

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

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United Nations Satellite Centre (UNOSAT)

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 *United Nation Satellite Centre (UNOSAT)* (Res. E/2021/L.22)

The

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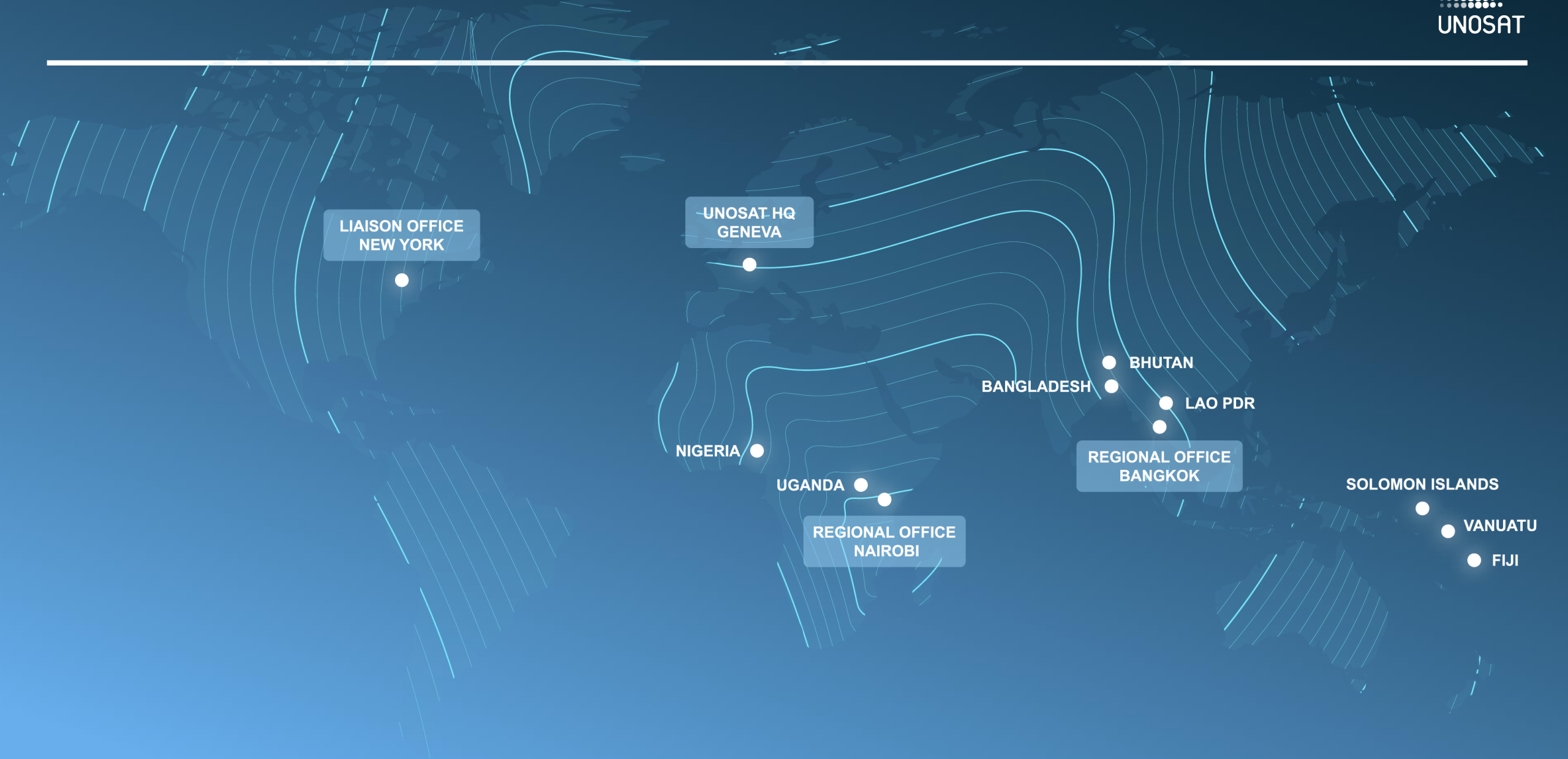
NIGERIA

