UNOSAT: leveraging space-related innovation for sustainable development and improved disaster and climate resilience

Luca Dell'Oro

Chief, DRM and Climate Resilience Section,

United Nations Satellite Centre (UNOSAT)

UN-Space Session at World Space Forum

14 Dec, 11:30-13:00 CET

UNITED NATIONS SATELLITE CENTRE (UNOSAT)

- Division for Satellite Analysis and Applied Research at the **United Nations Institute for Training and Research** (UNITAR)

- Operational since 2001, recognized as the **United Nations Satellite Centre** in June 2021

Mandate:

"provide United Nations funds, programmes and specialized agencies with satellite analysis, training and capacity development, at their request, as well as to continue supporting Member States with satellite imagery analysis over their respective territories and to provide training and capacity development in the use of geospatial information technologies"

UNOSAT recognized by ECOSOC in June 2021 as **The United Nation Satellite Centre (UNOSAT)** (Res. E/2021/L.22)

UNOSAT

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GENEVA

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UGANDA
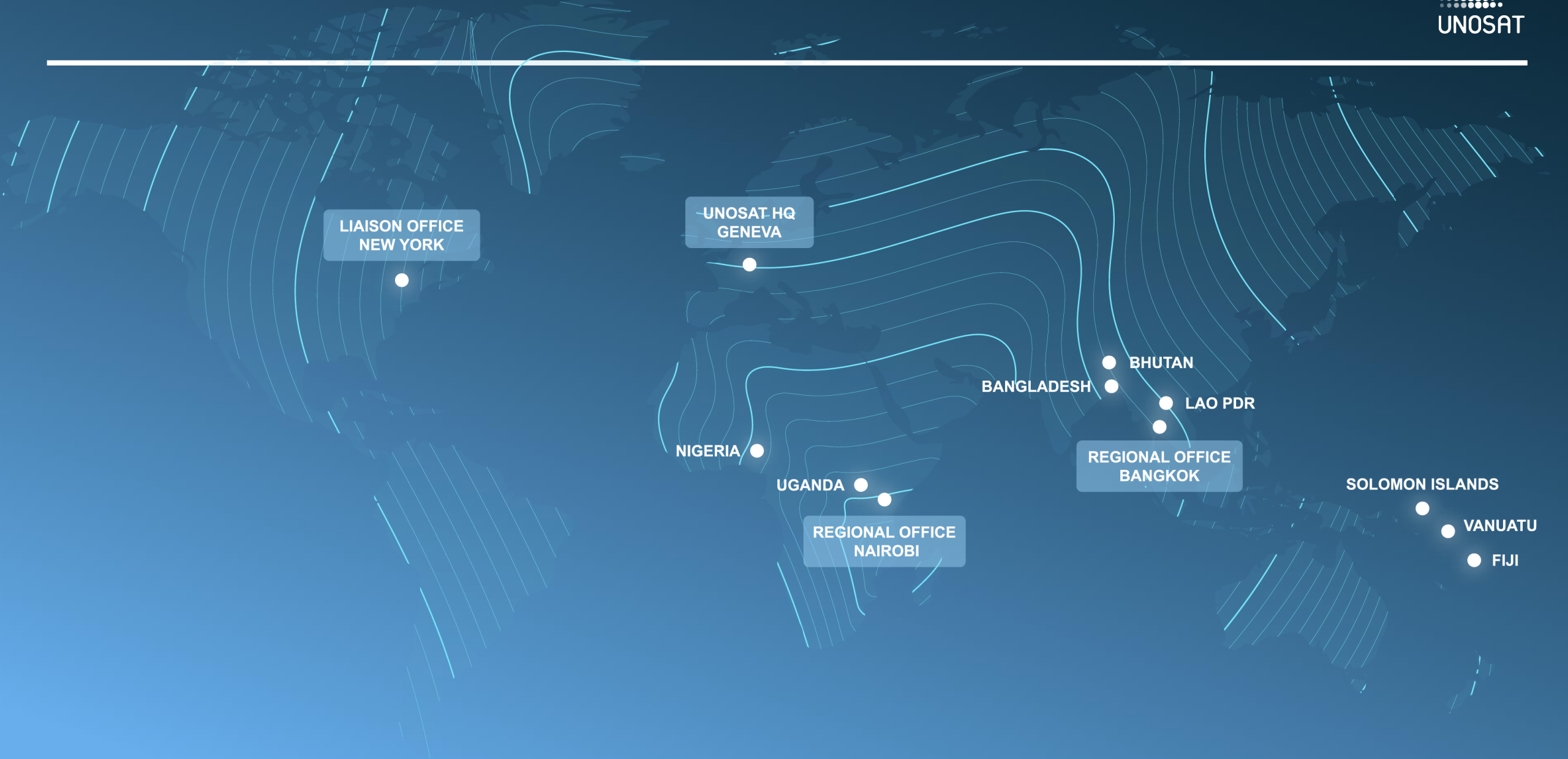
SOLOMON ISLANDS

