UNOSAT: Building DRR & Climate Resilience

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UNOSAT - UNITAR

United Nations inter-agency meeting on outer space activities (UN-Space)
High Level Panel on Space-based Technologies for Disaster Risk Reduction
Friday, 9 December 2022 , Bangkok, Thailand

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)

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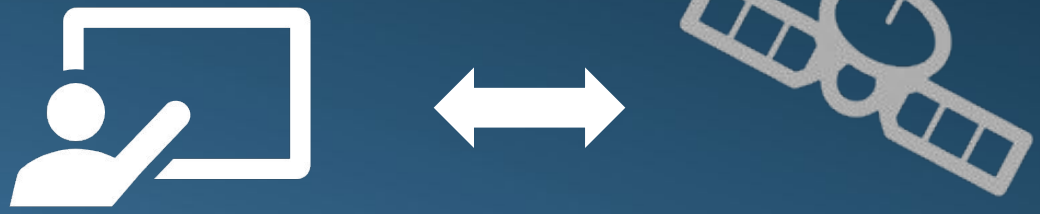
Operational Pillars



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

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 (2018-2022)

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OBJECTIVE

Improve national resilience towards climate change in small island developing states. The project focused on improved food security, disaster risk reduction and better access to international climate finance and will contribute to sustainable development in Fiji, Solomon Islands and Vanuatu, through the use of geospatial and climate information technologies.

ACTIVITIES

- Capacity building in the use of geospatial and climate information services, strengthening technical skills across the region
- Technical Backstopping: Embedding specialists within government structures to ensure local data systems, knowledge and decision-making benefit from the added capabilities of CommonSensing
- Development of decision support systems

COUNTRIES

- Fiji, Solomon Islands and Vanuatu

THEMATIC AREAS

PARTNERS

The Commonwealth
CATAPULT Satellite Applications
Met Office
devex Do Good. Do It Well.™
sensonomic
University of Portsmouth
Spatial Days

FUNDED BY

UK SPACE AGENCY
GCRF Global Challenges Research Fund

International Partnership Programme (IPP)

CommonSensing – Building Climate Resilience with Small Islands Nations

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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.

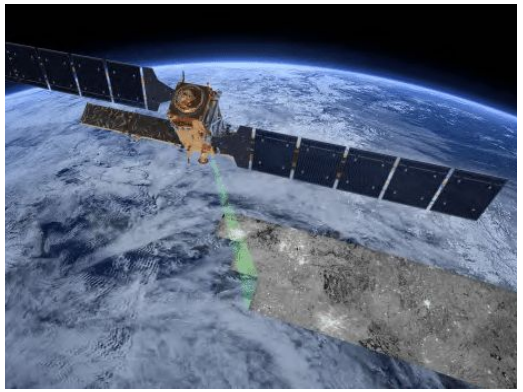
EXPLORE

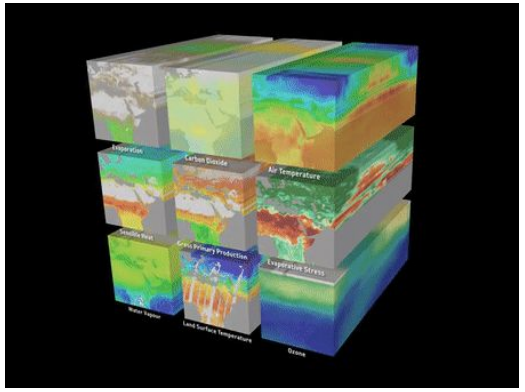
Food Security

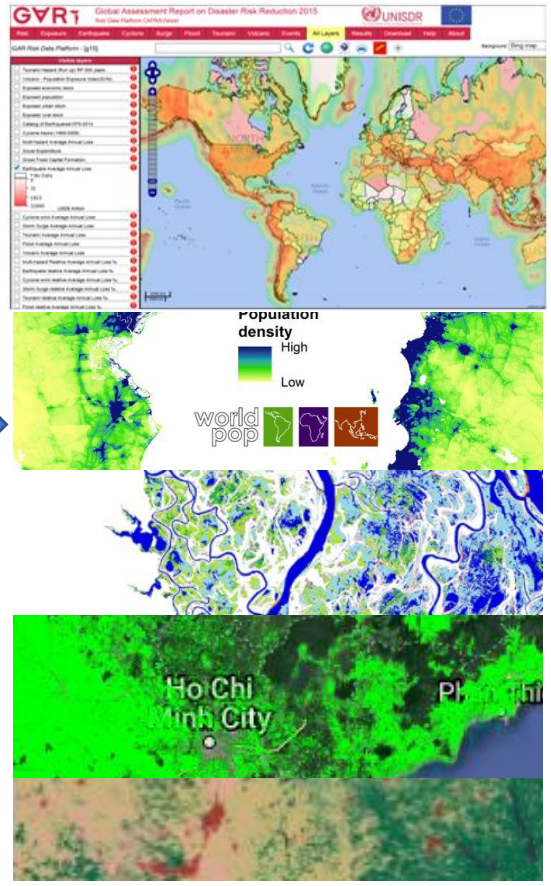
The open app is designed the provide the farmers or communities with suitability information of potential crops in any location in Fiji.

