



SESSION 3: PACIFIC APPROACH TO BUILD BACK TOGETHER

Telecom and ICT Infrastructure in Tonga

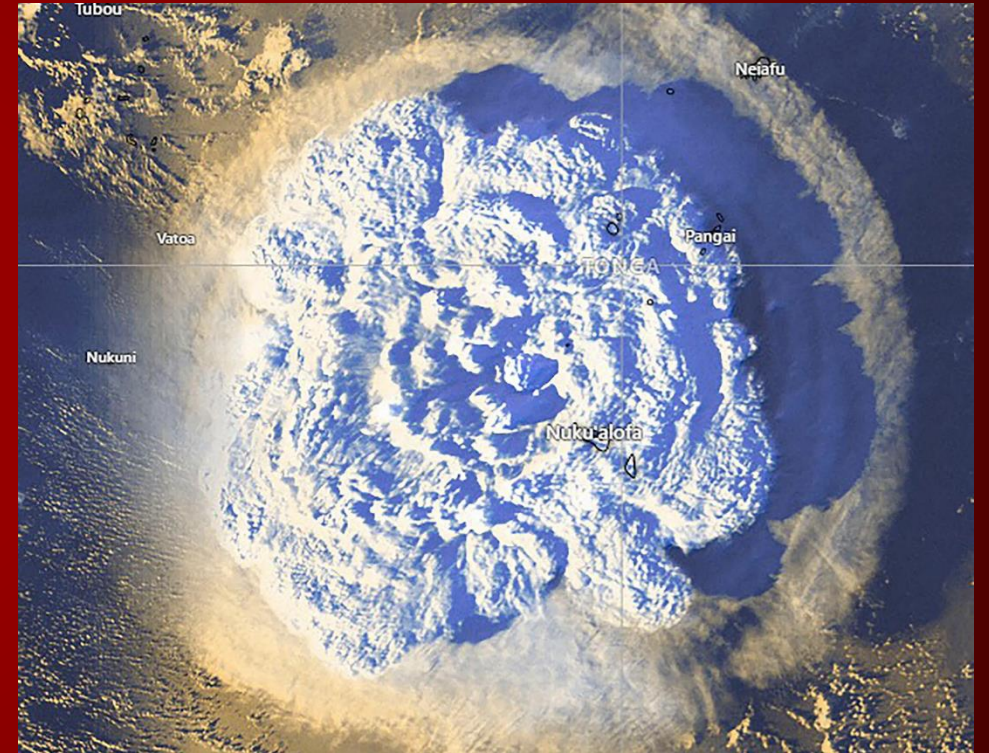
Stan Ahio
Department of Communication
Ministry of MEIDECC
Government of The Kingdom of Tonga





OUTLINES

- The volcano eruption and tsunami back in January 2022
 - *Situation*
- Telecom and ICT infrastructure
 - *Status and future considerations*
 - *Supporting components incl policy and regulatory environment*
- Tonga's digital transformation
 - *Digital public infrastructure*
 - *Smart island initiative*
 - *Digital literacy*
- *Lesson learned - summary*





TONGA VOLCANO AND TSUNAMI, JAN 2022

- Situation:
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 - *Satellite earth stations parked/stowed*
 - *Black out 2 weeks*
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 - *Government service operate on a 5Mbps bw*
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 - *No comms to the outer islands*



TELECOM AND ICT IN BUILDING RESILIENCE FOR TONGA

- Importance of ICT in building resilience to deliver quality public services and in propelling growth and economic development
 - Key components of telecom and ICT infrastructure for any country include:
 - core network systems
 - access technologies
 - data centers
 - spectrum management
 - and enabling regulatory frameworks
 - Together, these elements support connectivity, digital services, and national development



IMPORTANCE OF ICT IN BUILDING RESILIENCE

1. Core Network Infrastructure

- *Backbone networks* (fiber-optic cables, microwave links) that connect islands, villages, base stations, and public gateways.
 - *Inland cables need huge improvement*
- *Submarine cables* for international connectivity
 - *Second cable underway*
- *Internet Exchange Points (IXPs)* to route local traffic efficiently and reduce latency
 - *1 IXP gateway but not effective*