REGIONAL OFFICE
NAIROBI

VANUATU

FIJI

UNOSAT

Operational Pillars

UNOSAT

Training and Capacity Development

Hands-on technical training, awareness raising and technical backstopping

Satellite Analysis

Satellite imagery derived geospatial products

Applied Research and Innovation

EO, AI, Machine Learning, Big Data Analytics, crowdsourcing

UNOSAT Rapid Mapping Service

UNOSAT provides **satellite image analysis** during humanitarian emergencies for natural disasters and conflict-situations.

24/7 operational service: team of experienced analysts based in GVA and BKK ensure timely delivery of satellite imagery derived maps, reports and data according to needs of UN agencies and Humanitarian actors

Sudden-onset disasters activations
[Aug.21 - Nov.22]

536	74	40
Products	Activations	Countries

	Aug.21 - Jul.22	Aug.20 - Jul.21	Aug.19 - Jul.20
Products:	374	396	199
Activations:	50	53	46
Countries:	30	43	34

× 42 Flood
× 15 Tropical Cyclone
× 5 Volcano
× 1 Snow Avalanche
× 2 Fire
× 2 Oil Spill
× 3 Landslides
× 4 Earthquake

Oceania 10%
South America 10%
North & Central America 10%
Africa 40%
Asia 30%
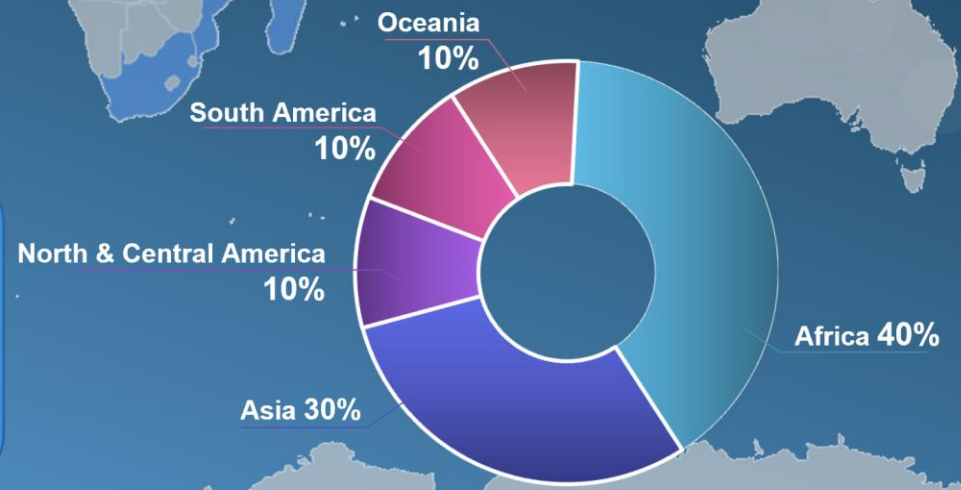
UNOSAT Rapid Mapping Service (Aug. 2021 – Nov. 2022)

Floods in Pakistan (Aug. – Sep. 2022)

UNOSAT

UN News
Global perspective Human stories

| Home | Topics | In depth | Secretary-General | |

AUDIO HUB

Pakistan: $160 million UN emergency plan launched, as 'monsoon on st... continues

THE WALL STREET JOURNAL.

