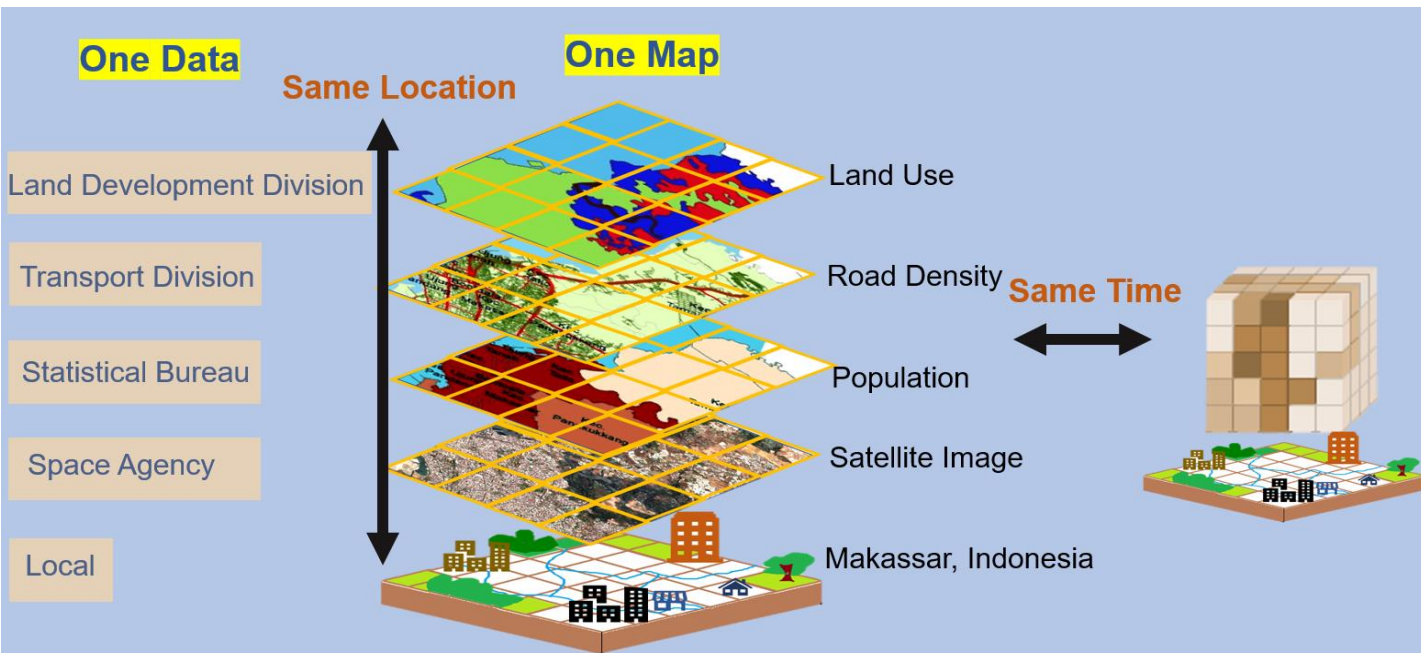


- Facilitated participation of three officials from Kazakhstan, Sri Lanka, Myanmar to study the 9-month Post Graduate courses on remote sensing/GIS, and three officials from Bangladesh, Indonesia, Mongolia to study the 9-month training course on Global Navigation Satellite System at CSSTEAP , Dehradun, India, from 1 July 2019-April 2020
- ESCAP also sponsored the tickets for three officials from ASEAN counties to participate in the one-year master degree study jointly organized with ATRSA, in 2019-2020.
- More in country training will be organized for SAARC, ASEAN and Central Asia in 2020-2021 on drought/crop monitoring, land management and urban development.