IMPORTANCE OF ICT IN BUILDING RESILIENCE

2. Access Network Technologies

- *Mobile networks* (2G to 5G and beyond) for widespread and diverse wireless access.
 - *2G to 5G rolled out to date*
- *Fixed broadband* (DSL, fiber-to-the-home, cable) for high-speed and high-capacity internet.
 - *ADSL2+ and inland fibre expensive*
- *Satellite and HF radio* for remote and underserved areas.
 - *Starlink operational and HF network across the country*



IMPORTANCE OF ICT IN BUILDING RESILIENCE

3. Data Centers and Cloud Infrastructure

- *Host government and commercial/public digital services.*
 - *Government data centre, standalone storage, cloud abroad*
- *Enable secure data storage, processing, and disaster recovery.*
 - *Vulnerable systems exposed to multiple cyber attacks by dark players*
- *Support national digital sovereignty and service continuity.*



IMPORTANCE OF ICT IN BUILDING RESILIENCE

4. Spectrum and Frequency Management

- *Efficient allocation and regulation of radio frequencies for mobile, fixed services, satellite, and broadcast services.*
 - *Very active in employing best practices, with limited resources – need support and improvement*
- *Ensures optimal use of limited spectrum resources and minimizes interference.*
 - *a scarce resources but our scale helps.*



IMPORTANCE OF ICT IN BUILDING RESILIENCE

5. Power and Physical Infrastructure

- *Reliable electricity supply, backup power systems, and climate-resilient facilities.*
 - *Supply vs demand cause some instability*
 - *Outer islands is catching up with renewable energy – as an opportunity – key contribute to the smart island project*
- *Towers, shelters, and ducts to house and protect telecom equipment.*



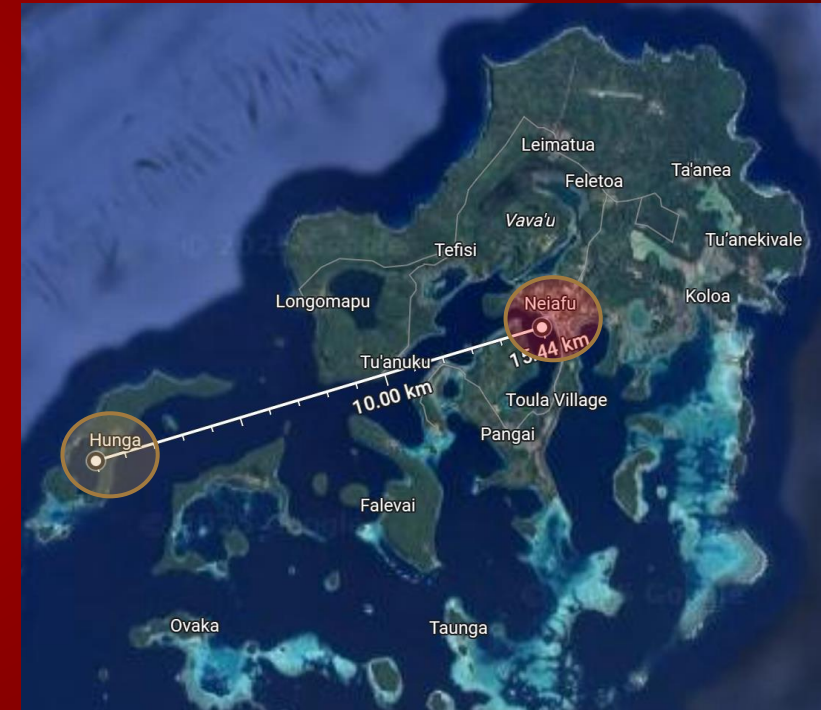
TONGA'S JOURNEY IN DIGITAL TRANSFORMATION