EXPLORE

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







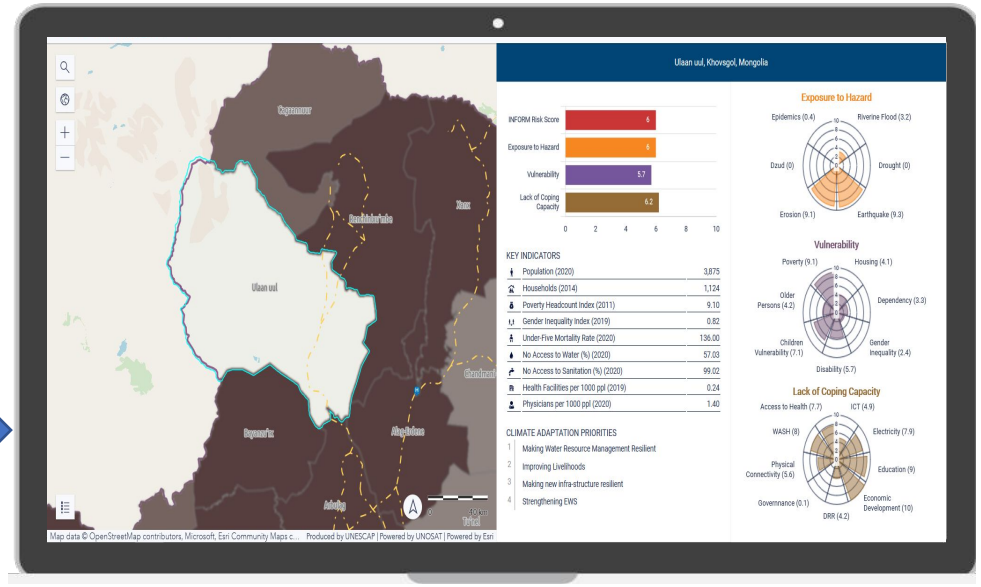
Global disaster risks

High resolution population models

Global surface water

Global cropland

Global landcover

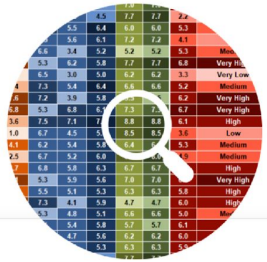


Data

Information

Insights

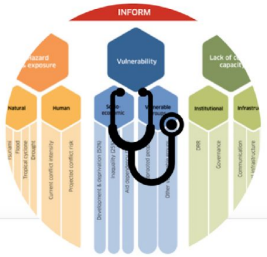
Decision Support System promoting risk-informed & evidence-based decision making



Descriptive Analytics

The descriptive analytics presents the INFORM risk index at the sub-national level, where users can easily recognise the relative risks of different administrative units.

LAUNCH TOOL



Diagnostic Analytics

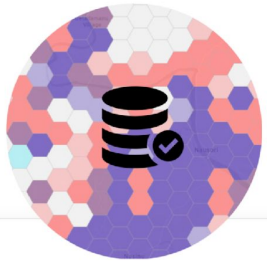
The diagnostic analytics breaks down the INFORM risk index into exposure to hazard, vulnerability, and lack of coping capacity indexes for selected sub-national levels.

LAUNCH TOOL

MCDA

The Multiple Criteria Decision Analysis tool allows decision-makers to find an optimal disaster risk reduction measure based on multiple factors.

