



TONGA

Disaster Management Reference Handbook

October 2026



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Table of Contents

Acknowledgements	2
Letter from the Director.....	6
About the Center for Excellence in Disaster Management & Humanitarian Assistance	7
Executive Summary	8
Country Overview	9
Geography and Environment	9
Society and Demographics.....	10
Government	15
Economic Profile	16
Disaster Profile	17
Hazards	17
Disasters by Numbers	19
Recent Disasters	21
Disaster Management Policy, Planning, and Response	24
National Disaster Management System	24
Subnational and Local Implementation.....	28
Civil-Military Coordination in Disaster Response	29
International / Regional Organizations	31
Other Disaster Management Partners	35
Case Study: Hunga Tonga–Hunga Ha‘apai Volcano.....	37
Critical Infrastructure for Disaster Management	48
Transportation	48
Airports.....	48
Seaports.....	49
Roads	51
Communications	52
Early Warning Systems and Information Sharing	52
Telecommunications Infrastructure.....	54
Mass and Social Media	55
Utilities.....	56
Power	56
Water and Sanitation	57
Health Systems	58
Shelter and Housing.....	60
Food Security.....	62

Conclusion	64
Appendices	65
Risk Indices	65
INFORM Risk Profile	65
U.S. Government Disaster Management Engagement	66
U.S. Country Team	66
Responses in the Past Five Years (2021-2026)	67
DoW DMHA Engagements	67
Additional Resources	70
Acronyms and Abbreviations	72
Endnotes	76

Figures

Figure 1: Map of Tonga.....	9
Figure 2: Tonga Population Pyramid (2021)	10
Figure 3: Historic Storm Tracks around Tonga (2000-2026, July) (Source: NOAA)	18
Figure 4: Disaster Prevalence, by Hazard Type (2000-2025)	19
Figure 5: Fatalities, by Disaster Type (2000-2025).....	20
Figure 6: Disaster Events Incurring Most Economic Losses.....	20
Figure 7: Tropical Cyclone Occurrences, by Month (2000-2025).....	21
Figure 8: Tonga Disaster Management Governance and Coordination Structure	25
Figure 9: Tonga’s Cluster System for National Coordination of Relief.....	28
Figure 10: Communications Timeline – Hunga Tonga-Hunga Ha’apai (HTHH) Event	41
Figure 11: Timeline of Domestic Military Involvement in HTHH Response.....	42
Figure 12: Timeline of Foreign Military Asset Support to HTHH Response	43
Figure 13: Logistics Map of Tonga.....	49
Figure 14: INFORM Risk Index Dashboard for Tonga (2026)	66

Photos

Photo 1: Mass Casualty Drill During Exercise Croix du Sud (2025)	39
Photo 2: USS Sampson and HMNZS Aotearoa during HTHH Response.....	42
Photo 3: Tongan Telecommunications Technicians Go to Board an Australian Army Helicopter	44
Photo 4: HMAF Transports Evacuated Persons to Masefield Naval Base	47
Photo 5: Nevada National Guard Surveys Hurricane Damage on Tongatapu (2018)	69

Tables

Table 1: Bilateral Government Disaster Relief Contributions after HTHH Event (2022).....	45
Table 2: Details of Tonga’s Airports	50
Table 3: Tonga Power Electric Grid Details	57

Letter from the Director

Tonga frequently experiences major hazard events. While the 2022 volcanic explosion, ashfall, and tsunami event grabbed world headlines, tropical cyclones comprise most of the country's disaster events, and their recurrence poses an ongoing challenge to livelihoods, economic development, and national resilience. In response to these threats, Tonga has shifted toward a proactive, comprehensive disaster risk management approach.

The United States (U.S.) has been expanding ties with Tonga as an important partner in the Pacific. After the 2022 volcanic explosion, the U.S. Navy deployed the USS Sampson and dispatched helicopters as part of a multinational response that provided aid to Tonga. The U.S. government also provided US\$2.5 million in humanitarian assistance, which followed an initial US\$100,000 in immediate assistance. In 2023, the U.S. Embassy was opened in Nuku'alofa. More recently, the Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) participated in Regional Exercise Longreach 2025 in Tonga to support development of the Pacific Response Group's ability to deploy South Pacific militaries in response to natural disasters. CFE-DM also supported Bilateral Exercise Longreach in October 2023 in Nuku'alofa, where participants worked through a large-scale disaster scenario. Pacific Partnership, the U.S. Navy's multinational disaster preparedness mission in the Indo-Pacific, included mission stops in Tonga in November 2023 and June 2025; CFE-DM led an international disaster response and humanitarian assistance workshop during the 2023 stop. Additional elements of the bilateral relationship are fueled by the Nevada National Guard's State Partnership with Tonga; since 2014, they have engaged in numerous training events to build shared knowledge on various topics, including search and rescue and disaster preparedness and response.

The U.S. recognizes that Tonga and its neighbors are critical to the pursuit of a free and open, prosperous, and secure region, and CFE-DM is proud to support partners meeting civilian security challenges, including preparing for and responding to natural disasters.



Sincerely,

Joseph D. Martin, SES
Director

About the Center for Excellence in Disaster Management & Humanitarian Assistance

Overview

The Center for Excellence in Disaster Management & Humanitarian Assistance (CFE-DM) is a United States (U.S.) Department of War (DoW, also known as Department of Defense) organization comprised of nearly 30 subject matter experts that provide academic research, civil-military coordination training, and operational insights to support decision making before, during, and after crises. The Center is designed to bridge understanding between humanitarians, civilian, and military responders. CFE-DM partners with a diverse group of governmental and non-governmental actors, as well as academic institutions to increase collaborations and capabilities in humanitarian assistance and disaster response. While maintaining a global mandate, the Indo-Pacific region is our priority of effort and collaboration is the cornerstone of our operational practice. The Center is a direct reporting unit to U.S. Pacific Command (US PACOM) and is located on Ford Island, Joint Base Pearl Harbor-Hickam, Hawaii.

Vision

Resilient Joint Forces, Allies, and Partners that are fully prepared to respond across the spectrum of humanitarian crises.