UGANDA

SOLOMON ISLANDS

VANUATU

FIJI





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

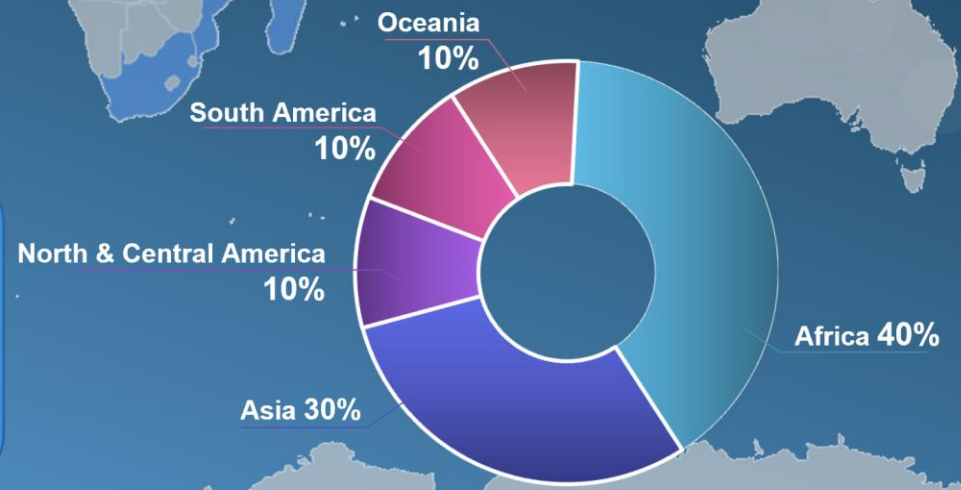
Sudden-onset disasters activations [Aug.21 - Nov.22]

536 Products **74** Activations **40** Countries

Aug.21 - Jul.22 Aug.20 - Jul.21 Aug.19 - Jul.20



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



UNOSAT Rapid Mapping Service (Aug. 2021 – Nov. 2022)



TYPE OF DISASTER

REQUESTING ORGANIZATION

GDACS

Global Disaster Alert and Coordination System

GDACS is a cooperation framework between the United Nations, the European Commission and disaster managers worldwide to improve alerts, information exchange and coordination in the first phase after major sudden-onset disasters.