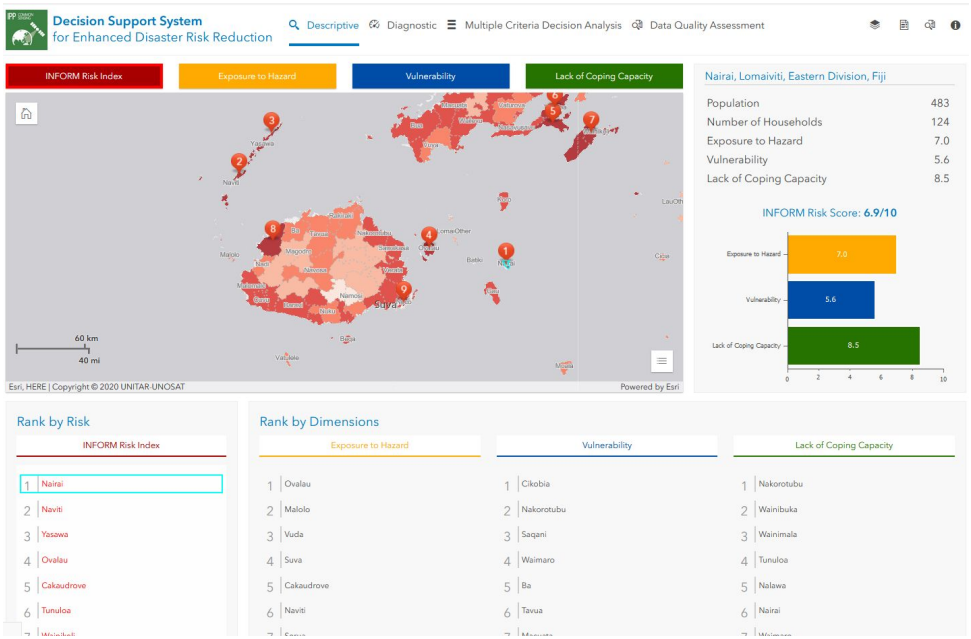
LAUNCH TOOL

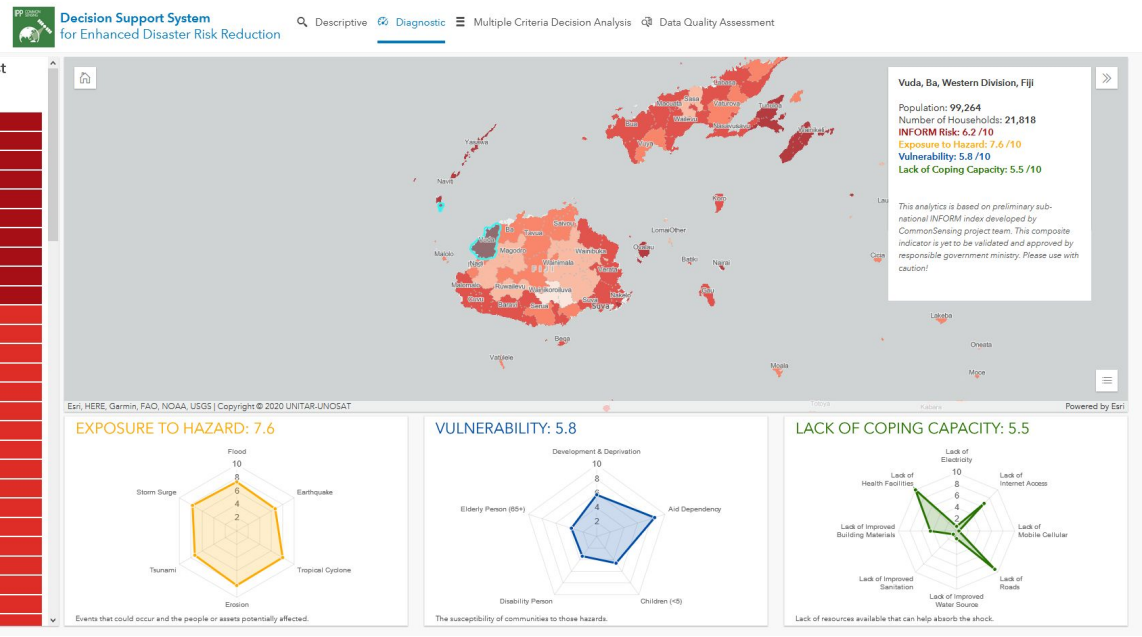


Data Quality Assessment

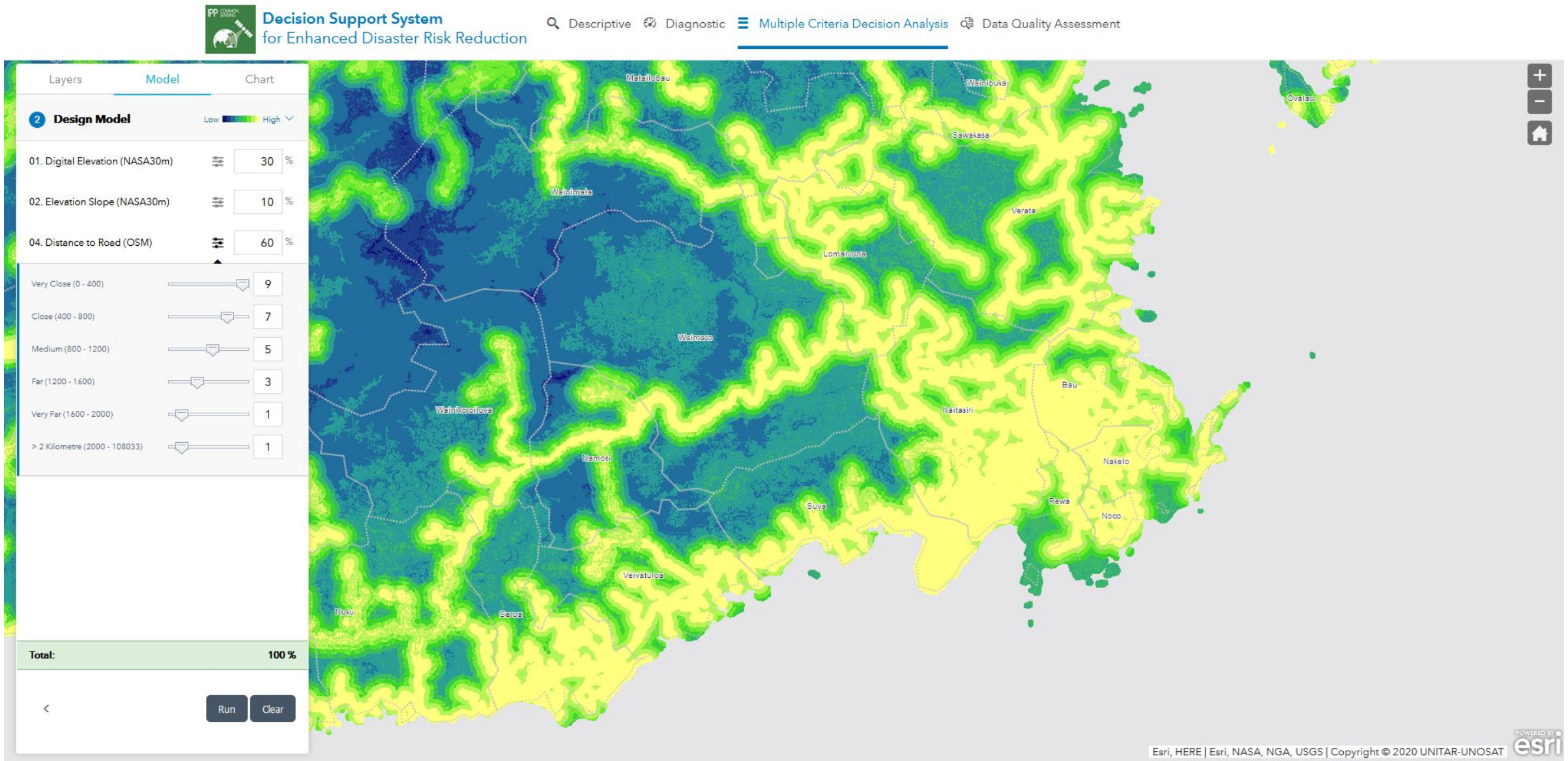
The Data Quality Assessment shows OSM map coverage by comparing the number of OSM object counts (number/km²) to the local population density (population/km²).

LAUNCH TOOL

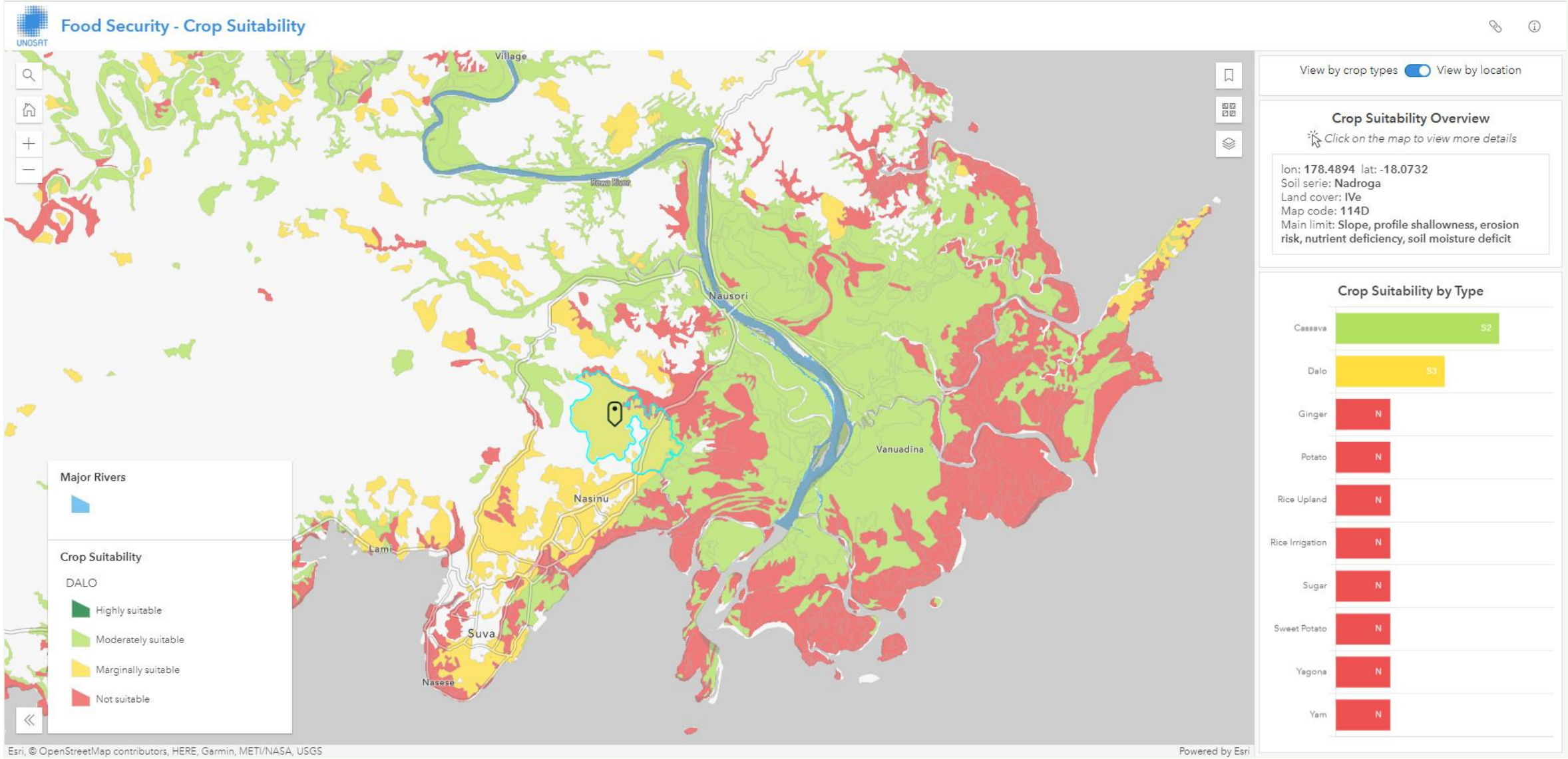




Multi-criteria decision analysis tool (MCDA)