Mission

CFE-DM builds crisis response capacity in US, Allies and Partner militaries across the Indo-Pacific to save lives before, during, and after emergencies.

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EXECUTIVE SUMMARY

This Disaster Management Reference Handbook provides a comprehensive overview of Tonga's disaster risk environment, institutional structures, and operational mechanisms. It addresses the island country's capacities for state-led response, coordination of national stakeholders, and integration of external support when needed. The purpose of this publication is to inform stakeholders that may work in support of or alongside Tongan responders in disaster response or preparedness, including exercises.

As a small-island country located south of the equator in the Pacific Ring of Fire, Tonga is exposed to impacts from earthquakes, flooding, tropical cyclones, tsunamis, volcanic eruptions, and other hazards. The country was heavily impacted by three major tropical cyclones in the past 12 years in addition to damage from the 2022 Hunga Tonga-Hunga Ha'apai (HTHH) volcanic eruption, ashfall, and tsunami. The succession of major disasters took a significant toll on people's livelihoods and the country's economic trajectory. Vulnerability to the society-wide impacts of various types of disasters has been a driver for Tongan authorities to develop an all-hazards approach to disaster management (DM) that focuses on the use of emergency support functions to organize responses.

Pivotal recent reforms include the Tonga Disaster Risk Management (DRM) Act of 2021. It established the National Disaster Risk Management Office (NDRMO), which replaced the National Emergency Management Office (NEMO). The DRM Act institutes a comprehensive approach with legal, institutional, and regulatory frameworks for DM across planning, preparedness, risk reduction, and response. It also included civilian and military integration into response coordination. Accompanying the legislation, the Tonga DRM Policy 2023-2030 provides the overarching

framework for implementing the Act in a whole-of-society manner guided by inclusivity, transparency, and equity from the national down to the village level.

At the strategic level, the National DRM Committee coordinates decision-making and mobilization of resources, including emergency funding. At the operational level, the NDRMO coordinates national implementation efforts for disaster risk reduction, response, and recovery. At the subnational level, under the NDRMO, there are Island DRM Committees for the main island groups and Village DRM Committees to ensure implementation at the community level. When needing to integrate international disaster assistance, Tonga utilizes a national coordination structure based on the cluster approach and engages the Pacific Humanitarian Team to mobilize international assistance.

Tonga is one of the few Pacific Island countries with a military, and His Majesty's Armed Forces (HMAF) play an increasingly active role in disaster preparation and response in coordination with civilian leads and the police. During the response to the 2022 HTHH event, Tonga received assistance from various foreign militaries – Australia, Fiji, France, Japan, New Zealand, People's Republic of China, the United Kingdom, and the United States (U.S.) – and HMAF played a significant interfacing role to coordinate incoming military assistance.

Tonga faces significant hazards and disaster challenges. As a remote, small-island nation, it is consolidating its resilience-building approach to DM. It is not only domestically proactive in whole-of-society inclusion but is also regionally engaged in various Pacific organizations, mechanisms, and fora that are working to overcome the tyranny of distance experienced by Pacific Island Countries and Territories (PICTs) during disasters.

COUNTRY OVERVIEW

The Kingdom of Tonga is comprised of some 170 islands. The three main island groups are Tongatapu, Ha‘apai, and Vava‘u. Culturally Polynesian, the country has a population of just over 100,000 people, the majority of whom live on the main island, Tongatapu. The small economy is reliant on agriculture, tourism, and remittances from Tongans living overseas. Agriculture and tourism are susceptible to disruption from global economic shocks and disasters caused by the hazards to which the country is exposed. Figure 1 shows a map of Tonga, including a close-up inset of Tongatapu, the main island where the capital, Nuku‘alofa, is located.¹

Geography and Environment

Tonga is located in the southwestern Pacific Ocean, between latitudes 15° and 23° S and longitudes 173° and 177° W. The country consists of some 170 islands, though some

sources list up to 176 islands,² depending on how reefs and small uninhabited islets are counted. The Tongan islands cover a total land area of 650 square kilometers (km²; 250 square miles [mi²]) in an exclusive economic zone (EEZ) of approximately 700,000 km² (270,271 mi²) of ocean territory.³

The three main island groups are Tongatapu in the south, Ha‘apai in the center, and Vava‘u in the north. Additional isolated islands include Niuafo‘ou, Niuatoputapu, and Tafahi (together known as the Niuatoputapu or Niuas group) in the far north and ‘Ata in the far south. The capital, Nuku‘alofa, is on the largest and most populous island, Tongatapu (area = 260.5 km²; 100.6 mi²).

The islands form two roughly parallel chains. Most islands in the western chain, also referred to as the Volcanic Arch, are classified as high islands as they have been raised well above sea level by repeated volcanic activity. Four of these

islands are still active volcanoes.

Composition of the western chain’s islands ranges from lava formed by shield volcanoes with hard cone-shaped surfaces (e.g., Late and Kao) to ash and pumice surfaces that eroded quickly after explosive volcanic formation (e.g., Fonuafo‘ou).

The eastern chain is comprised of low islands surrounded by coral and limestone reefs. The continuing growth of coral mitigates against erosion and protects the islands enclosed within the coral reefs (e.g., Tongatapu Island). Many islands in the Vava‘u group lack such protection and are shrinking with erosion. Rainwater reacting with the carbon dioxide in vegetation acquires acidic properties and dissolves coral and limestone rock, thereby forming caves. The constant action of the waves has created



Figure 1: Map of Tonga

sheer cliffs and sandspits across Vava‘u and in the vicinity of Nuku‘alofa.

The highest point in Tonga, at (1,033 meters [m]; 3,389 feet [ft]), is on Kao Island in the Ha‘apai group. ‘Eua, in the Tongatapu group, has an old volcanic ridge rising to 329 m (1,078 ft) above sea level. Islands in the Vava‘u group have hills ranging 150-300 m (500-1,000 ft) in height, and Late Island, in the western volcanic chain, rises to 518 m (1,700 ft).⁴

There are no major rivers. There are some minor rivers and streams, primarily on the larger islands of Tongatapu and Vava‘u. The small river systems are part of watersheds, which are an important part of the freshwater system on most of the islands. Underground aquifers are the largest freshwater sources. While the aquifers are generally replenished by rainfall, over-extraction, saltwater intrusion, and other contamination are threats to groundwater sources. Most of the population utilizes groundwater as their primary source of freshwater, especially on remote islands with scarce surface water resources.