HOME **EVENT** NEW EVENT

HAZARD EXTENT

Event

AREA OF INTEREST

Filter by Analysis status

Planned

In Progress

Completed

Filter by Organisation

UNOSAT

COPERNICUS

Other

Filter by Category

Potential Scenario

Exposure / Preliminary Impact Estimation

Impact / Damage Assessment

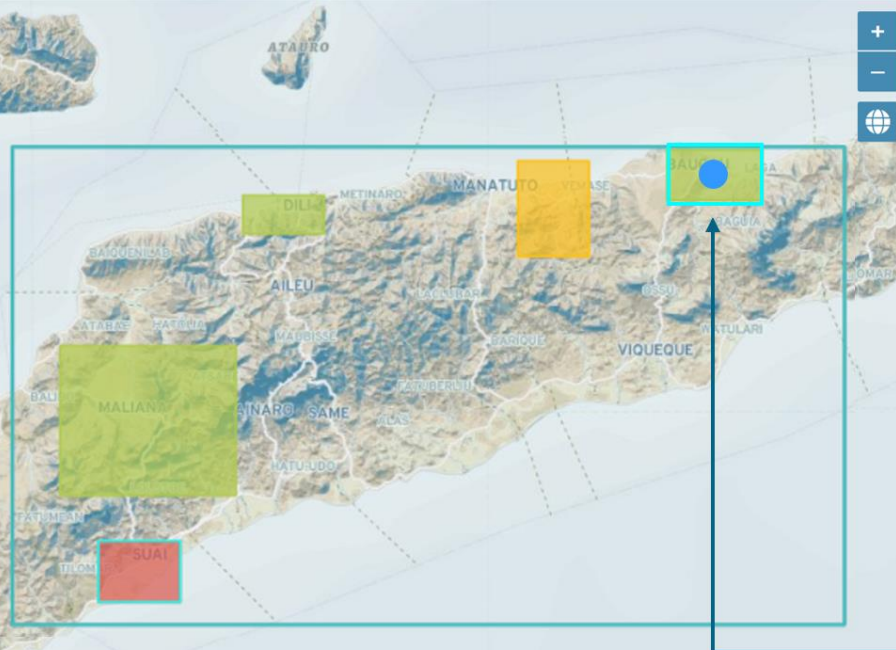
Monitoring

MAP PRODUCTS

by Organisations

UNOSAT

COPERNICUS



Coordination detail

ACTIVE

+ New acquisition

Tropical Cyclone SEROJA-21

Australia, Indonesia

TC1000775

Area of Interest

COMPLETED

Analysed by UNOSAT

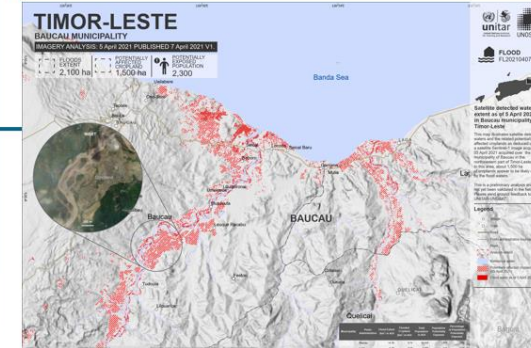
Created the 2021-04-07

Sensor: Sentinel-1

Category: Exposure / Preliminary Impact Estimation