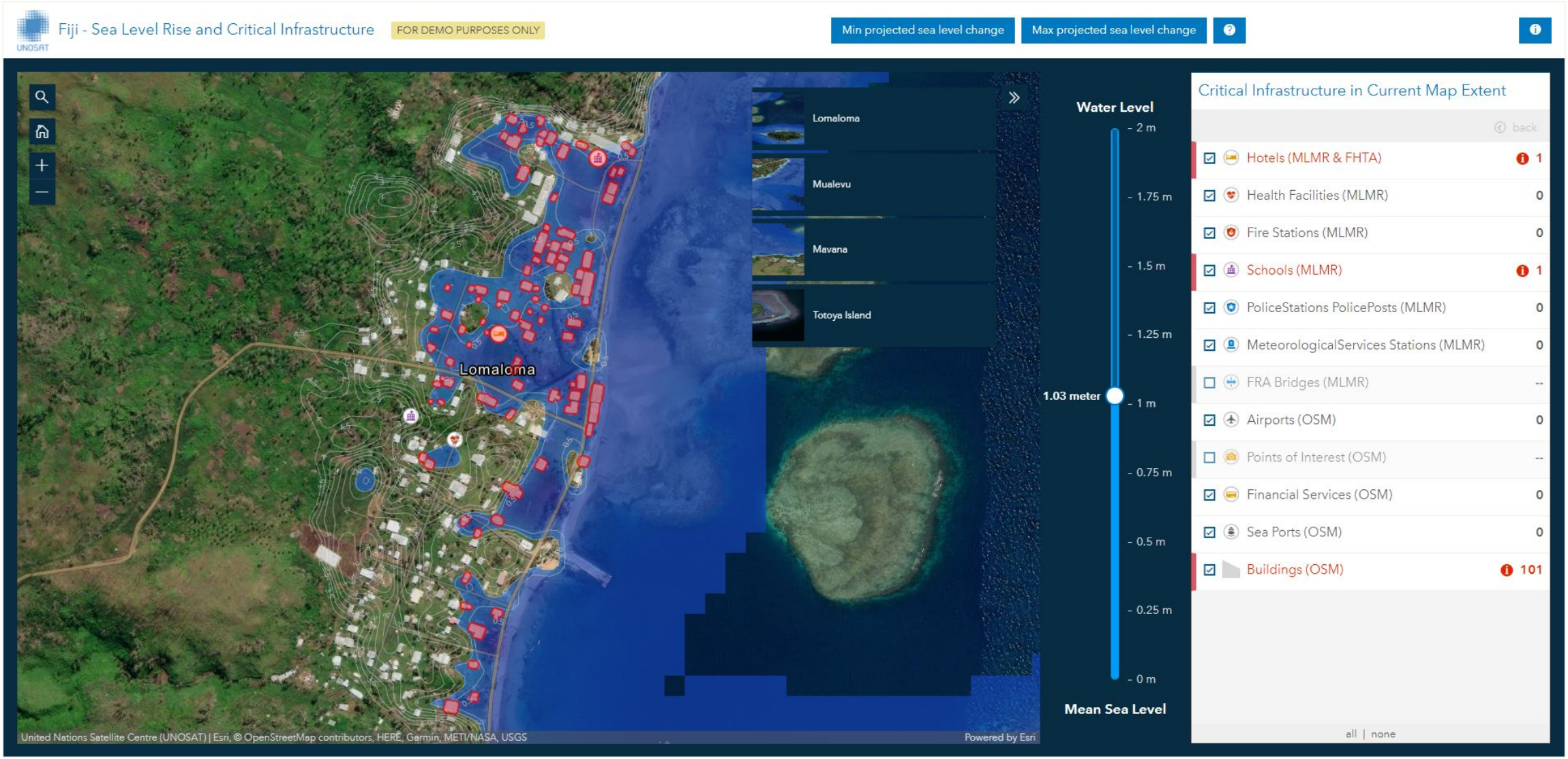


Crop Suitability Application



https://unosat-geodrr.cern.ch/FoodSecurity/CropSuitability/

Sea Level Rise



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

UNESCAP Risk and Resilience Portal

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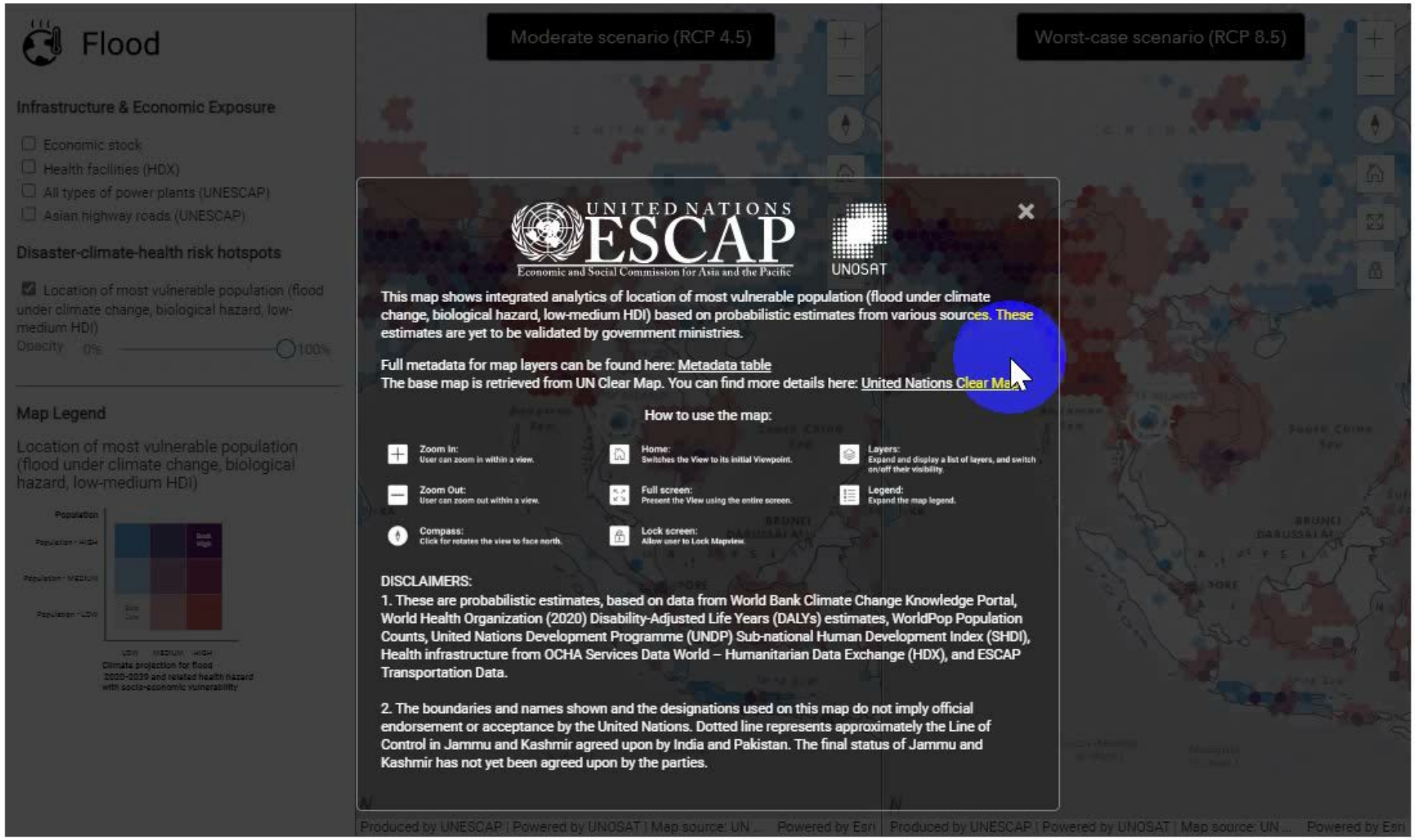