Tonga’s climate is characterized by a wet season from November to April, which is also the tropical cyclone season, and a dry season from May to October. Rainfall can be heavy during the wet season and lead to localized flooding. During the dry season, lower water availability affects domestic and agricultural water supply.⁵ Annual average rainfall ranges from approximately 2,400 millimeters (mm; 94 inches [in]) in northern Tonga to 1,600 mm (63 in) in southern Tonga.⁶ The average annual temperature ranges 23-28°C (73-82°F), while the average humidity is around 75%.⁷ Tongatapu, in southern Tonga, experiences a mean annual temperature of 23°C (73°F), and the Niuas, Tonga’s northernmost islands, have a mean annual temperature of 26°C (79°F).⁸

Society and Demographics

According to the 2021 Population and Housing Census conducted by the government, Tonga has a total population of 100,179, which is 472 fewer people than reported in the 2016 census. Per the 2021 census, the population is 21% urban and 79% rural. The population distribution across island groups or divisions is: 74% Tongatapu, 14% Vava‘u, 6% Ha‘apai, 5% ‘Eua, and 1% Ongo Niua.⁹

In the 2021 census, there were 95 males for every 100 females, a larger gap than in the 2016 census, which found 99 males for every 100 females. Tonga has a large proportion of younger people, a characteristic that points to high fertility rates despite high rates of emigration to New Zealand and the U.S. in recent years. Figure 2 shows a breakdown of sex and age characteristics in the population.¹⁰

The country’s largest ethnic group is Tongans (96.5% of the population), followed by Europeans (0.9%), Fijians (0.8%), Chinese (0.6%), and Samoans (0.5%). Ethnic Tongans are of Polynesian ancestry, closely related in culture, language, and heritage to other Polynesians, which include but are not limited to the native peoples of Cook Islands, Hawai‘i, New Zealand, Niue, Samoa, Tahiti, and Tuvalu.

Religious affiliations in Tonga are rooted in Christianity, reflecting a long missionary history in the Pacific. The largest congregation is the Free Wesleyan Church, which is a Methodist

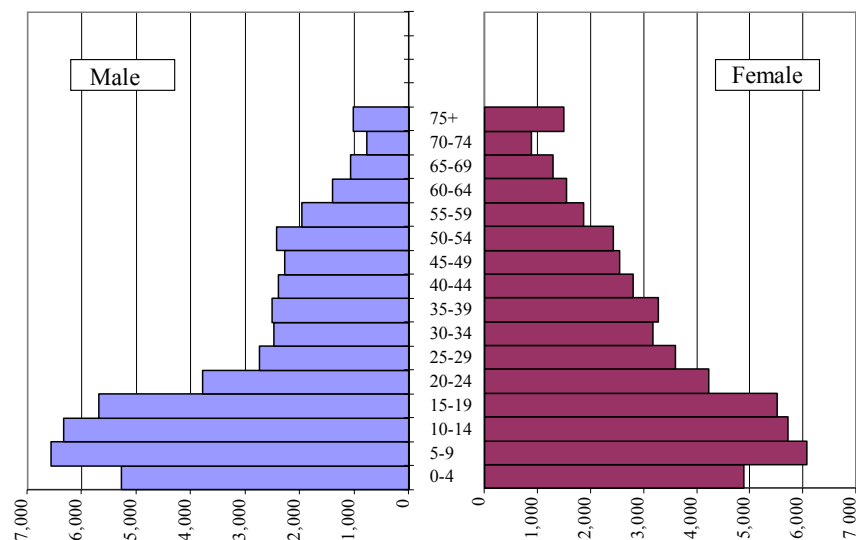


Figure 2: Tonga Population Pyramid (2021)

church with close ties to the monarch; it includes 34.2% of the population.¹¹ A reported 19.7% of the population adheres to the Latter Day Saints, 13.7% to Roman Catholicism, 11.3% to the Free Church of Tonga, 6.8% to the Church of Tonga, 2.5% to Seventh Day Adventists, 2.5% to the Assembly of God, and 1.9% to other Pentecostal denominations.

Vulnerable Groups

Factors such as socio-economic status, cultural norms, and access to resources influence both the impact of hazard events on individuals and their coping strategies. In Tonga, families, extended family networks, churches, village structures, community leaders, and traditional support systems are often among the first resources to which people turn before, during, and after a disaster. Despite this strong social bond, people do not experience disasters in the same way, not due to inherent vulnerabilities but to environmental and social structural factors. Age, gender, disability, residential location, income, and access to services are among the factors that shape how people are affected and how easily they can prepare, evacuate, access assistance, and recover. Including members or representatives of vulnerable groups in disaster awareness, planning, and risk reduction activities can reduce the impact of disasters by reducing vulnerability and building societal resilience. The DRM Policy Framework 2023-2030 incorporates guiding principles for a whole-of-society approach to support the shared responsibility of DRM through equity, inclusion, and transparency for the non-discriminatory participation of diverse people including vulnerable groups.

Children

Children make up an estimated 42% of the population. Children aged 0-4 years account for about 11% of the population. Children can face heightened risks during disasters due to their age and developmental needs, dependence on caregivers, and disruption to the family, community networks, and essential services that

normally support and protect them.¹²

Tonga has one of the Pacific region's lowest rates of stunting, wasting, and underweight among children under 5 years of age, but it has a high rate of obesity among children under 5 years of age, with 10% of children overweight compared to the global average of 5.6%. The national multidimensional poverty rate for children in 2021 was 28%, higher than the overall national multidimensional poverty rate of 24%. In 2019, 87% of children aged 1-14 years experienced any form of physical discipline.¹³ School completion rates drop from 98% in primary to 44% in upper secondary. In 2021, 47% of Grade 4 students, who are usually 9 years old, met minimum reading standards, and 75% met numeracy benchmarks, with reading declining to 30% by Grade 6, which is typically around 11 years old. An estimated 5% of youth aged 15-24 years were unemployed and not in education or training in 2023; 6% of female youth and 4% of male youth are among this cohort.