Source: United Nations Satellite Center
Emma Brown/THE WALL STREET JOURNAL

Heavy flooding in Pakistan
Extent of flooding based on satellite imaging

Total flooded area
55,000 km²

Islamabad

PAKISTAN

■ Extent of flooding
■ Data unavailable

Source: UNOSAT data collected between August 3-23, 2022.
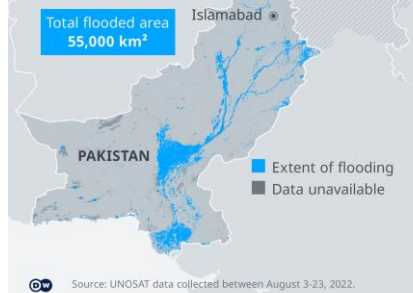
Deutsche Welle (DW)

August 2022 | Humanitarian Aid

A $160 million emergency plan to help Pakistan deal with devastating flooding has been launched by the United Nations, aiming to reach "5.2 million of the most vulnerable people in the country".

An estimated 33 million people have been affected by the "worst flooding in decades "and more than 1,000 people, mostly children", have died since mid-June when heavy rains began pounding the country, Jens Laerke, spokesperson for the UN humanitarian coordination office, OCHA, said on Tuesday.

"Pakistan is awash in suffering," UN Secretary-General Antonio Guterres said in a video message to launch the six-month appeal in Islamabad and Geneva.