Location: Baucau

Hazard Delineation



Floods in Pakistan (Aug. – Sep. 2022)



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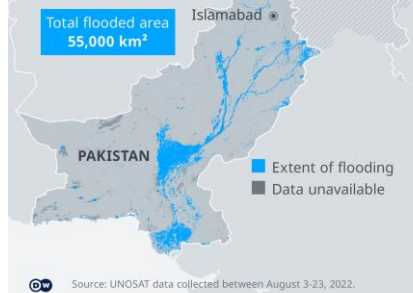
Secretary-General

Pakistan: \$160 million UN emergency plan launched, as 'monsoon on steroids' continues



Heavy flooding in Pakistan
Extent of flooding based on satellite imaging

Total flooded area
55,000 km²



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.



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UNOSAT Products: southwest monsoon season



Pakistan, August 2022

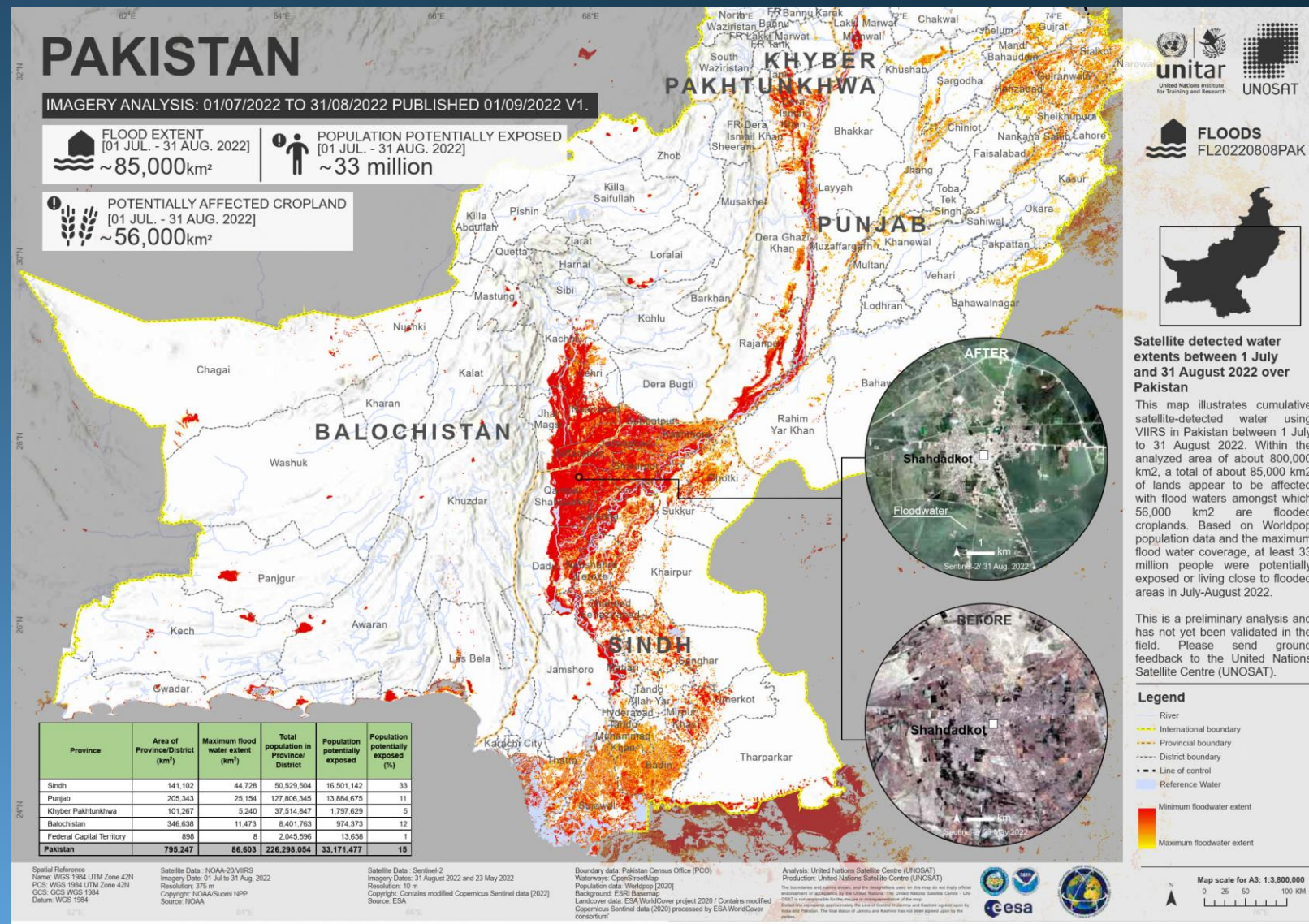
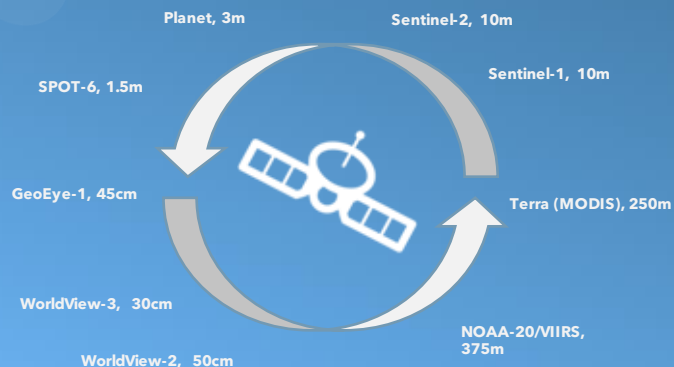