Family disaster assistance, including cash transfers, can provide a protective benefit to children. Following the 2022 HTHH event, the Ministry of Internal Affairs partnered with the UN Children's Fund (UNICEF) to deliver humanitarian cash transfers to 750 affected households across Tongatapu, 'Eua, and Ha'apai. The funds allowed families to meet immediate food and water needs, repair homes, and restore livelihoods, actions that also provided for the needs of the children within the safety of their family unit.¹⁴ Timely assistance to families also helps reduce negative coping strategies and facilitates continuity of children's food, water, education, health, and other essential needs. Child protection considerations in evacuation centers are also an important part of Tonga's disaster context, to include children's safety, supervision and family unity, privacy, referral pathways, safe and accessible water, sanitation and hygiene facilities, and other accessibility considerations for children with disabilities.

Older Adults

Tonga's population is slowly trending older. In the 2016 census, 8.7% of the population was 60 years of age or older, and that percent increased to 9.5% in 2021.¹⁵ In the next two decades, life expectancy is projected to continue increasing. A majority of older people, around 71%, live in rural areas and the outer islands, while 29% reside in urban areas. Approximately 22.1% of older people live on less than US\$1.90 per day, with those in rural areas and the outer islands affected more by poverty than urban residents are.

Older adults can face significant logistical and health challenges during disasters and can be particularly vulnerable to disrupted livelihoods. In 2023, the Minister of Finance noted that older people, especially older women, are particularly vulnerable to the types of hazard events Tonga experiences because of mobility limitations and susceptibility to heat-related illnesses.¹⁶ Older people, especially those living in rural areas and the outer islands, can face heightened risk during disasters that disrupt mobility, health, income, transport, access to information, or essential services. However, older adults also hold important knowledge, experiences, and roles within Tongan families and communities. Their knowledge of communities, past disasters, traditional coping practices, and local support networks can contribute significantly to disaster preparedness, community resilience, and recovery.

The government has taken various steps to support the older population. Projects range from establishment of the National Retirement Benefits Fund to the 2021 development of an Aged Care Strategic Action Plan.¹⁷ Ma'a Fafine Mo e Famili, a non-governmental organization (NGO) that promotes a just society by empowering women, has also provided services to hundreds of older adults and people living with disabilities.¹⁸

People Living in Poverty

People living in poverty or experiencing economic hardship can be particularly vulnerable to the impacts of disasters, as limited

financial resources, savings, livelihood options, and access to support may affect their ability to prepare for, cope with, and recover from shocks. The losses from recent tropical cyclones and the 2022 HTHH event were particularly costly, with damages ranging 11-36% of gross domestic product (GDP) and impacts affecting up to 85% of the population. Even before that disaster, three major cyclones – Ian in 2014, Gita in 2018, and Harold in 2020 – significantly impacted the nation's economic progress, which was further slowed when the Coronavirus Disease 2019 (COVID-19) pandemic caused the economy to shrink 2.7% in 2020-2021.

The prevalence of exposure to natural hazards means a large share of the population is at risk of falling into poverty. Nearly half of poor workers are self-employed or have informal jobs and lack job security if a disaster disrupts the economy. Many farmers are engaged in subsistence agriculture, which is vulnerable to higher temperatures, rainfall variability, and sea level rise. The tourism industry, a source of a significant proportion of formal jobs, is also sensitive to natural hazard events.

Almost one-third of the population of 'Eua island lives, while around one-fourth of people in Vava'u and Ongo Niua and one-fifth of the Ha'apai and Tongatapu populations are poor. In Tongatapu, the poverty rate is 13.3% in urban areas and 21.1% in rural areas. Approximately 53% of Tonga's poor people live in Tongatapu's rural areas.¹⁹

Tonga has made progress in lowering poverty rates in recent years. The poverty rate at the national poverty line declined from an estimated 27.4% in 2015-2016 to 20.6% in 2021. Furthermore, extreme poverty is almost non-existent, as defined by the international poverty line of US\$2.15 per day in 2017 purchasing power parity (PPP) terms. Evidence suggests that the substantial reduction in poverty has been supported by a significant increase in remittances from Tongans working overseas. Tonga had among the world's highest rate of remittances received as a percentage of GDP, per 2021 World Bank data.²⁰ Extended

family and the wider Tongan diaspora are important sources of resilience and support, especially following disasters,²¹ although not all households have equal access to these support networks.

Inequality in Tonga compares favorably to other PICTs and to upper-middle-income countries in East Asia and the Pacific. However, the impacts of economic shocks differ within and between households. Women, people living with disabilities, older people, single-parent households, and people living in remote or outer-island communities may face additional barriers to accessing livelihoods, financial services, transport, social protection or recovery assistance.

People Living with Disabilities

The national estimated prevalence of disability ranges from 2.8% to 7.6%. The findings of the Tonga National Disability Identification Survey in 2006 estimated a 2.8% disability prevalence,²² but it did not include people with mild impairments; the government's own explanation also pointed out that an undercount is possible due to the social stigma associated with having a disability preventing some people from participating.²³ The 2018 Tonga Disability Survey Report, which estimated a 7.6% disability prevalence, used the disability cut-off point recommended by the Washington Group – “a lot of difficulty in any one domain.”²⁴

In the wake of the HTHH event, surveys were conducted to better understand the disaster needs of people living with disabilities. Just as cash transfers to families provide a protective benefit to children, this type of assistance also helps the recovery of people living with disabilities in those families. A December 2025 study found that disability-inclusive cash transfer programming, when appropriately designed and scaled to account for disability-related and emergency costs, can provide an appropriate, cost-effective, and empowering means of supporting people living with disabilities during emergencies and anticipatory preparedness. Food assistance and

other in-kind support can also play an important complementary role, depending on individual needs and the emergency context.²⁵

The 2025 survey found that the most popular means for people living with disabilities to access early warning information was by radio (89% of respondents), followed distantly by relatives or neighbors (5%), social media (4%), sirens (1%), and village heads (1%). Radio has been the most accessible medium of communication in past decades and was even the most common mode listed among respondents with hearing disabilities. This prevalence reinforces the importance of continuing emergency messaging by radio. While the survey suggested “ensuring radio messages are clearly expressed, such as with spacing between words, can help people with hearing disabilities to access them,” it included the caveat that no deaf person or person using sign language was interviewed.