António Guterres
@antonioguterres · Follow

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UNOSAT Products: southwest monsoon season
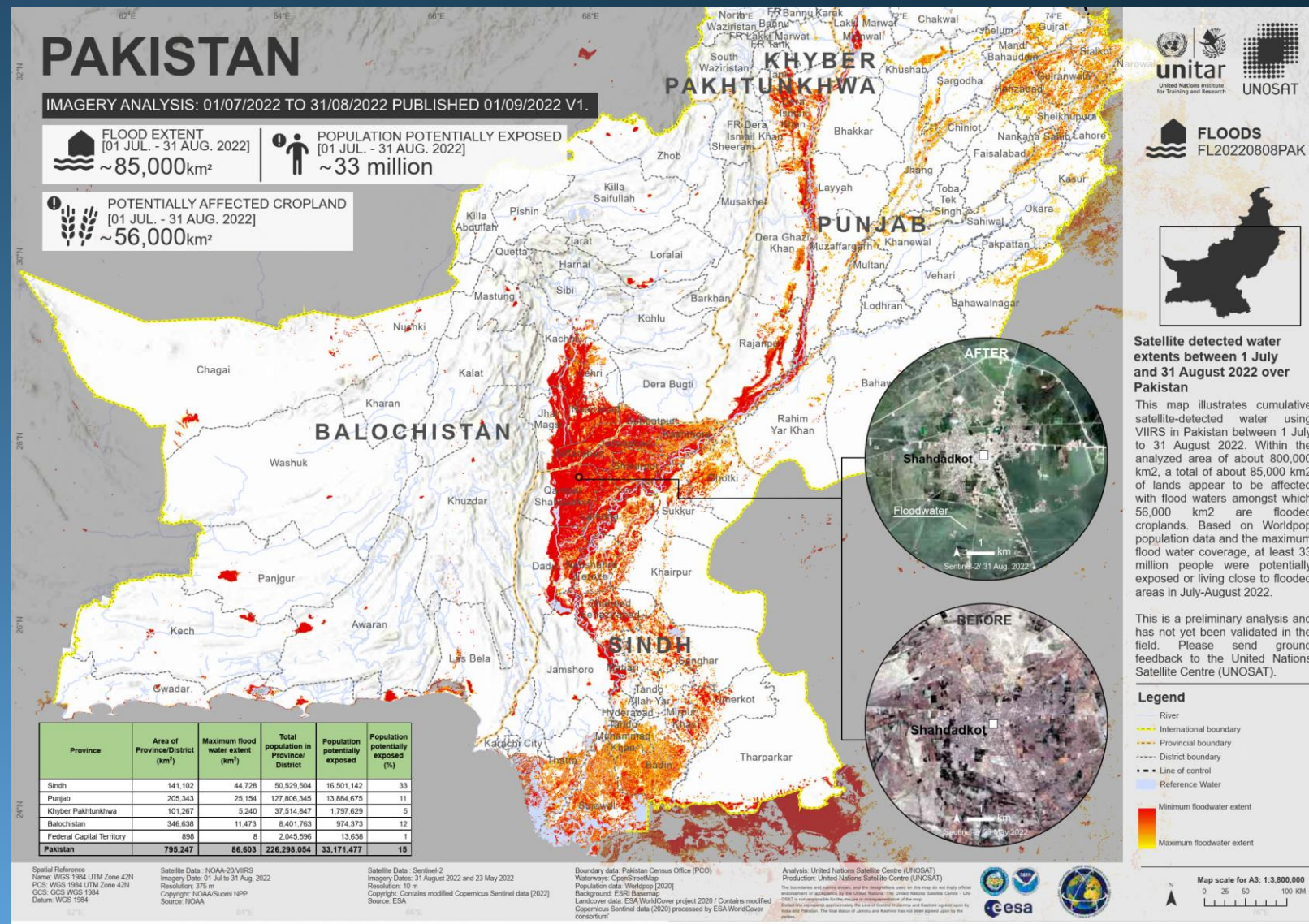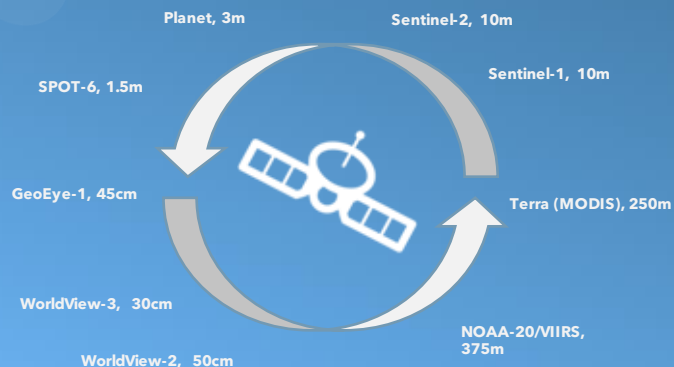
**Pakistan, August 2022**

13 📖
Impact / Damage assessment maps

7 📋
Preliminary situation assessment

Planet, 3m
Sentinel-2, 10m
SPOT-6, 1.5m
Sentinel-1, 10m
GeoEye-1, 45cm
Terra (MODIS), 250m
WorldView-3, 30cm
NOAA-20/VIIRS, 375m
WorldView-2, 50cm

DRR - Capacity Development Projects

- **East Africa (2014- 2020):** Enhancing IGAD's Member States Capacity in GIT applications for DRR

- **West Africa (2018-2020):** Capacity Building Support to the Economic Community of West African States (ECOWAS) on DRR

- **Asia (2014-2020):** Technical trainings on GIT applications for DRR delivered in more than 10 countries in collaboration with ADPC & UNESCAP.