https://www.youtube.com/watch?v=cIixQxvjo-4

UNESCAP Risk and Resilience Portal



UNESCAP Risk and Resilience Portal

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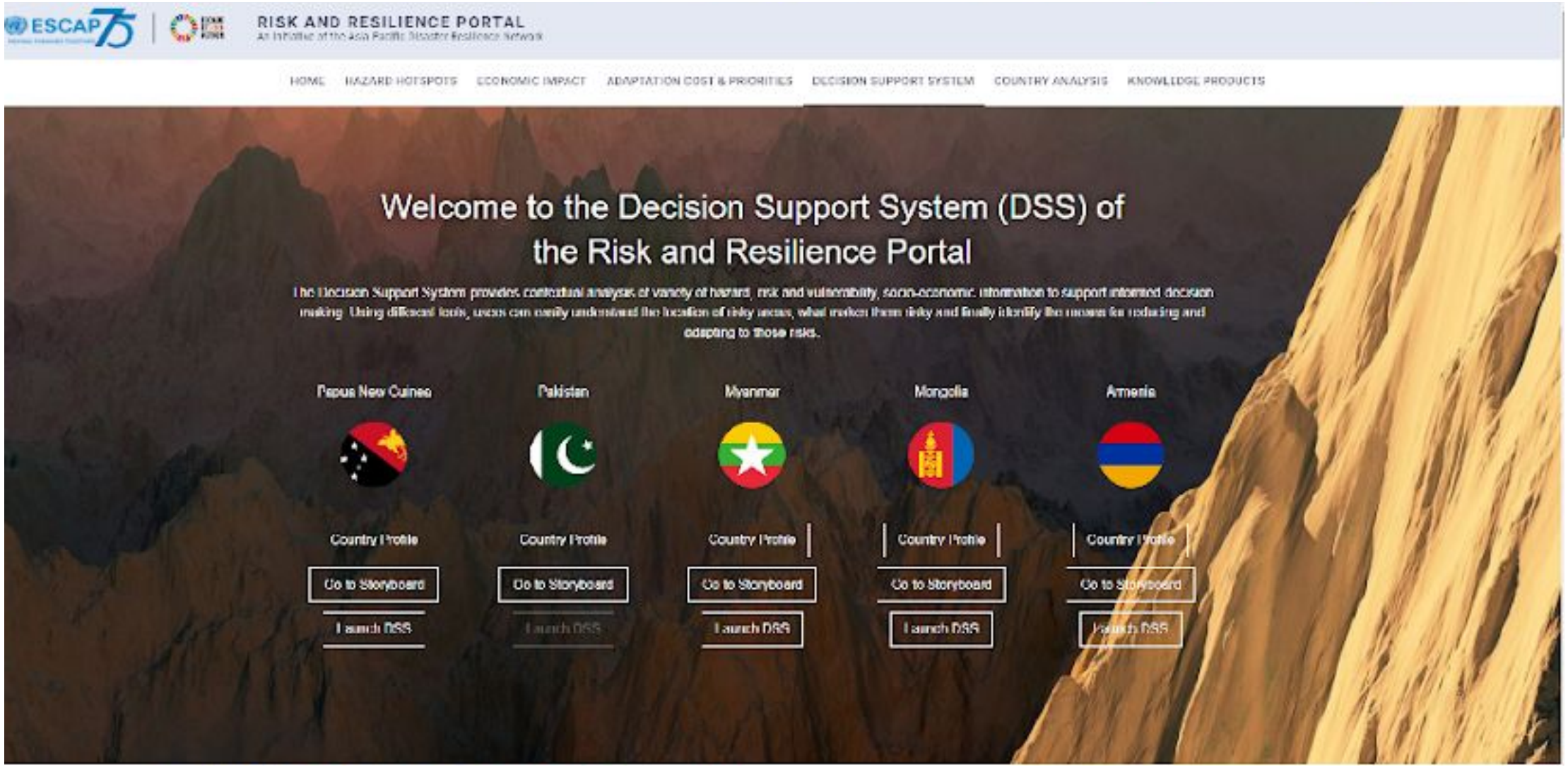
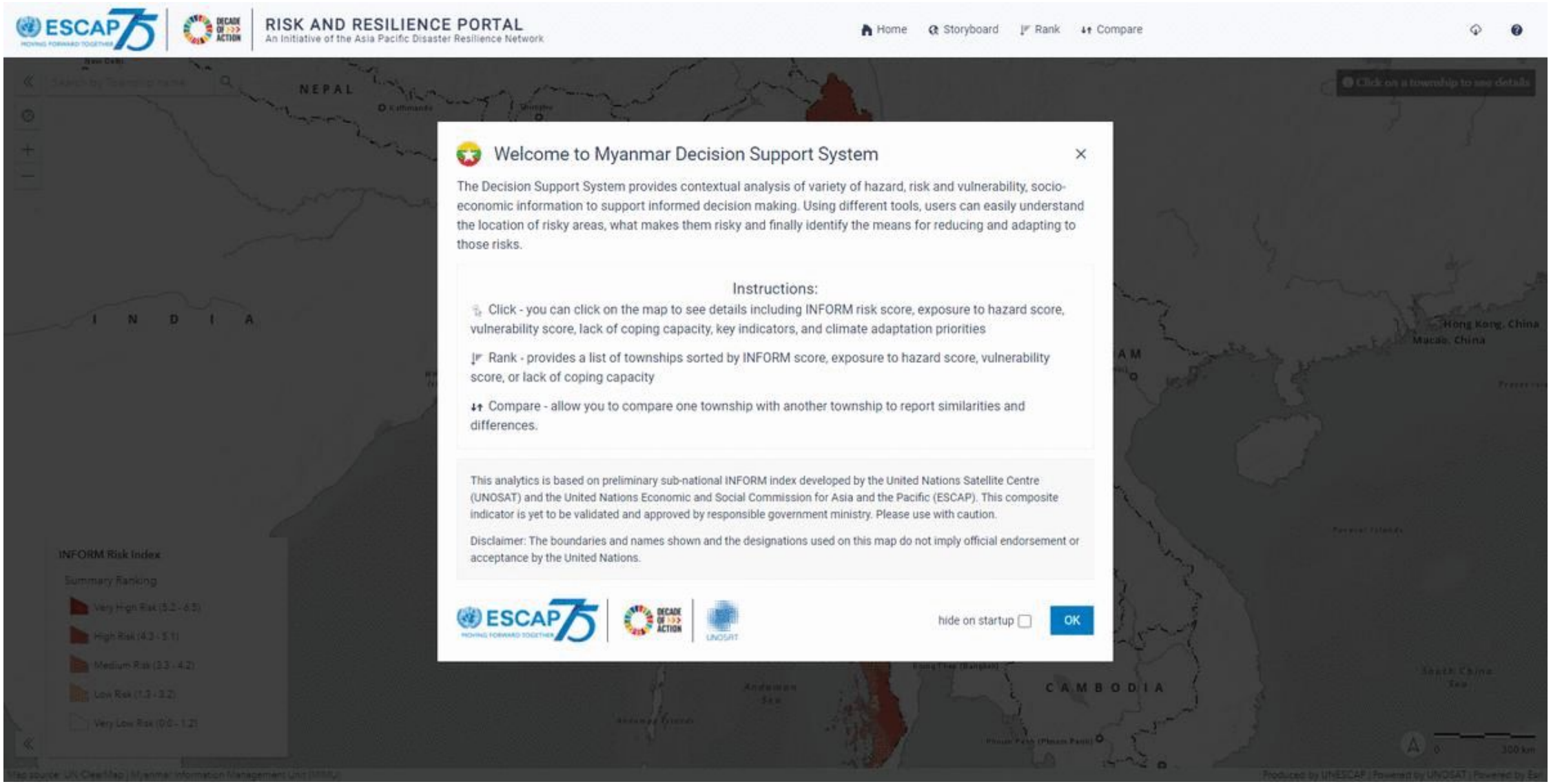