13

Impact / Damage assessment maps

7

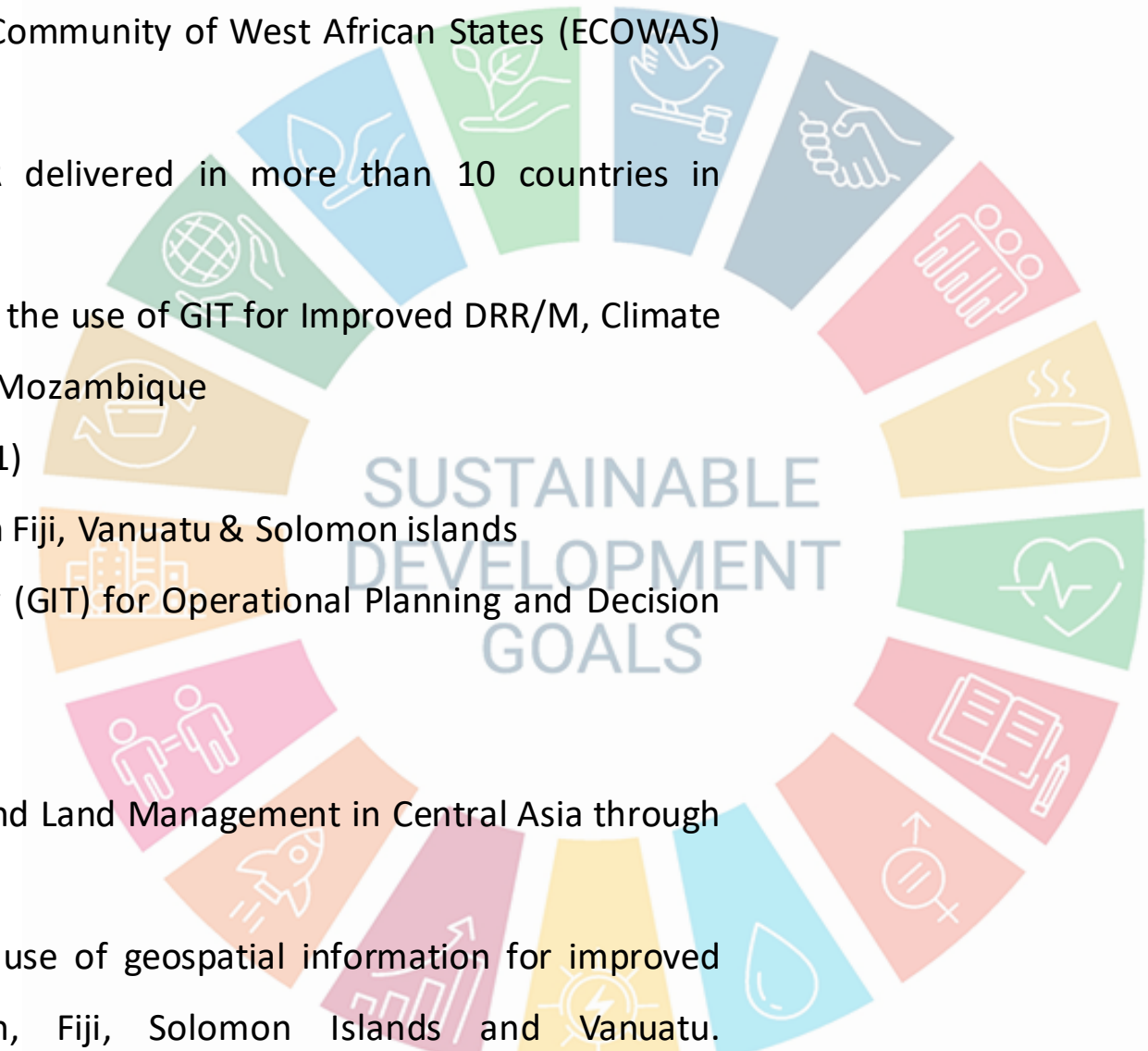
Preliminary situation assessment



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



IPP COMMON SENSING

ABOUT US WHO'S INVOLVED? EVENTS NEWS RESOURCES

UK SPACE AGENCY GCRF Global Challenges Research Fund

BUILDING CLIMATE RESILIENCE WITH SMALL ISLAND NATIONS

- Climate Information
- Food Security
- Disaster Risk Reduction
- Climate Finance



SOLOMON ISLANDS



VANUATU



FIJI



sonsonomic



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](#)

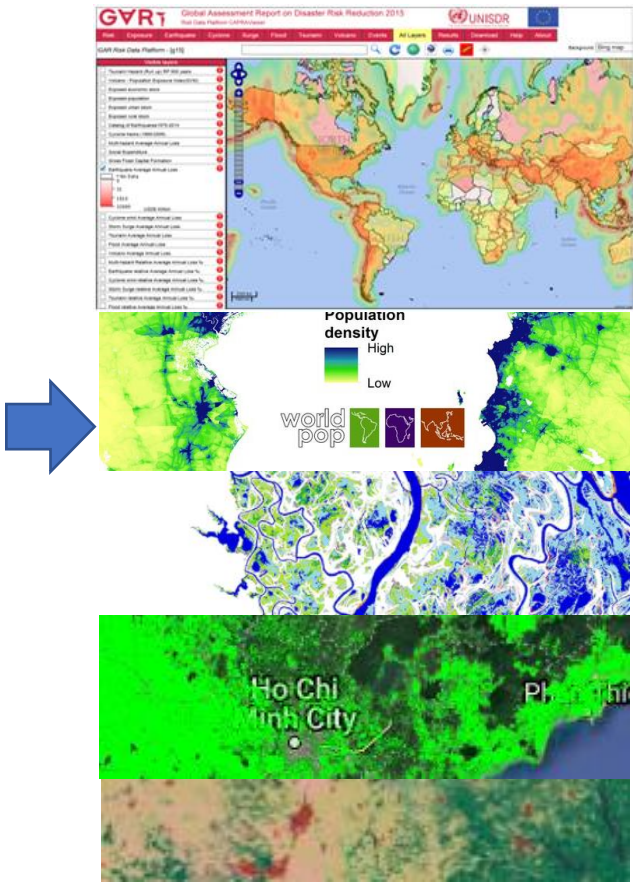
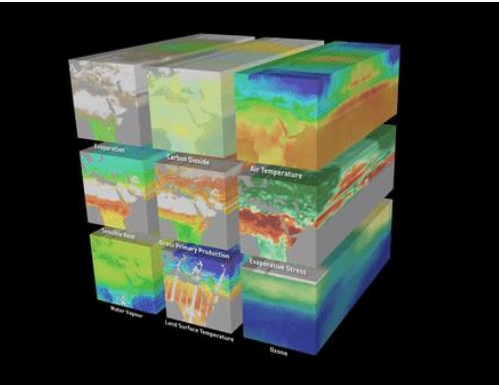
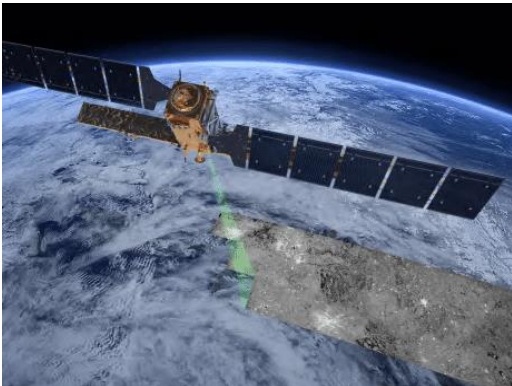