- **Africa (2020):** UNOSAT & UN Technology Bank: Enhancing Capacities in the use of GIT for Improved DRR/M, Climate change (CC), Natural Resources Management (NRM): Gambia, Uganda, Mozambique

- **Guyana (2018-2021):** National Flood Early Warning System (2018 – 2021)

- **Pacific (2018- 2022):** CommonSensing - Strengthen climate resilience in Fiji, Vanuatu & Solomon islands

- **IORA Member States (2021-2022):** Geospatial Information Technology (GIT) for Operational Planning and Decision Making in Disaster Risk Management

- **UNESCAP (2021-2022):** Asia Pacific Risk & Resilience Portal

- **UNESCAP (2022):** Utilizing Space Applications to Strengthen Drought and Land Management in Central Asia through Innovative Learning

- **Asia-Pacific and Africa (2021-2024):** Strengthening Capacities in the use of geospatial information for improved resilience in: Uganda, Nigeria, Bhutan, Lao PDR, Bangladesh, Fiji, Solomon Islands and Vanuatu.
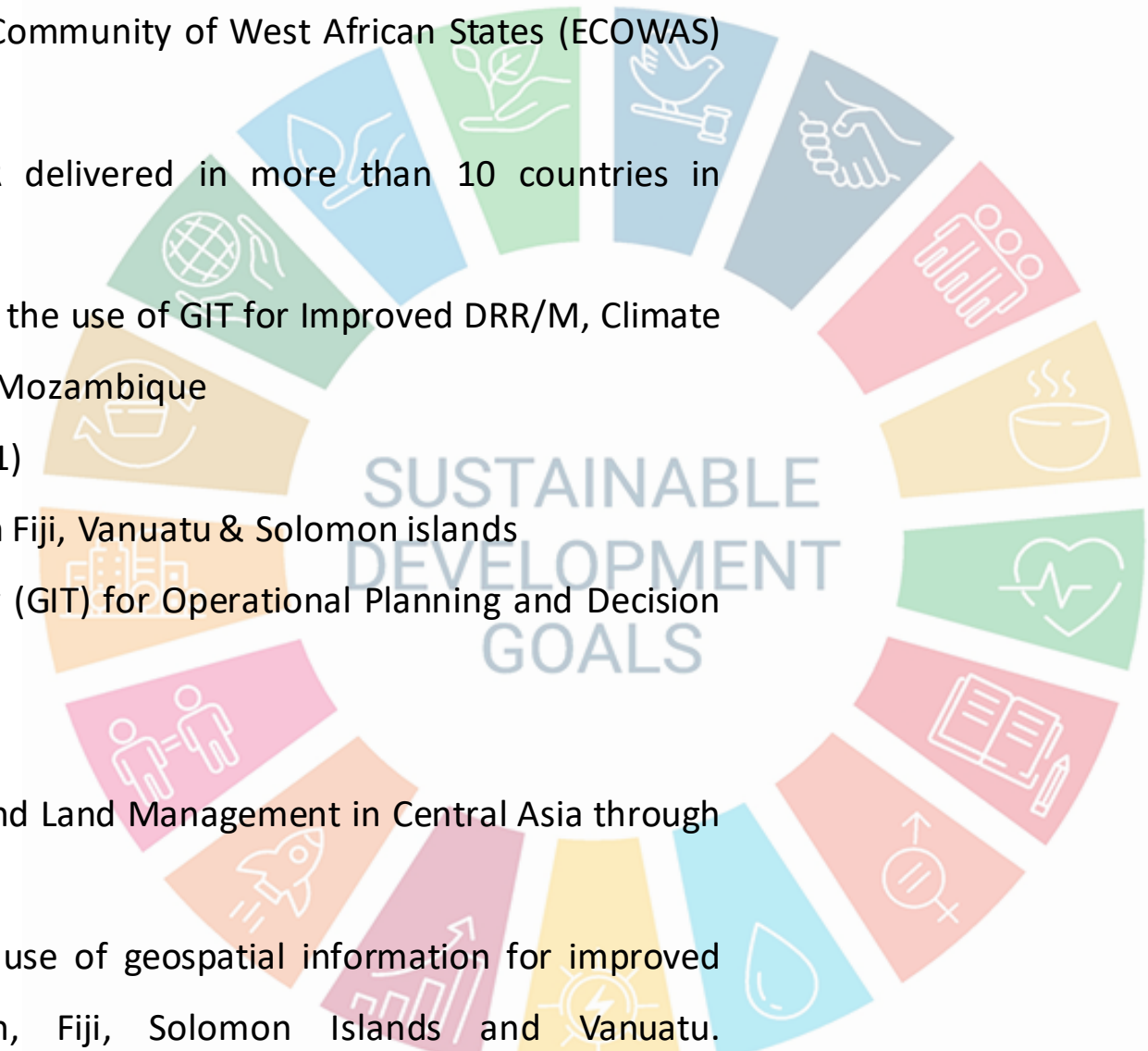
CommonSensing – Building Climate Resilience with Small Islands Nations