UNESCAP Risk and Resilience Portal

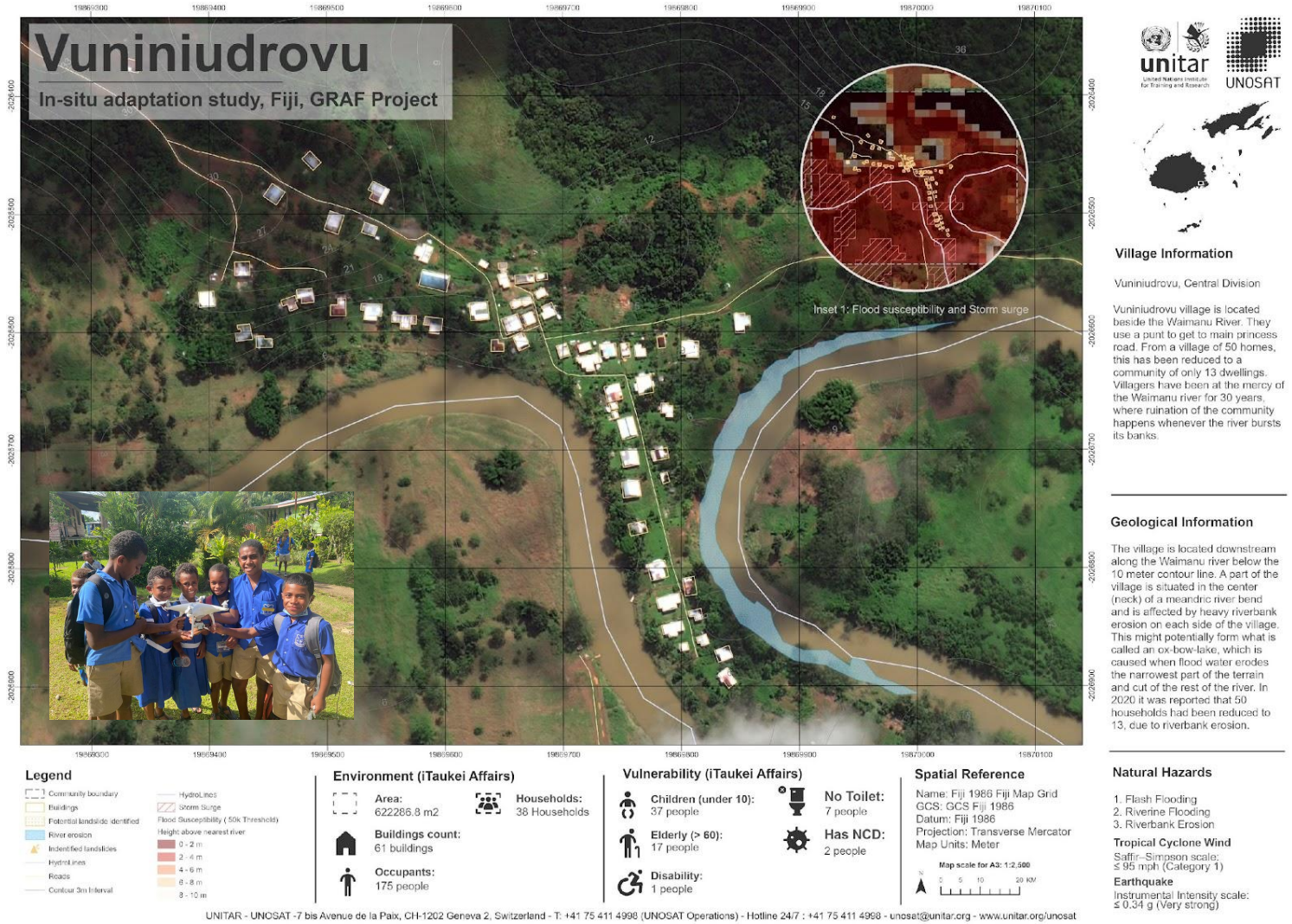


Risk Informed Climate Change relocation for vulnerable communities in Fiji

GRAF: Risk Informed Climate Change Relocation for Vulnerable Communities in Fiji

- Activity 1. Conduct a preliminary climate change adaptation study in 17 vulnerable communities to identify potential adaptation interventions based on their socio-economic status, development plans, susceptibility to various natural hazards, including climate-related risk drivers.