Conversely to the accessibility of early warnings, only one-quarter of respondents said they felt their voice was heard during emergency planning and disaster preparedness activities. The findings also highlight a significant participation gap and the importance of meaningfully involving people living with disabilities and their representative organizations in disaster preparedness, early warning design, evacuation planning, and DRM decision-making, so that their lived experience and priorities directly inform the systems and arrangements intended to support their safety. While most respondents reported being able to evacuate safely, 9% of respondents reported that they could not, and of those people who could not evacuate safely, women outnumbered men 3:1. The barriers identified by these respondents included lack of awareness or an evacuation plan, limited access to transport and assistive devices, isolation, and insufficient prioritization of the needs of people living with disabilities. These barriers highlight areas where more inclusive evacuation planning and preparedness could strengthen safe evacuation. Challenges for people living with disabilities accessing shelters was attributed to lack of proper access

(37%), lack of a designated area (20%), lack of understanding (13%), and discrimination (3%). While the survey did not specify what a “designated area” should include, it is worth cautioning against unintentional segregation of people living with disabilities and encouraging considerations of an accessible resting space or personal-care area and space for a caregiver.²⁶

In the post-disaster context, over half of respondents to the 2025 survey reported having difficulty at the household level in accessing food during a disaster or emergency (56% of male respondents, 51% of female respondents), and it is worth noting that almost all respondents received disability support. The main issues were food price increases, closure of or distance to markets, difficulty for people living with disabilities to travel to access food after a disaster, and lack of available/affordable transportation. While it was common to receive general help from family or neighbors, 16% of respondents reported that it was not adequate. However, people living with disabilities can have different experiences during disasters, and the impacts and barriers they face may vary according to gender, age, type of disability, household circumstances, and geographic location. Recognizing these various factors is important for ensuring that preparedness, evacuation, assistance and recovery arrangements respond to different needs and circumstances.

Experiences with the humanitarian cash transfer program following the 2022 HTHH event highlighted the need to strengthen Tonga’s social protection systems and pointed to digital platforms that can speed up beneficiary identification and cash disbursement in future crises.²⁷ People living with disabilities and their representative organizations also bring important lived experience, knowledge, and capacities to disaster preparedness and response. Their meaningful participation can help identify accessibility barriers and inform more inclusive early warning, evacuation planning, humanitarian assistance, and recovery.

Women and Girls

Tonga’s legal framework has many provisions addressing the safety and protection of women and girls.²⁸ Women and girls play important roles in Tonga’s families, communities, churches, civil society, livelihoods, and disaster preparedness and response. Women contribute significantly to community resilience and recovery but remain underrepresented in leadership and decision-making at all levels.

Preventing and responding to gender-based violence is an important protection consideration in disaster preparedness and response. Emergencies can create or compound existing risk, particularly where displacement, disruption of services, reduced privacy and safety, or economic and social pressures affect individuals, families, and communities. The 2024 Tonga Multiple Indicator Cluster Survey found that 33.8% of ever-partnered adolescent girls and women aged 15–49 years experienced physical, sexual, or psychological violence by a current or former intimate partner in the previous 12 months.²⁹

Women are less represented in the employed population, with 54% of women aged 25–59 years employed compared to 70% of men in that age group. An estimated 28% of males and 21% of females living with disabilities are employed.³⁰ Less participation in the formal workforce can translate into higher potential of falling into poverty when economic activities are disrupted by a disaster.

Tonga’s first Gender and Environment Survey, conducted in 2022, found that 93% of Tongans had experienced three or more disasters in the previous 12 months. It highlighted how disaster impacts can be experienced differently by women and men across aspects of wellbeing, livelihoods, and unpaid care responsibilities. The survey found that following disasters, 92% of women and 85% of men were impacted by mental health issues, and 77% of women and 74% of men reported increased unpaid care responsibilities. Care responsibilities for children, older adults, people living with disabilities, and other family members

can affect a person's ability to evacuate, access assistance, maintain livelihoods, and participate in recovery, all of which makes care responsibilities an important consideration for inclusive disaster planning.³¹

Women and girls can experience disasters differently depending on factors such as age, disability, household circumstances, income, and geographic location. Recognizing these intersecting factors can help ensure that preparedness and response arrangements address different risks, capacities, and barriers. Disaster and evacuation planning should consider the safety, dignity, and specific needs of women and girls, including privacy, safe and accessible water, sanitation, and hygiene (WASH) facilities, adequate lighting, specific hygiene needs, safeguarding, and access to appropriate and confidential support and referral services.

The Ministry of Internal Affairs leads Tonga's national Safety & Protection Cluster, which coordinates safety and protection activities before, during, and after disasters, with the overall aim of protecting the safety, dignity, and rights of affected people, particularly those who may face heightened risk or barriers to accessing assistance. Its areas of work include gender-based violence in emergencies, child protection in emergencies, disability inclusion and protection, and protection of older people and others who may face additional risk during emergencies.³²

The Cluster also works across the national cluster system to mainstream gender, protection, and disability inclusion, promote safe and equitable access to humanitarian assistance, identify and mitigate protection risks, strengthen safeguarding and referral pathways, and support meaningful participation and accountability to affected communities. The Cluster works closely with civil society, NGOs, and faith-based partners, including the Church Leaders Desk and the Tonga National Council of Churches.³³ These partnerships are particularly important in Tonga, where churches and community networks have strong local reach, knowledge, and trusted

relationships. They help ensure that protection considerations are communicated and addressed in culturally respectful ways and are embedded in preparedness and community resilience, rather than being limited to immediate disaster response.