CommonSensing – Building Climate Resilience with Small Islands Nations

DRR Decision Support System

The Decision Support System will provide contextual analyses of a variety of hazards, risk, vulnerability, and coping capacity data based on INFORM sub-national methodology to improve situational awareness.

EXPLORE

Open Data Cube

CommonSensing provides access to the Open Data Cube (ODC) products of various types, serving a range of use cases within climate change resilience.

EXPLORE

Climate Impact

The Climate Information app was created to allow users to look back in time at how Climate parameters have varied over time.

EXPLORE

Food Security

The open app is designed the provide the farmers or communities with suitability information of potential crops in any location in Fiji.

EXPLORE

Decision Support System promoting risk-informed & evidence-based decision making
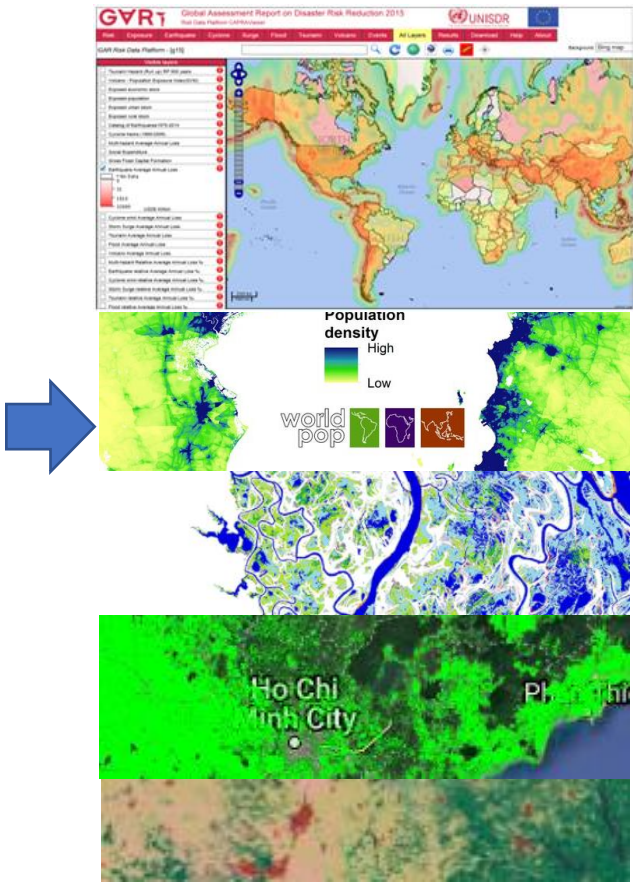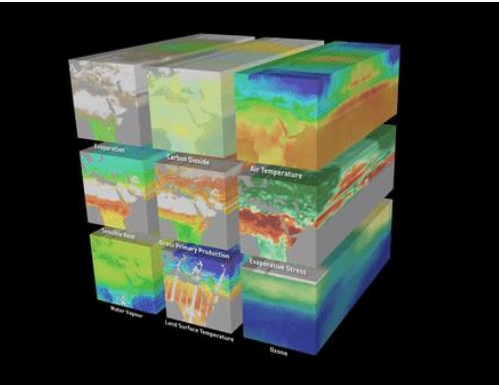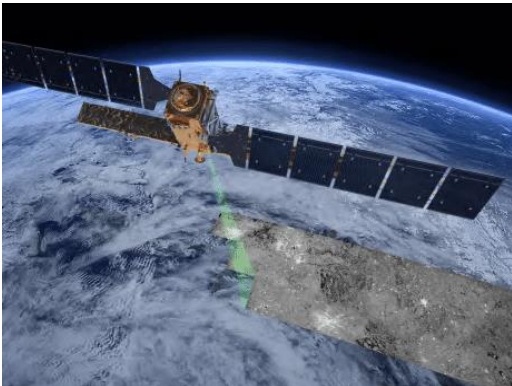
disaster risks

