COUNTRY REPORT

Digital Technolo & Climate Chang in Samoa

Regional training presentation | 2026



Country at a glance

Island geography

Upolu and Savai‘I, Manono and Apolima are the Four main islands; settlements and critical assets are often coastal.

Tropical climate

Wet season: Nov–Apr. Hopefully, this season is called cyclone Season,

Dry season: May–Oct. draft island,

Cyclones and heavy rainfall are key hazards.

People & livelihoods

2021 census: 205,557 residents. Tourism, agriculture, fisheries and remittances matter.

Where climate risk meets people



Savai‘i **Upolu**

SCHEMATIC MAP • NOT TO SCALE

Exposure

Coastal roads, villages, utilities and communications face storm surge, erosion and flooding.

Climate Change Challenges

- Samoa faces significant challenges due to Climate Change
- Samoa contributes less than 0.0005% of Global Carbon Dioxide emissions

Atmospheric and Sea Surface temperatures have increased significantly affecting

i. Terrestrial and Marine Biodiversity (Coral bleaching/loss of Fisheries)

ii. Human health/Vector borne diseases

iii. Agriculture, Fisheries - Food Security

iv. Increased shoreline erosion due to Sea Level Rise

Climate change challenges

Extreme weather

Cyclones, intense rain, floods, landslides and damaging winds.




Rising seas

Coastal inundation, erosion and saltwater intrusion threaten communities.



Other pressures

Water security, agriculture, reefs, fisheries, health and infrastructure.




CLIMATE HAZARDS

Role of Digital Technology in Climate Change Adaptation

Warnings • coordination • learning • healthcare





- **Current Digital Technology Status:**

Digital Technology has significantly boosted the research capability of Institutions such as NUS. Remote Sensing Technology, which was introduced in 2022 by Liaosheng University from China, enabled staff and students to upgrade existing information as well as support research planning.

Blue Carbon measurements using digital technology were introduced by the U.S. Forest Service in 2023, enabling Samoa to monitor its Blue Carbon storage.

The use of Aerial and Underwater drones further enhanced our capabilities in terms of research and monitoring of our Oceans and Forests

Current digital technology landscape

- Mobile networks, broadband and submarine cable connectivity support national services.
- Government agencies use digital tools for communication, service delivery and coordination.
- Schools and NUS use online learning, campus networks and digital research platforms.
- Rural coverage, affordability, backup power and reliability still require attention.

Early warning: from observation to action

01 OBSERVE

Weather stations & river sensors

→

02 ANALYSE

Forecasts & risk thresholds

→

03 ALERT

SMS, radio, web & community channels

→

04 ACT

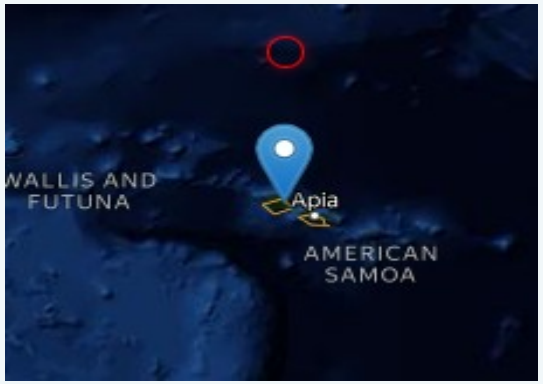
Evacuation & local response

Goal: timely, accessible and actionable warnings for all communities.

Remote sensing and environmental monitoring

Satellite + GIS

Track coastline, vegetation, flooding and land-use change; map exposed assets.



Drones

Support authorised coastal surveys and post-disaster damage assessments.



IoT sensors

Monitor rainfall, river levels, soil moisture and water quality in near real time.



DIGITAL ADAPTATION

Data can turn climate risk into actionable decisions.



Better observations → better decisions → stronger resilience

Beyond disaster alerts

Climate-smart farming

Weather advisories, soil moisture information and crop planning.



Education & research

Online climate learning, local datasets, digital skills and university projects.



Energy & resilience

Monitoring renewable energy, backup systems and critical network uptime.



Barriers to scaling digital adaptation

- Connectivity gaps and high cost of equipment, data and maintenance.
- Specialist skills shortages in GIS, sensors, data analytics and cybersecurity.
- Power outages and physical exposure of network and monitoring assets.
- Fragmented datasets, interoperability challenges and limited information sharing.
- Long-term funding and operational ownership after project deployment.

Assistance Samoa needs

Capacity building

Hands-on training in GIS, remote sensing, IoT, data science and cyber resilience.

Infrastructure finance

Resilient communications, sensors, backup power and long-term maintenance.

Partnerships & data

Technology transfer, shared standards, research and interoperable climate platforms.

Potential role of the National University of Samoa

- Develop practical training in climate data, networking, GIS and cybersecurity.
- Support applied research and student projects with national agencies.
- Pilot low-cost sensors and dashboards with clear maintenance arrangements.
- Strengthen campus connectivity, backup power and digital continuity planning.
- Share accessible climate education resources with communities.

Priority roadmap and final comments

Near term

Map critical assets, assess data gaps, strengthen alerts and train staff.

Medium term

Pilot integrated monitoring, resilient networks and shared dashboards.

Long term

Scale proven solutions with sustainable financing, governance and local skills.

Digital technology is most effective when people, systems and institutions are prepared to act.

Selected sources & discussion

- Samoa Bureau of Statistics — 2021 Population and Housing Census.
- Government of Samoa — Samoa 2040; Pathway for the Development of Samoa.
- Government of Samoa — Second Nationally Determined Contribution (2021).
- IPCC — AR6 Working Group II: Impacts, Adaptation and Vulnerability (2022).
- SPREP, SPC, WMO and ITU — climate services and digital connectivity resources.

Faafetai Lava • Questions & discussion