Government

Tonga's government is a constitutional monarchy, as established by King George Tupou I in granting the constitution in 1875. The monarch is the chief executive and governs in close consultation with the prime minister in most matters. The monarch appoints a Privy Council, which consists of the monarch and the cabinet. The cabinet includes the prime minister, a deputy prime minister, other ministers, and the governors of Ha'apai and Vava'u.³⁴

The Legislative Assembly of Tonga (Fale Alea o Tonga) is a unicameral legislature with a base of 26 seats; 9 seats are held by hereditary nobles elected by their peers, and 17 seats are held by representatives directly elected by citizens aged 21 years and over. Assembly members serve 3-year terms. After the November 2025 general election, Crown Prince Tupouto'a Ulukalala was appointed to parliament, and his appointment increased the size of Fale Alea to 27 seats.³⁵

The Privy Council functions as part of the judicial system by hearing appeals from the land court. The Court of Appeal has jurisdiction over civil and criminal appeals from the Supreme Court. The Supreme Court hears cases on matters arising under the constitution and laws of the Kingdom, except for cases concerning titles to land. There are also magistrates' courts and a land court. Judges are appointed by the monarch with the consent of the Privy Council, and they serve indefinite terms unless removed for cause.

The Prime Minister's Office provides strategic leadership and whole-of-government coordination to advance Tonga's national priorities and ensure effective governance in accordance with the Constitution. The Office oversees policy direction, strengthens institutional performance, and supports the

delivery of government commitments through improved coordination across ministries. Its work focuses on advancing sustainable economic development, strengthening energy security, addressing climate change impacts, protecting Tonga's borders and maritime safety, modernizing infrastructure and connectivity, and ensuring that public institutions remain accountable, efficient, and responsive to the needs of the people.³⁶

Local government is provided by three island councils: 1) Tongatapu, 'Eua, and the Niua; 2) Vava'u group; and 3) Ha'apai group.³⁷

Economic Profile

Tonga's principal economic challenges involve sustaining economic recovery in the aftermath of the COVID-19 pandemic and the 2022 HTHH event, reducing exposure of economic assets to hazard event impacts, and generating employment opportunities for its youth. The country's small market and constrained investment environment limit the availability of local contractors and consultants capable of implementing development activities that would build resilience. In response, bilateral and multilateral donors provide technical assistance to strengthen the government's capacity across a range of areas, including improving outcomes for vulnerable groups, developing the private sector, building disaster resilience, enhancing water and energy supplies, extending domestic transport networks, and improving public sector management.

Tonga's total GDP stood at approximately US\$600 million in 2025.³⁸ The economy relies mainly on agriculture, fishing, and tourism, and it remains dependent on external assistance and overseas remittances. The Tongan monarchy holds ultimate ownership of all land, though extensive estates have been apportioned among the country's nobility. Land is distributed by nobles to peasant proprietors, and under long-standing tradition, each male aged 16 years or

older is entitled to a cultivation allotment of 3 hectares (7.5 acres). In recent years, however, population growth has diminished the actual size of these allotments across many areas.³⁹ Consequently, the ability of younger Tongans to undertake subsistence farming or to develop small enterprises has become limited.

The labor market struggles with various challenges. Informal labor accounts for a considerable share of employment. Many Tongans respond to a lack of jobs by emigrating to Australia, New Zealand, or the U.S., and the economy remains heavily reliant on remittances from these overseas workers.⁴⁰ The Tongan diaspora, which at an estimated 150,000 people outnumbers the population in Tonga, is also an important source of support following disasters, as evidence of its mobilization of resources following the 2022 HTHH volcanic explosion.⁴¹ Despite its potential to deliver emergency support, the diaspora is also a long-term challenge in that Tongans will continue to find it attractive to leave for education and work, draining off skilled individuals from the local workforce.

People living in remote and outer-island communities can face additional economic challenges that are associated with distance, transport, connectivity, access to markets and essential services, and more limited livelihood opportunities. About 88% of Tonga's population lives in rural areas, where livelihoods are dependent on agriculture and fisheries. Most are smallholder farmers practicing mixed subsistence and cash crop production. Employment opportunities are limited, leading to a constant flow of labor migration. Unemployment stood at 2.2% in 2025, and youth unemployment is especially high. Women also face additional economic barriers that can affect their access to employment, livelihoods, financial resources and opportunities to prepare for and recover from economic and disaster-related shocks.⁴²

DISASTER PROFILE

Tonga is exposed to various hydrometeorological and geophysical hazards. The most common hazard events to impact the islands are earthquakes, flooding, tropical cyclones, and tsunamis. The country is exposed to volcanic activity, with the 2022 HTHH event being a rare but extreme occurrence that affected most of the country. The islands are also exposed to drought, epidemics, and extreme heat. Tropical cyclones generally bring the greatest economic losses among all disasters in the country, and Tonga experienced three major cyclones in the last 12 years. With communities and infrastructure concentrated in low-lying coastal areas, Tonga's people and economy are highly susceptible to damage from cyclone effects and other hazards related to the ocean.

Hazards

The hazards to which the Kingdom is exposed are dominated by hydrometeorological phenomena, but geophysical hazards are also key components of the country's risk profile.