High resolution population models

surface water

cropland

landcover
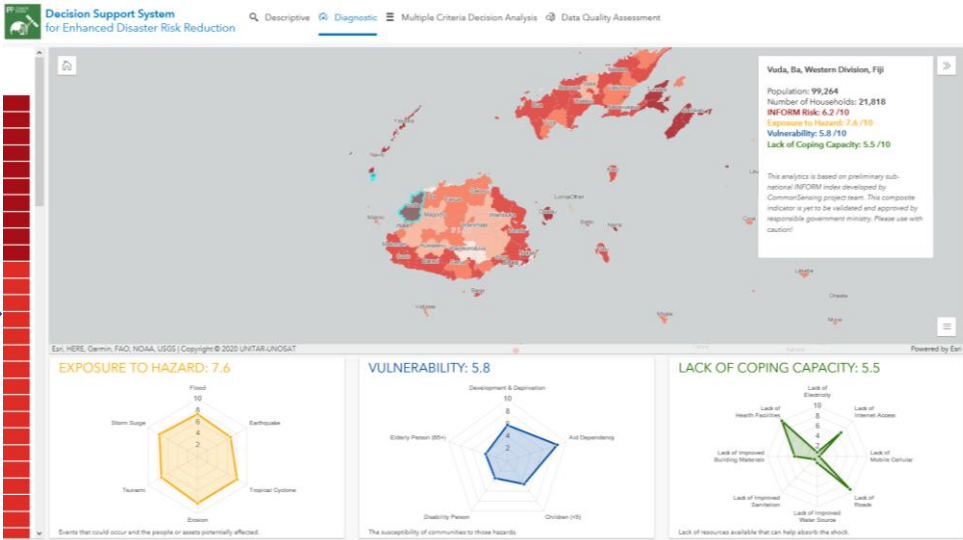
Data

Information

Insights

Sea Level Rise Impact App

https://unosat-geodrr.cern.ch/Climate/SeaLevelRise/

UNESCAP Risk and Resilience Portal

https://www.youtube.com/watch?v=clixQxvjo-4

Risk and Resilience Portal – Spatial Decision Support System

https://rrp.unescap.org/

Strengthening GIT Capacities for Improved Disaster Resilience in Pacific, Asia and Africa

- **Develop technical and institutional capacities** of national stakeholders on the use of geospatial information technologies.