- Digital Public Infrastructure launched in June 2025
 - *Unified portal launched with updates – www.gov.to*
 - *Digital identity system with Ministry of Justice*
 - *Health Information System in place digitizing health care services, integrating with digital identity*
 - *Various standalone digital systems in various ministries and businesses*
 - *Digital transformation is a people-centred approach*
 - *Be inclusive and meet everyone's need regardless of their abilities and circumstances*



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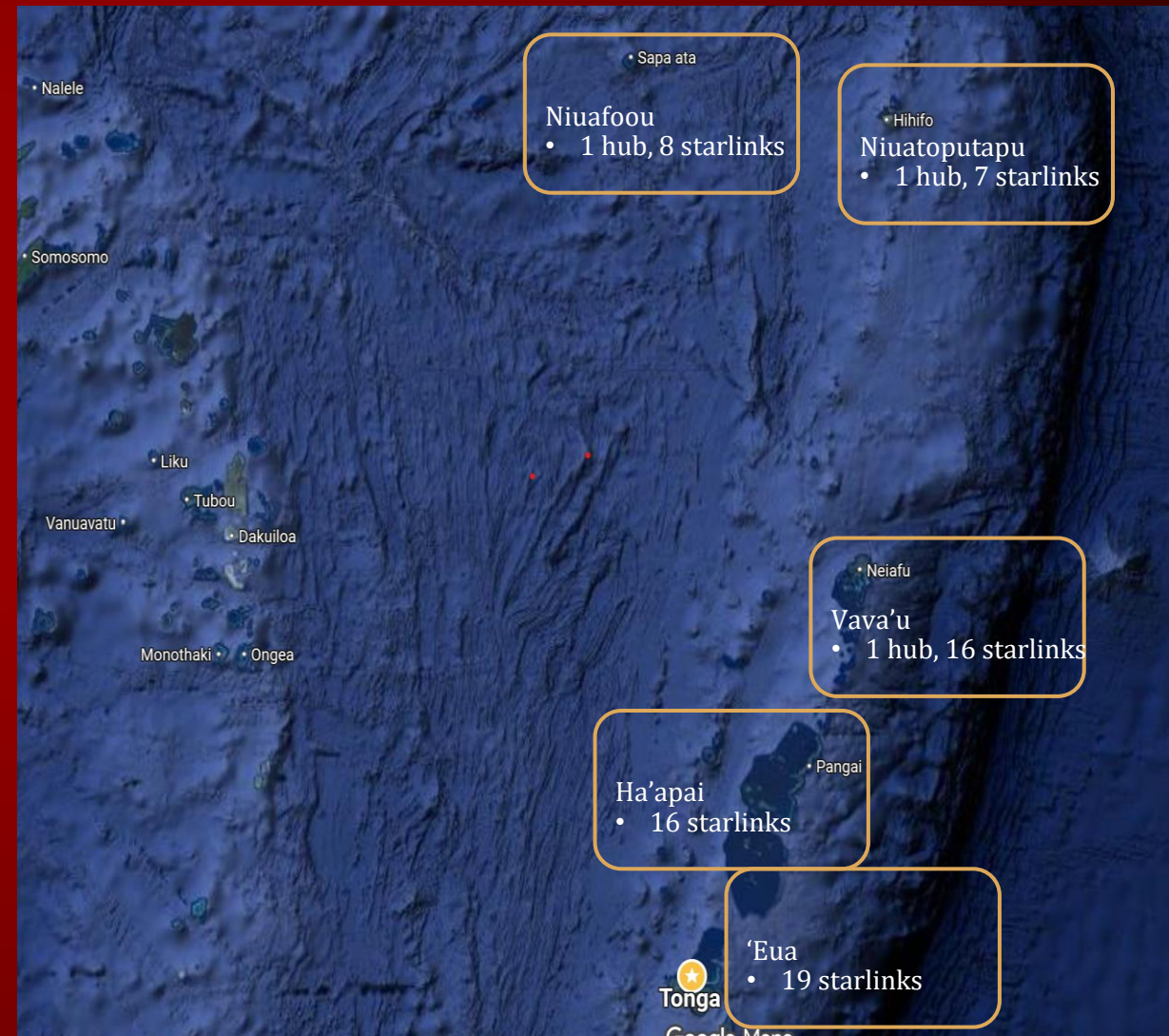
- Smart Island Project (ITU)
 - *Hunga Island (in Vava'u Is) assessed to be very underserved (specific spots)*
 - *A Digital ICT Hub commissioned in Nov 2024 realistically enable the following:*
 - *E-learning and online education*
 - *Government primary school*
 - *2 university students*
 - *Economic development*
 - *Online marketing of agricultural produces, handicrafts, and fishing*
 - *Online remittances*
 - *Social connect with families and relatives*
 - *Assist with dissemination of disaster preparedness and response information, weather info*