Food Security

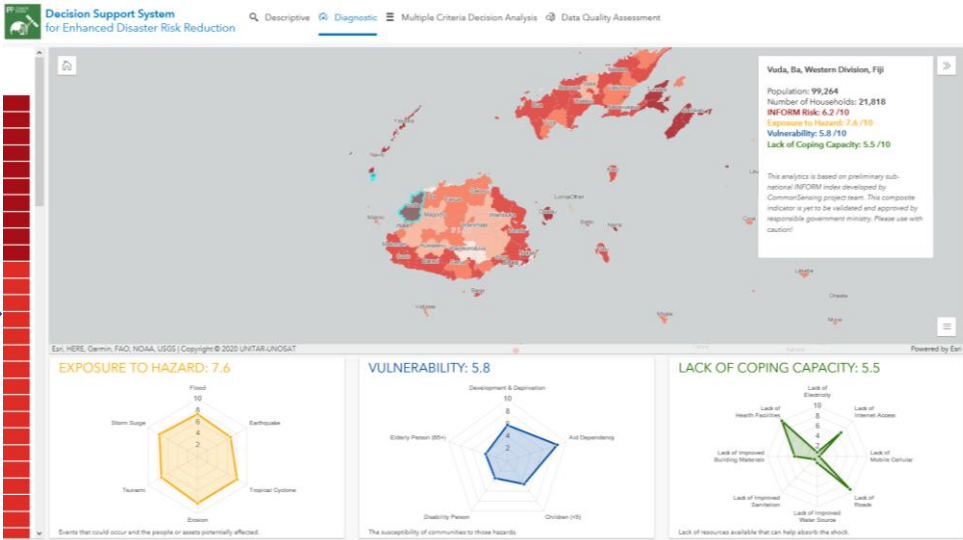
The open app is designed to provide the farmers or communities with suitability information of potential crops in any location in Fiji.

[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



Fiji - Sea Level Rise and Critical Infrastructure **FOR DEMO PURPOSES ONLY**

Min projected sea level change Max projected sea level change ?



Water Level

1.03 meter

Mean Sea Level

Critical Infrastructure in Current Map Extent

Icon	Category	Count
<input checked="" type="checkbox"/>	Hotels (MLMR & FHTA)	1
<input checked="" type="checkbox"/>	Health Facilities (MLMR)	0
<input checked="" type="checkbox"/>	Fire Stations (MLMR)	0
<input checked="" type="checkbox"/>	Schools (MLMR)	1
<input checked="" type="checkbox"/>	PoliceStations PolicePosts (MLMR)	0
<input checked="" type="checkbox"/>	MeteorologicalServices Stations (MLMR)	0
<input type="checkbox"/>	FRA Bridges (MLMR)	--
<input checked="" type="checkbox"/>	Airports (OSM)	0
<input type="checkbox"/>	Points of Interest (OSM)	--
<input checked="" type="checkbox"/>	Financial Services (OSM)	0
<input checked="" type="checkbox"/>	Sea Ports (OSM)	0
<input checked="" type="checkbox"/>	Buildings (OSM)	101

all | none

UNESCAP Risk and Resilience Portal



RISK AND RESILIENCE PORTAL
An Initiative of the Asia Pacific Disaster Resilience Network

HOME HAZARD HOTSPOTS ECONOMIC IMPACT ADAPTATION COST & PRIORITIES DECISION SUPPORT SYSTEM COUNTRY ANALYSIS KNOWLEDGE PRODUCTS

Asia Pacific Risk & Resilience Portal

Bridging the science policy gap for informed action

🔗 Data Explorer

700+
Datasets

100+
Policy documents

@iStock

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

Risk and Resilience Portal – Spatial Decision Support System



RISK AND RESILIENCE PORTAL
An Initiative of the Asia Pacific Disaster Resilience Network

Home Storyboard Rank Compare

Welcome to Myanmar Decision Support System ✕

The Decision Support System provides contextual analysis of variety of hazard, risk and vulnerability, socio-economic information to support informed decision making. Using different tools, users can easily understand the location of risky areas, what makes them risky and finally identify the means for reducing and adapting to those risks.