- **Capacity building and implementation of customized spatial decision support platform** will go hand in hand.
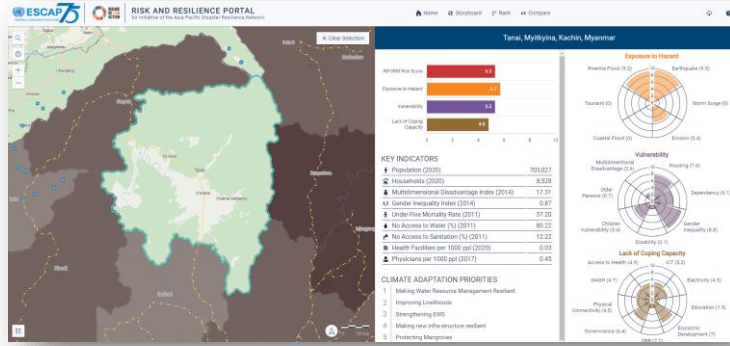
- **8 Countries**

- 3-year project (until June 2024)

- Funded by the Norwegian Agency for Development Cooperation (NORAD)

Bhutan
Sustainable Natural Resources Management

Bangladesh
Disaster Risk Management

LaoPDR
Multi-hazard Risk Information System

Solomon Islands

Vanuatu

Fiji

Nigeria
Environmetal Conservation

Uganda
Multi-hazard Risk Information System

Climate Resilience and Climate Finance

Strengthening GIT Capacities for Improved Disaster Resilience in Pacific, Asia and Africa

Decision Support Systems
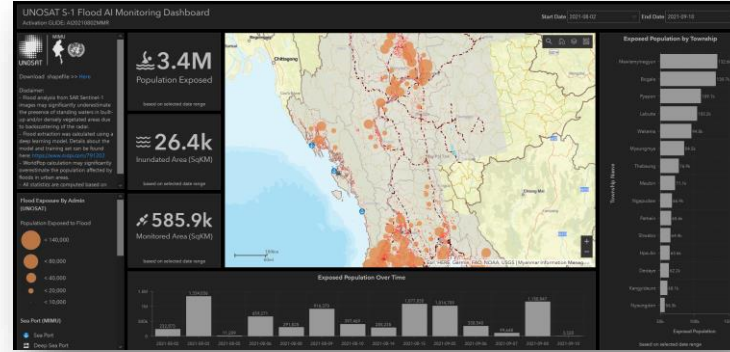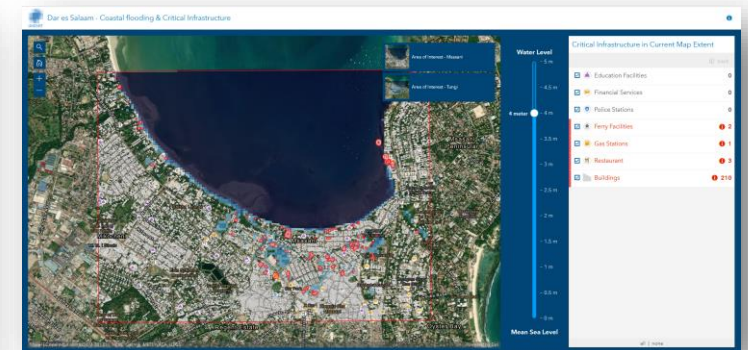

Flood AI Monitoring Dashboard
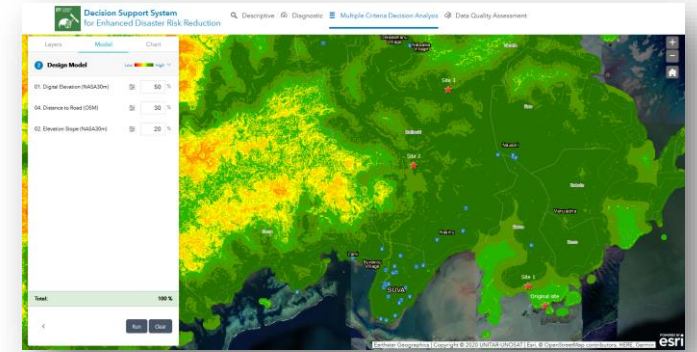
Multiple Criteria Decision Analysis

Damage Assessment Visualization

Hydrological Information System

Coastal Flooding & Critical Infrastructure

THANK YOU!