- Activity 2. Supporting the Ministry of Economy (CCICD) with evidence-based information, geospatial products (i.e., Web-maps, Dashboards and Story Maps), and Spatial Decision Support Tools (SDST) for relocation.



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

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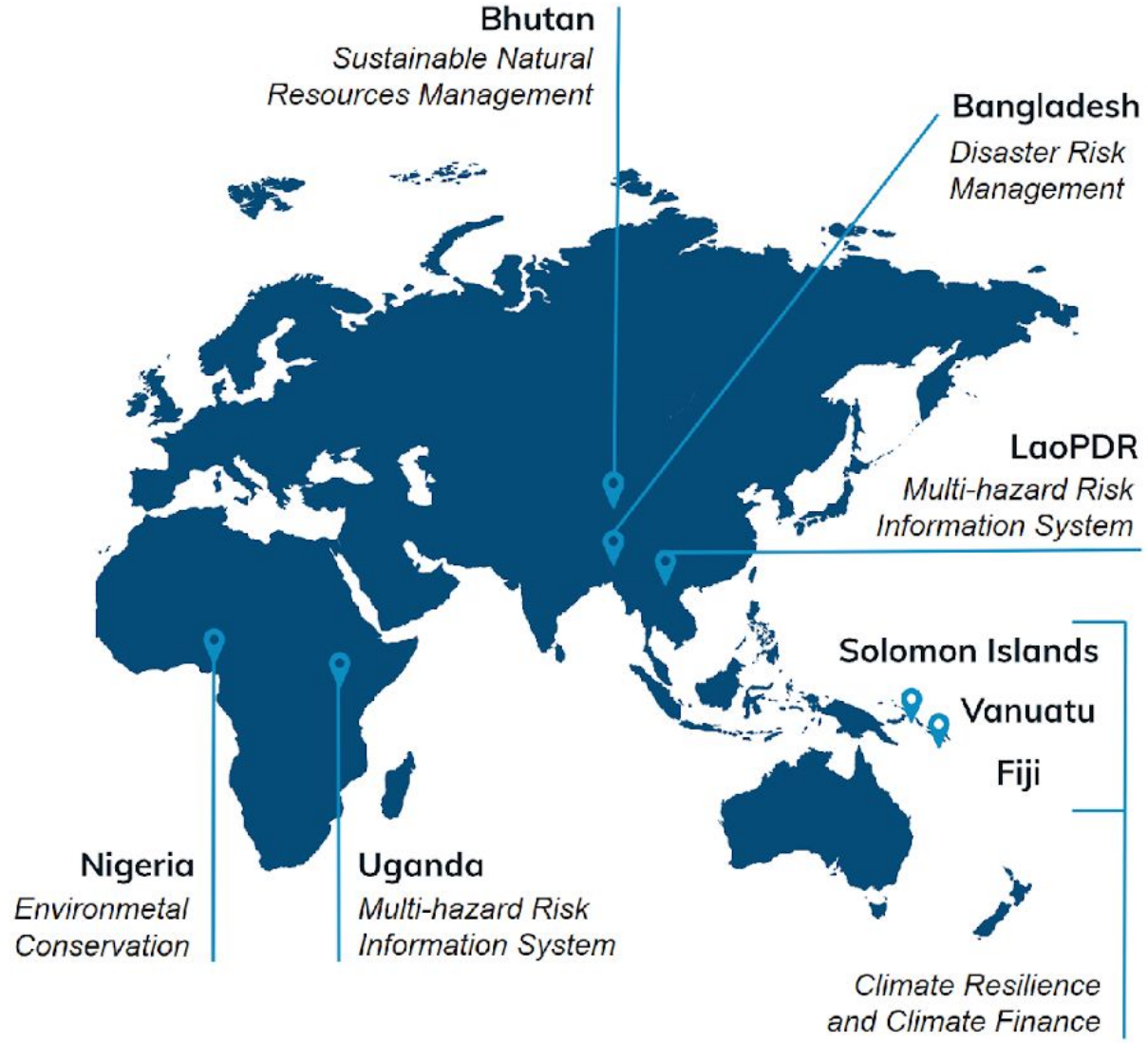
- **Develop technical and institutional capacities** of professionals in selected countries on the use of geospatial information technologies.
- Apply geo-information technologies to tackle **disaster risk but also environmental degradation, food security, and resilience in a changing climate**.
- **"End-to-end capacity development" - solution** and **capacity development** will go hand in hand.
- Funded by the Norwegian Agency for Development Cooperation (NORAD)
- 3-year project (until June 2024)
- 8 target countries



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

Project Activities :

- Introductory and advanced **training courses** to support learning needs of technical staff. Training methodology can be in-person, online, or blended approaches. Training materials to be accessed through a knowledge platform.

- **Customized decision support applications**. UNOSAT co-designs the solutions with the users through UX design. We aim for tools that are sustainable on the long-term.

- **Technical Backstopping** and In-country Expert for ad-hoc support to project implementation activities in close collaboration with national stakeholders