TONGA'S JOURNEY IN DIGITAL TRANSFORMATION

- Smart Island Project
 - *Government expand additional*
 - *65 Starlink sites*
 - *with 4 ICT hubs*
 - *More to come – left no one behind*





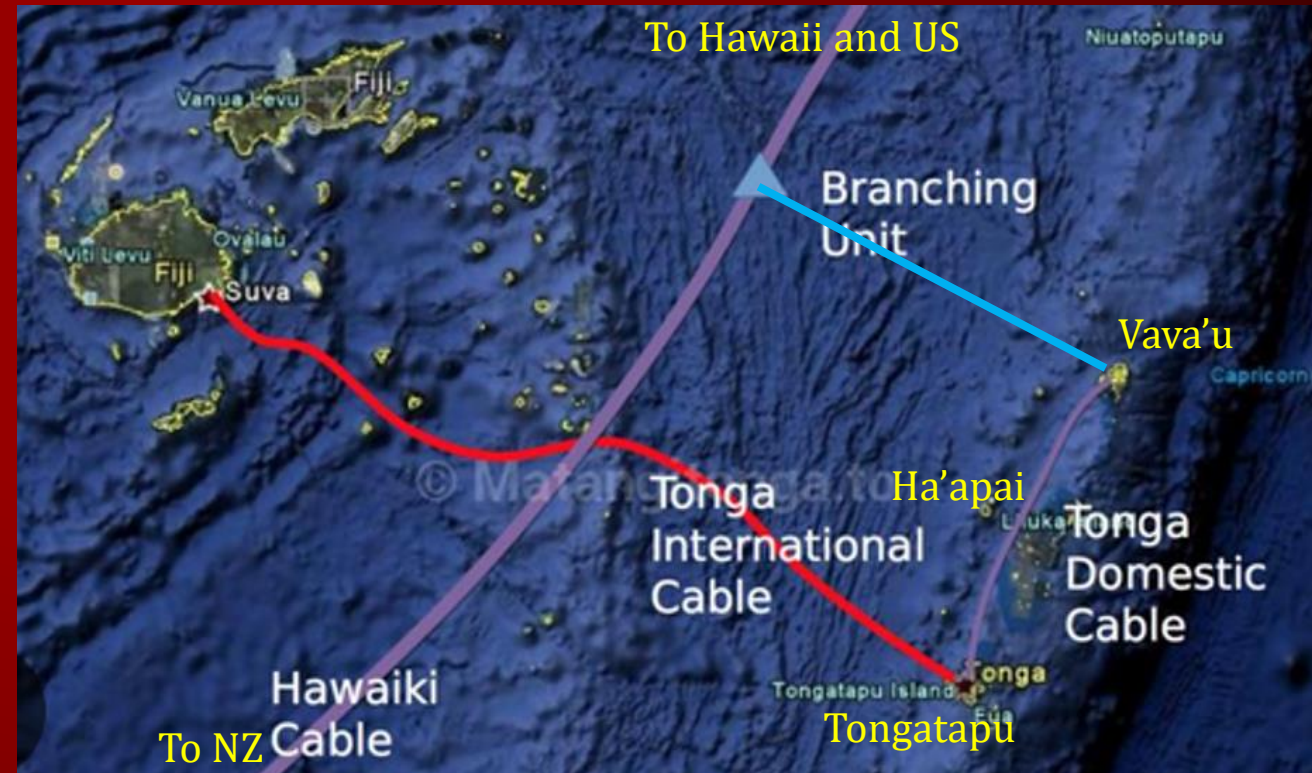
TONGA'S JOURNEY IN DIGITAL TRANSFORMATION