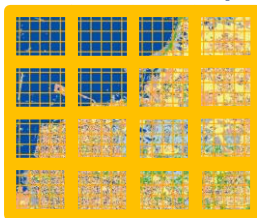
Space+ initiatives

- Leveraging **innovations in digitization**, cloud computing, artificial intelligence, big data and IoT
- Engaging **end-users in multiple sectors** including youth and the private sector
- Bridging **national demands**/end users with **regional information/service providers**
- Strengthening implementation through **enhanced partnership** with global stakeholders
- Guiding national sustainable development and **stimulating regional cooperation** in support of global initiatives
- Contributing **to global agendas**, such as the UNISPACE+50 and the 2030 Agenda for Sustainable Development

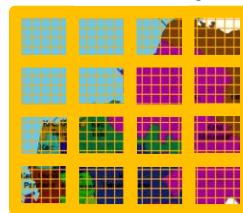
OneData – OneMap - OnePlatform



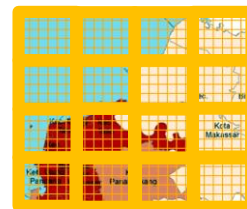
Land Cover Map



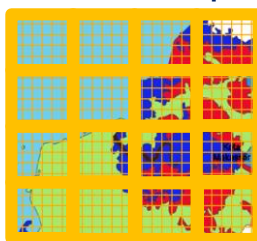
District Map



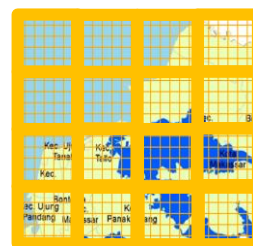
Population Density Map



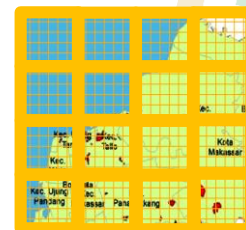
Land Use Map



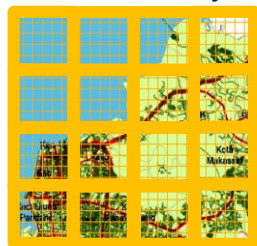
Flood Vulnerable Areas



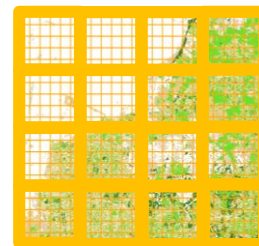
Slum Area

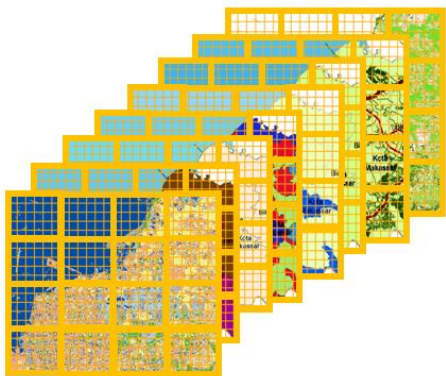


Road Density



Vegetation Species





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Geospatial Data