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

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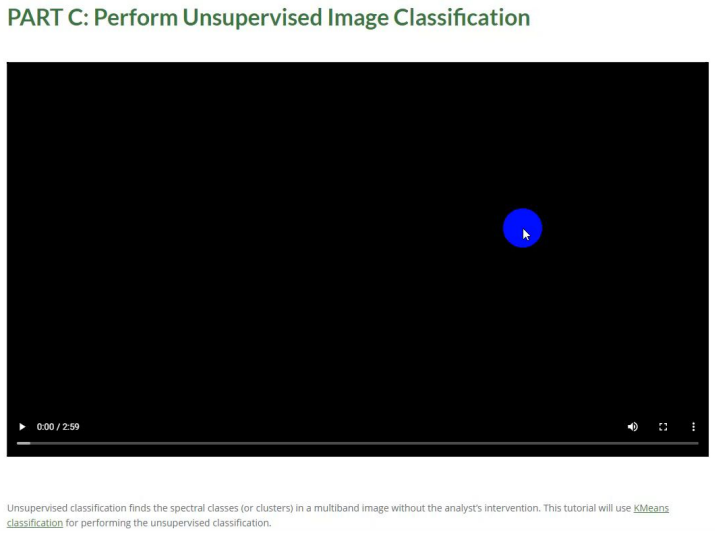
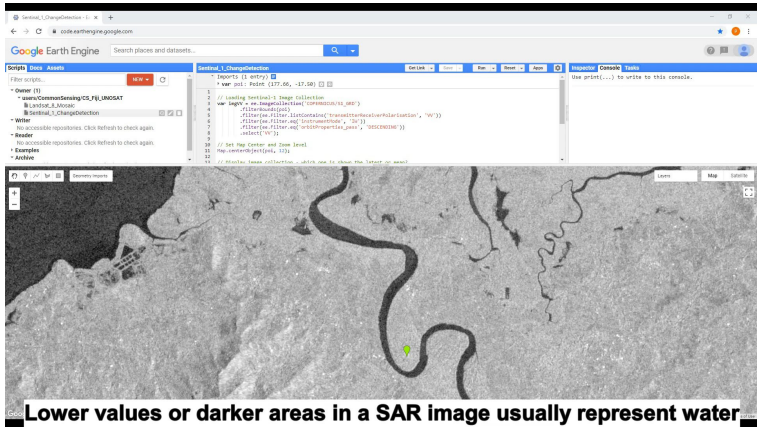
Building Sustainable Capacities

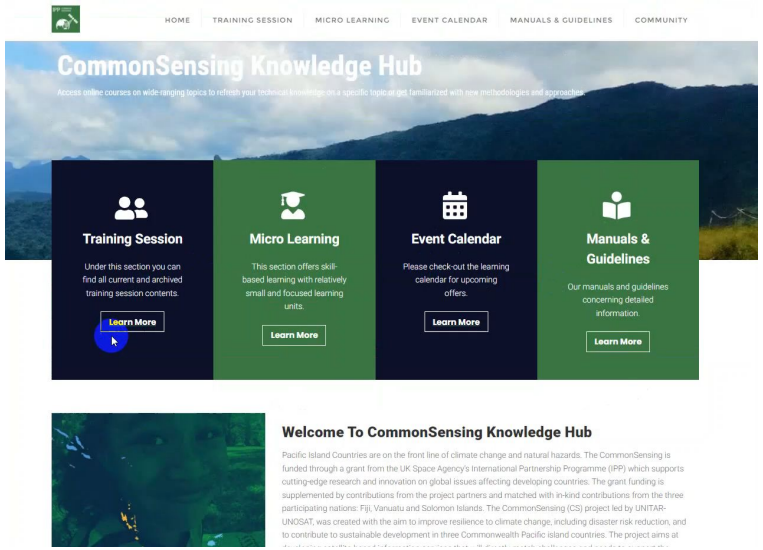
Tutorials



Video Tutorials



Knowledge Hub and Community of Practice



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

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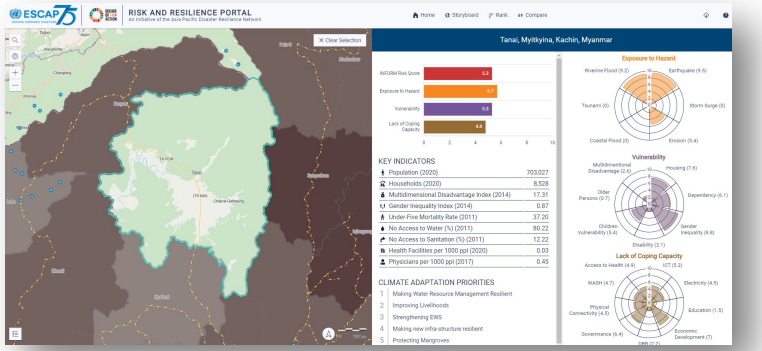
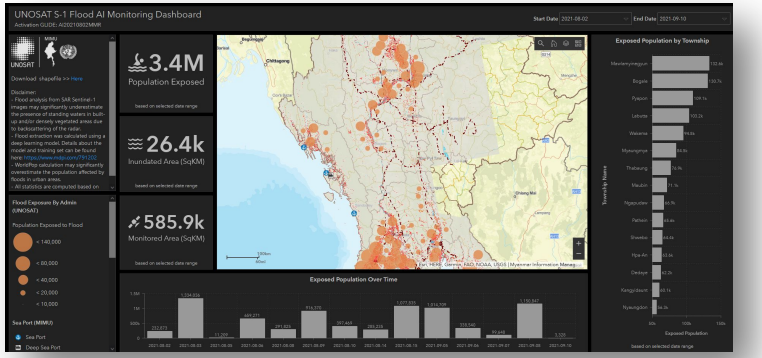
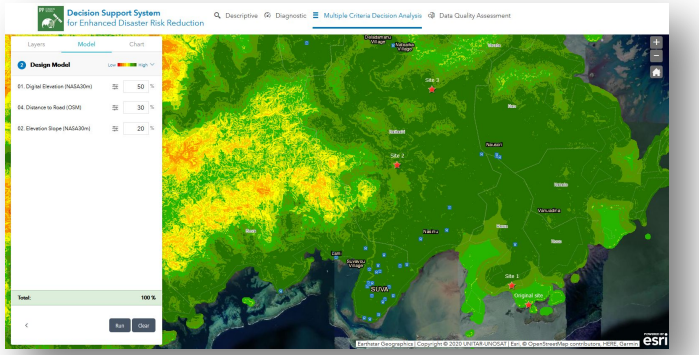


Decision Support Systems



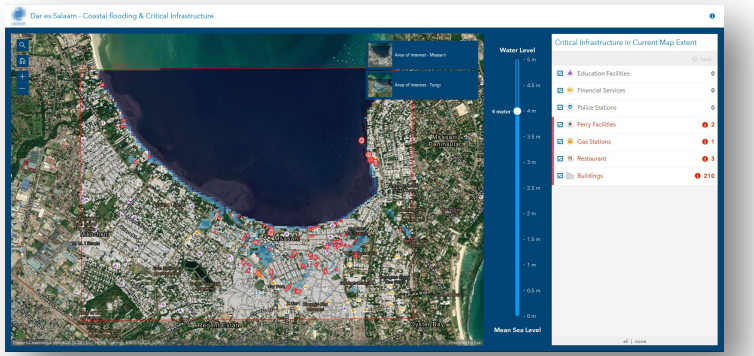
Flood AI Monitoring Dashboard



Multiple Criteria Decision Analysis

Damage Assessment Visualization

Hydrological Information System



Coastal Flooding & Critical Infrastructure

THANK YOU!

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