- Digital literacy
 - *Smart islands – 8 trainings programs have been delivered before and after the hub commissioned between since 2023 focussed in Hunga Is*
 - *Now extending literacy program to the rest of the islands*
 - *Digital education platforms, online safety with mobile phones, digital and e-finances, e-government services, e-disaster alerts, etc.*
 - *Via Tonga Women in ICT (TWICT) since 2018*
 - *DFAT, US DCCP, ESCAP APICT, WFP, APT, CERTs*
 - *Ongoing.....*



TONGA VOLCANO AND TSUNAMI, JAN 2022

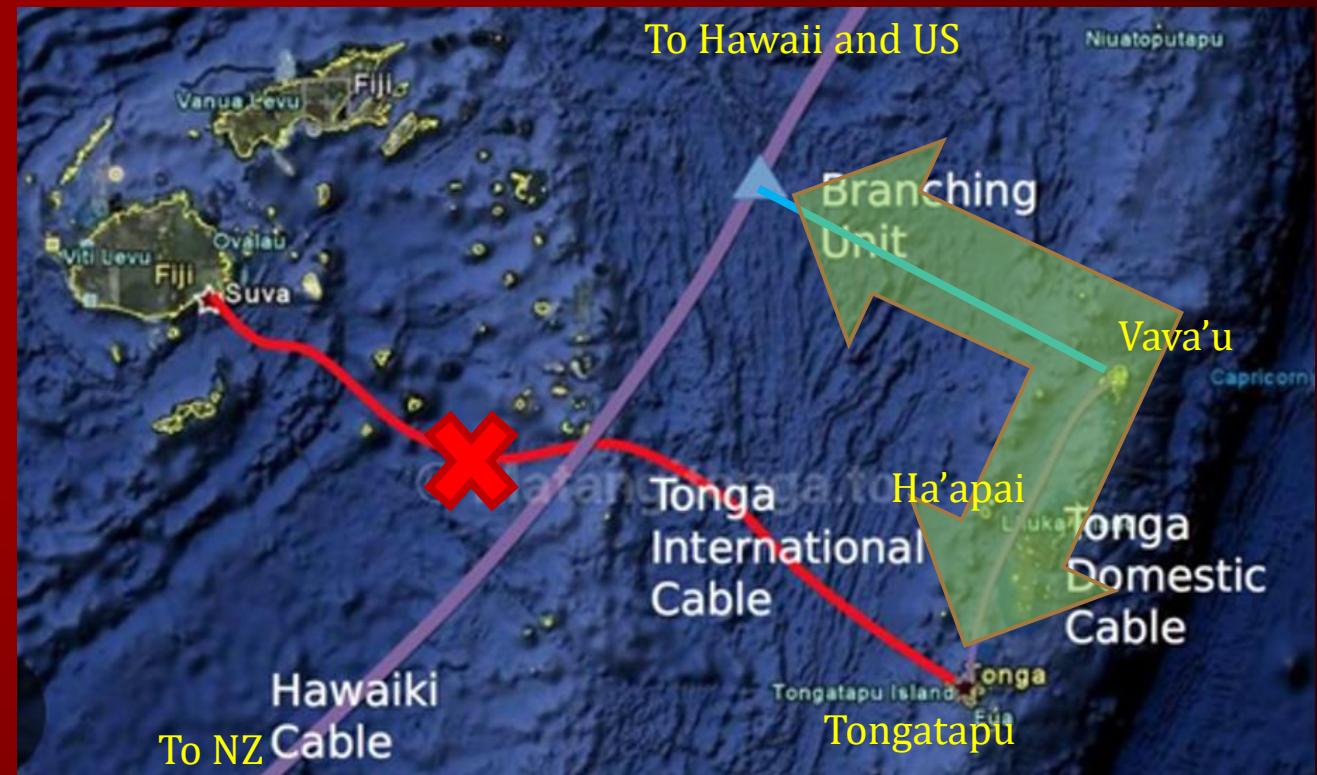
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 - *Second cable underway to be operational March 2026*