Drought

When Tonga experiences drought, it usually correlates to El Niño conditions in the Pacific Ocean. The country is categorized as being at low risk for drought impacts (0.5 on a 10-point scale where 0 is the lowest risk and 10 the highest), according to the INFORM Risk Index.⁴³ While drought is not a frequently occurring hazard, Tonga experienced major droughts in 1983, 1998, and 2006, and all of these periods were linked to El Niño events. Additional droughts that do not correlate with El Niño events have been declared, including in 2023.⁴⁴ The El Niño Southern Oscillation (ENSO) phenomenon significantly impacts Earth's ecosystems by influencing global temperatures and precipitation in the tropical Pacific. El Niño and La Niña are opposite extremes of the ENSO. Equatorial Pacific surface waters are warmer during El Niño and cooler during La Niña.⁴⁵

In June 2026, global meteorologists declared that El Niño conditions existed in the Pacific, and these conditions increase the risk of drought in Tonga.⁴⁶ Drought and water scarcity can affect human health, household water and sanitation, hygiene and dignity needs, food security, livelihoods, care responsibilities, ecosystems, and agricultural productivity, with impacts varying according to household circumstances. Tonga's August 2026 Meteorological Drought Outlook identifies potential impacts, including reduced water access in outer islands and for people living with disabilities, increased social stress, disruption to household incomes and education, and heightened protection concerns as drought conditions persist.⁴⁷

Earthquake

Tonga has high exposure to earthquakes. The INFORM Risk Index calculates the country's risk linked to this exposure as 7.1/10.⁴⁸

The country is located on the boundary of the Pacific Plate and the Indo-Australian Plate, along the "Pacific Ring of Fire." The Tonga-Kermadec Ridge is the world's most seismically active subduction boundary. In the last 100 years, at least 11 earthquakes over magnitude (M) 7 with epicenters in Tonga were recorded.⁴⁹ Earthquake modelling suggests that the Tonga and Kermadec Trenches could cause earthquakes of up to M9.3. Earthquakes ranging M6.6 to M6.9 occurred offshore of Tonga in May and August 2024,⁵⁰ and in March 2026, an M7.2 quake was recorded. There were no reports of casualties or major damage from any of these earthquakes.⁵¹ While the May 2024 earthquake led to a tsunami alert and to civil defense authorities calling for evacuation of low-lying areas in Tongatapu and Ha'apai, the tsunami alert was swiftly cancelled when no wave appeared.⁵²

Flood

Tonga has varying exposure to different types

of flooding, all of which can damage buildings and agriculture, disrupt infrastructure, and cause injuries and fatalities. Heavy rainfall can cause surface water flooding, or pluvial flooding, particularly in Tongatapu.⁵³ The capital, Nuku'alofa, has large areas prone to inundation due to low elevation, insufficient drainage, and built-up areas. Common flooding dynamics are different in the Vava'u group, which has steeply sloped terrain that produces high runoff that can flood low-lying areas and drive mudslides in villages.⁵⁴ Coastal flooding is also a risk and often results from storm surges.

Tropical Cyclone

Tonga is at high risk of impacts from tropical cyclones, which bring strong winds, heavy rain, and storm surges that damage buildings, infrastructure, and crops. In its location south of the equator, the country is particularly exposed to tropical cyclones during the Pacific cyclone season, November to April.⁵⁵ Between 1970 and 2019, a total of 128 cyclone tracks affected the surrounding waters, with a seasonal average of 2.6 storms per year. Among these storms, approximately 50% occurred during January and February, and about 39% of the total were of higher hurricane intensities – Categories 3,

4, and 5.⁵⁶ Projected intensification of tropical cyclones and sea level rise could combine to raise coastal flooding risk.

Figure 3 shows historical storm tracks in and around Tonga for the period 2000-2026 (through July).⁵⁷ The number of storms in each category is shown in parentheses. A storm is counted in the highest category it reached in its lifetime.

Tonga experienced three major tropical cyclones in the last 12 years. In 2014, Tropical Cyclone (TC) Ian affected 70% of the population and caused economic losses of US\$50 million (11% of the country's GDP). TC Gita in 2018 affected up to 80% of the population and caused an estimated US\$164 million in damage and economic losses, equivalent to 38% of GDP. In April 2020, TC Harold, a Category 4 cyclone, caused an estimated US\$124 million in damage and losses (equivalent to 23% of GDP). TC Harold hit Tonga (as well as Fiji, the Solomon Islands, and Vanuatu) during the early part of the COVID-19 pandemic, when social distancing requirements were in place, and the combination of these factors compounded risk by limiting the ability of people to evacuate to areas where they could be safe from both the storm and a communicable disease.⁵⁸