Timestamp



Land Cover Type



Demographic Data



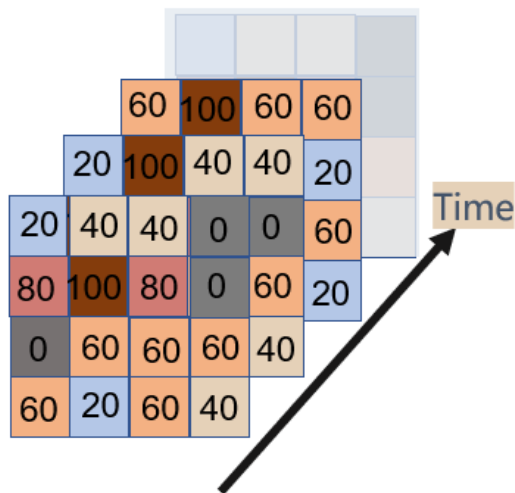
Economy Data



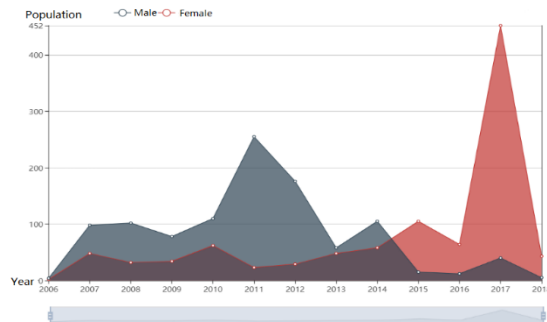
Infrastructure Data

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Easy to transform into other types of data
(**TABLEs** and **CHARTs**)



GRID ID	2015	2016	2017	2018	2019	2020
1	10	20	30	40	50	60
2	30	30	30	50	50	50
3	80	90	100	90	80	90
4	40	20	100	120	100	120
5	60	100	100	100	120	160
6	100	80	20	0	0	20
7	200	150	100	200	230	200



Statistical Data
(**TABLEs** and **CHARTs**)

uction of
data?



UN-GGIM-AP

Regional Committee of United Nations
Global Geospatial Information Management
for Asia & the Pacific



Aim of UN-GGIM-AP



Identify regional issues relevant to geospatial information management



Take necessary actions on them



Furtherance of discussions between the countries



Contribute to discussions on a global level



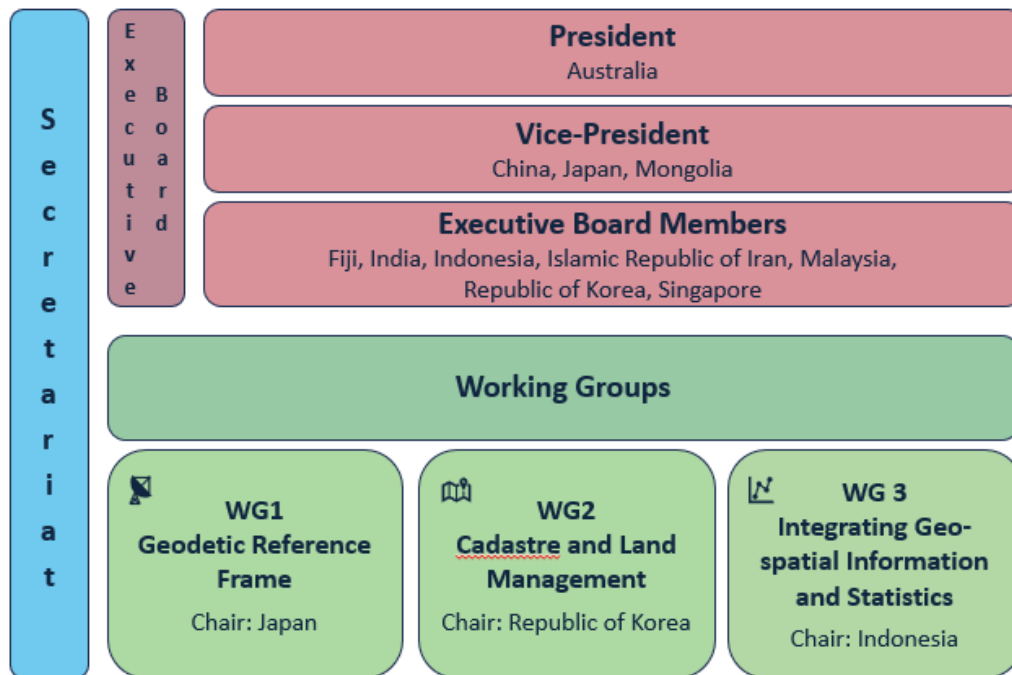
Maximize economic, social and environmental benefits of geospatial information in the Asia and Pacific region



UNITED NATIONS
ESCAP

Economic and Social Commission for Asia and the Pacific

Structure of UN-GGIM-AP



THANK YOU

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