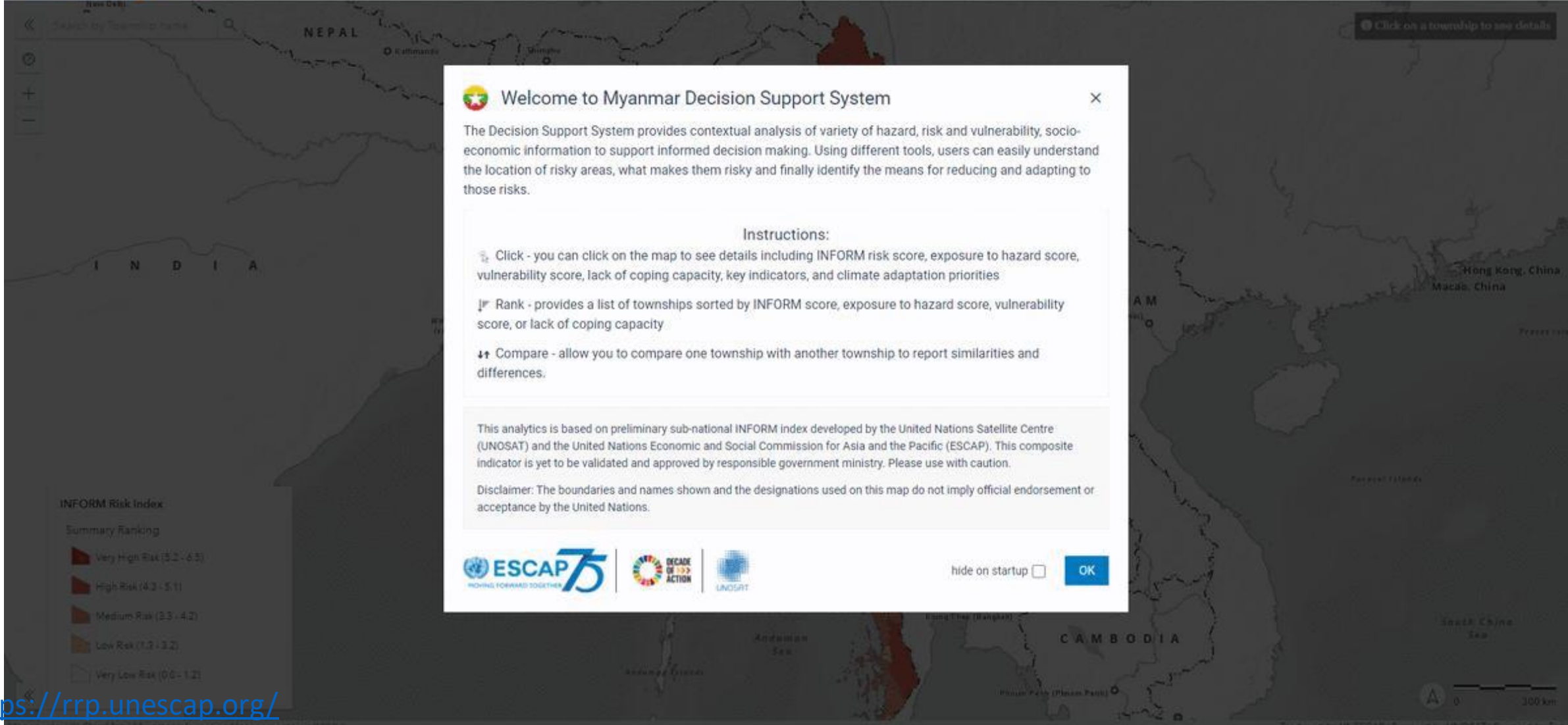
Instructions:

- Click** - you can click on the map to see details including INFORM risk score, exposure to hazard score, vulnerability score, lack of coping capacity, key indicators, and climate adaptation priorities
- Rank** - provides a list of townships sorted by INFORM score, exposure to hazard score, vulnerability score, or lack of coping capacity
- Compare** - allow you to compare one township with another township to report similarities and differences.