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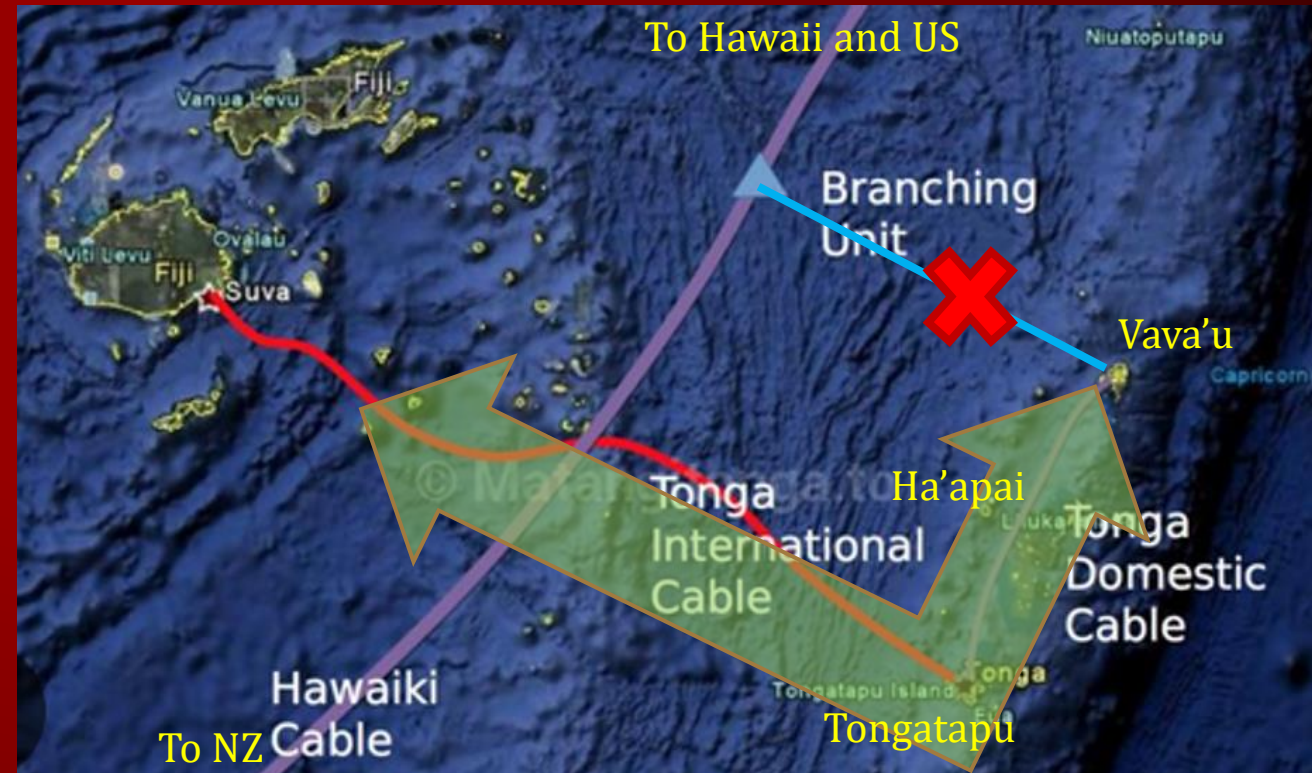
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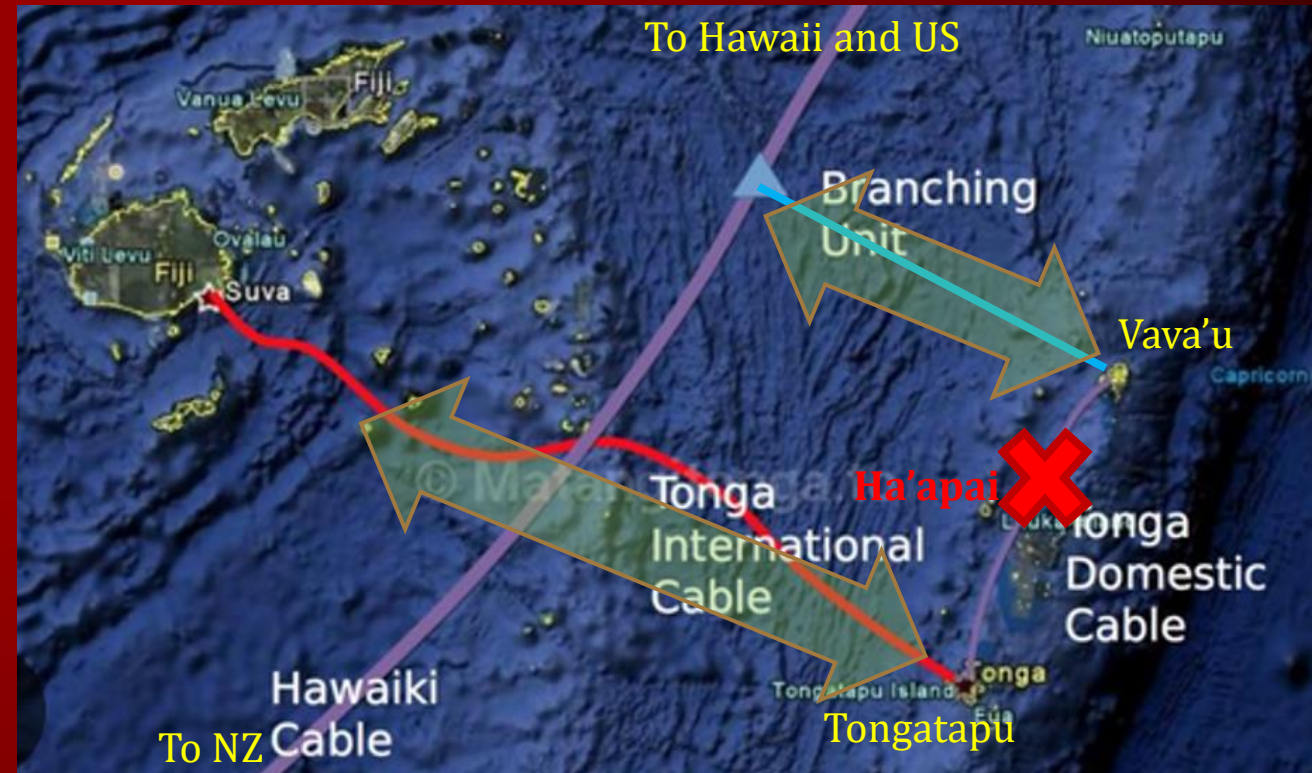
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**High-Speed Internet
for Rural Communities.
From Space.**



STARLINK



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 - Partly 4G/LTE networks in the country – **4G/LTE more than 90% population, 5G at more than 35% population**
 - Except the Niua islands far north - present 1% of the population
 - Few towers were destroyed – **improved!**
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 - *No comms to the outer islands essential services – no more! HF and VHF installed*





TONGA VOLCANO AND TSUNAMI, JAN 2022

- **Summary with Lessons learned – Policy and Regulatory**
 - *Quality of Service Regulations drafted, awaiting tools to implement - ITU*
 - *National Emergency Telecom Plan - ITU*
 - *Submarine Cable Protection Zone Regulations - DFAT*
 - *Digital Accessibility Policy for pwd – ITU*
 - *Spectrum Outlook 5-year plan – GSMA*
 - *Revision of the Spectrum Rules 2019 (2024) – blanket licensing for vsat*
 - *Electromagnetic Field Measurement Guidelines*
 - *Universal Service Obligation and infrastructure sharing*
 - *Data Privacy Act 2025*
 - *Electronic Transaction Act 2025*
 - *Cybersecurity Act 2025*



COMMUNICATIONS ACT 2015



**COMMUNICATIONS COMMISSION ACT
2015**

THANK YOU - MALO 'AUPITO

Build Forward Better