This analytics is based on preliminary sub-national INFORM index developed by the United Nations Satellite Centre (UNOSAT) and the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). This composite indicator is yet to be validated and approved by responsible government ministry. Please use with caution.

Disclaimer: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

hide on startup OK



<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.

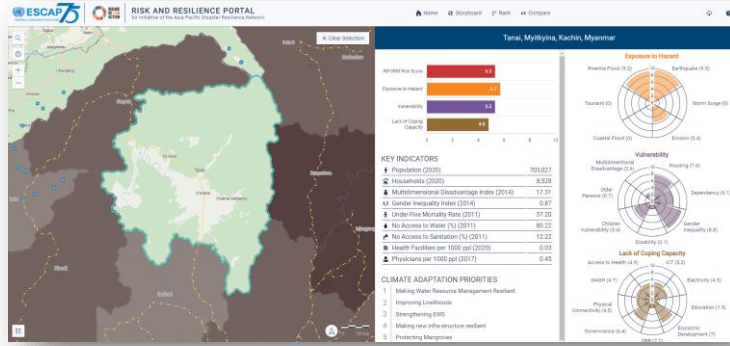
- **8 Countries**

- 3-year project (until June 2024)

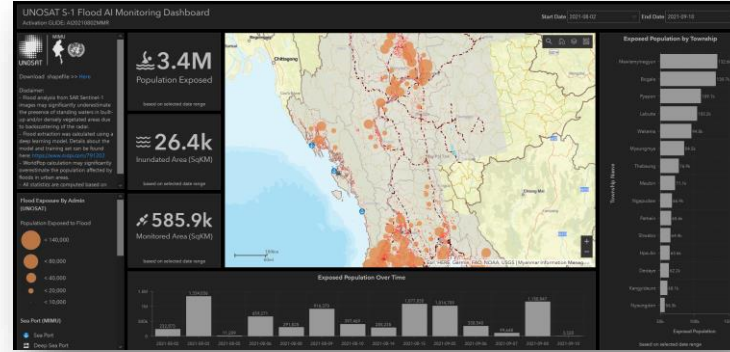
- Funded by the Norwegian Agency for Development Cooperation (NORAD)



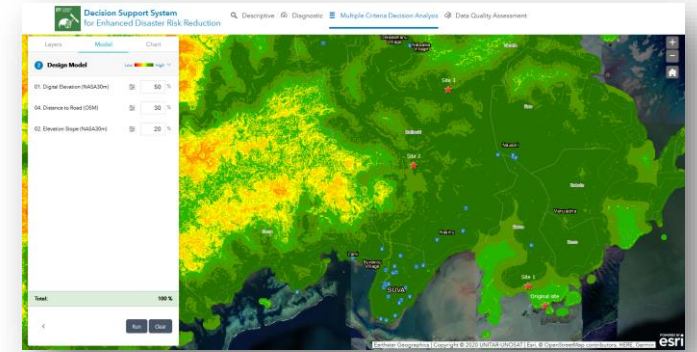
Strengthening GIT Capacities for Improved Disaster Resilience in Pacific, Asia and Africa



Decision Support Systems



Flood AI Monitoring Dashboard



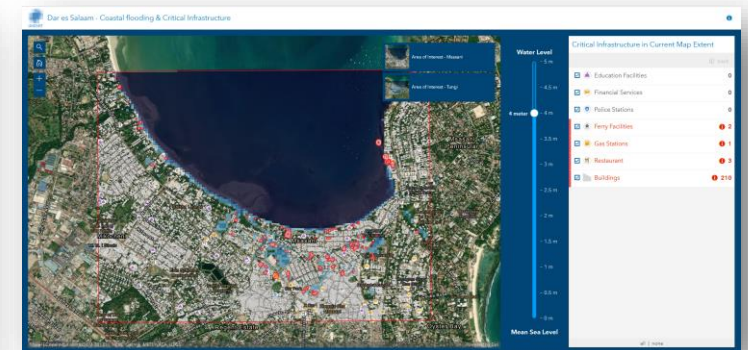
Multiple Criteria Decision Analysis



Damage Assessment Visualization



Hydrological Information System



Coastal Flooding & Critical Infrastructure

THANK YOU!



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