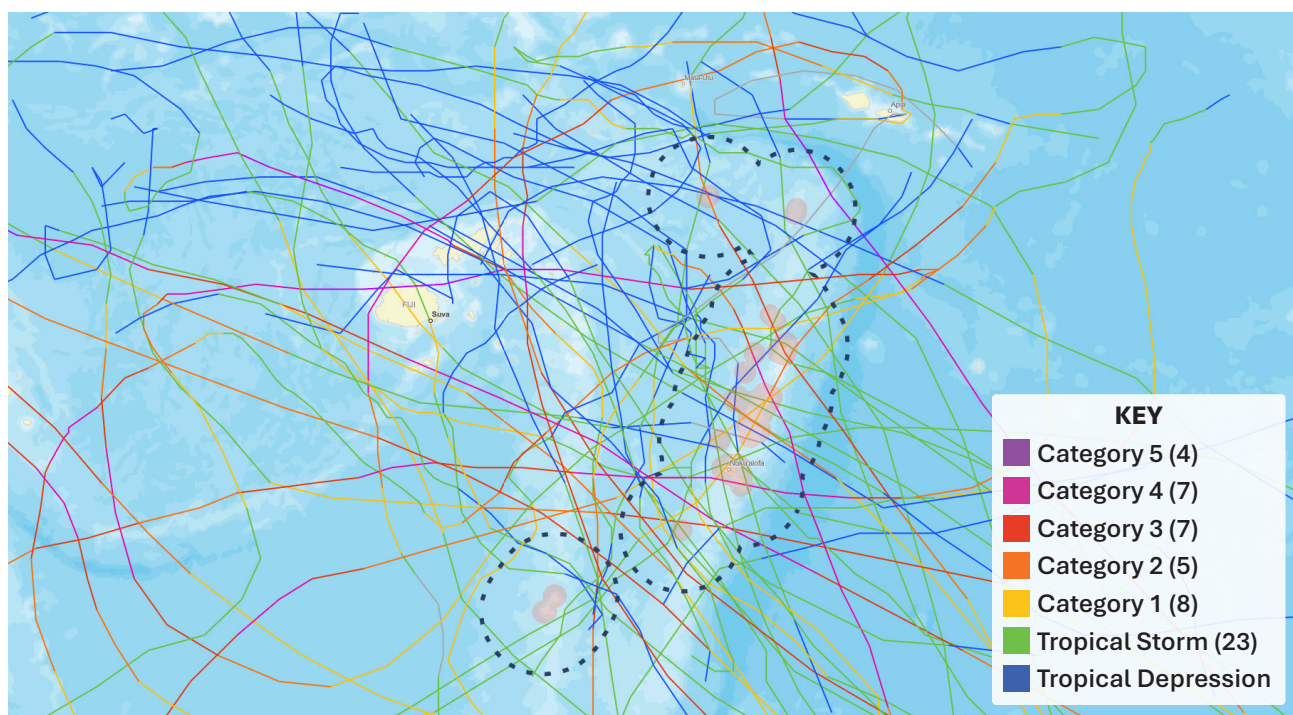


Figure 3: Historic Storm Tracks around Tonga (2000-2026, July) (Source: NOAA)

Tsunami

Tonga has high exposure to tsunami hazard, with more than a 40% chance that a potentially damaging tsunami will occur in the next 50 years.⁵⁹ The INFORM Risk Index calculates the risk from exposure to tsunami as 5.7 out of 10.⁶⁰

In the past 100 years, 15 recorded tsunamis originated in Tonga; 12 were caused by earthquakes and 3 by volcanic eruptions (including the 2022 HTHH event).⁶¹ While a very destructive tsunami is considered a rare event, it would have outsize impacts on the islands, including the capital area. Tonga has already experienced general sea level rise based on historical records from 1993 to 2007; the increasing trend is likely to continue through the end of the century, and this rise would increase Tonga's exposure to tsunami impacts through coastal erosion and bringing the sea closer to communities and critical infrastructure.⁶²

Volcanoes

The tectonic activity around Tonga that contributes to earthquakes also heats the underlying crust and creates prolific volcanic activity. Volcanoes are distributed in an arc extending for more than 1,287 km (800 mi) along the ocean floor from Samoa southward to the northernmost islands of New Zealand.

In the last 100 years, as many as 15 large volcanoes have erupted within Tonga, and far more have erupted underwater. The most recent eruptions occurred in places like Metis Shoal (2001), Home Reef (2006), Tafu-Maka (2008), west Mata (2009), and at Hunga Ha'apai (2022). At least 50 large volcanoes also are known to have erupted in much deeper water along the Tonga-Tofua Volcanic Chain.⁶³

The explosive HTHH eruption in January 2022 caused four deaths, produced ashfall that affected most of the population, triggered a tsunami, and led to an estimated US\$118 million in economic losses, including damage to Tonga's undersea fiber optic cable that severed communication between the Kingdom and the rest of the world.⁶⁴ Less damaging but recurring activity has been seen with the Tofua Volcano in the Home Reef seamount in central Tonga in recent years.⁶⁵ It became active 10

September 2022, when it ejected steam and ash, accompanied by lava flow; there were subsequent eruptions in September 2023, January 2024, and June 2024.⁶⁶ It posed low risk to residents of Vava'u and Ha'apai and the aviation community,⁶⁷ though mariners had been advised to stay up to 4 km (2.5 mi) away.⁶⁸

Disasters by Numbers

The following data assessment provides visual depictions of the frequency, deadliness, and economic damage linked to disasters in Tonga. Data were sourced from the Centre for Research on Epidemiology of Disasters (CRED) international disaster database (EM-DAT), which classifies disasters as events resulting in 10 or more deaths, affecting 100 or more people, or triggering a declared state of emergency.⁶⁹ EM-DAT does not include pandemics (e.g., COVID-19) among data of epidemics affecting a country.

Figure 4 depicts the prevalence of disasters by hazard type from 2000 through 2025. The hazards that caused the most frequent disasters for the period 2000-2025 were:

- Storm – 9 occurrences (69.2%)
- Epidemic – 1 occurrence (measles) (7.7%)
- Volcanic eruption – 1 occurrence (7.7%)
- Earthquake – 1 occurrence (7.7%)
- Drought – 1 occurrence (7.7%)

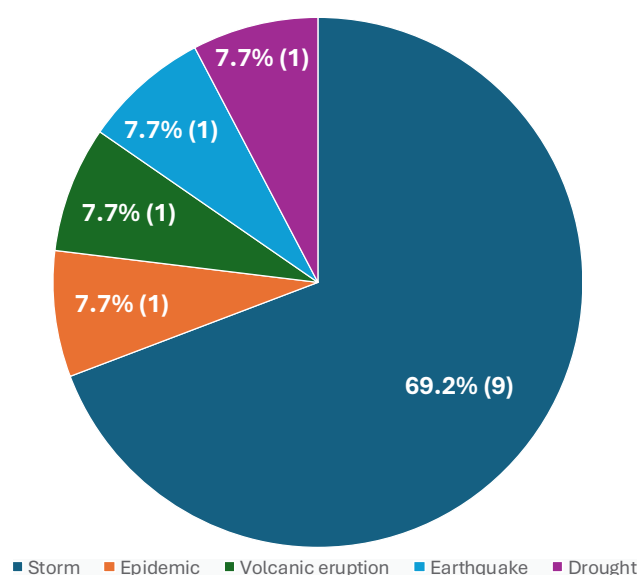


Figure 4: Disaster Prevalence, by Hazard Type (2000-2025)

Associated disasters (not shown in the graph) included:

- 2 tsunamis (associated with a 2009 earthquake and the 2022 HTHH event)
- 1 ash fall (associated with the HTHH event)
- 1 flood (associated with TC Gita in 2018)

Figure 5 depicts the proportion of disaster-related fatalities in Tonga, by hazard type, from 2000 through 2025.

- Earthquake – 9 fatalities or 52.9% of total deaths (all in the 2009 earthquake)
- Storm – 4 fatalities or 23.5% of total deaths (3 in the 2011 storm and 1 in the 2014 storm)
- Volcanic eruption – 4 fatalities or 23.5% of total deaths (all in the 2022 HTHH event)

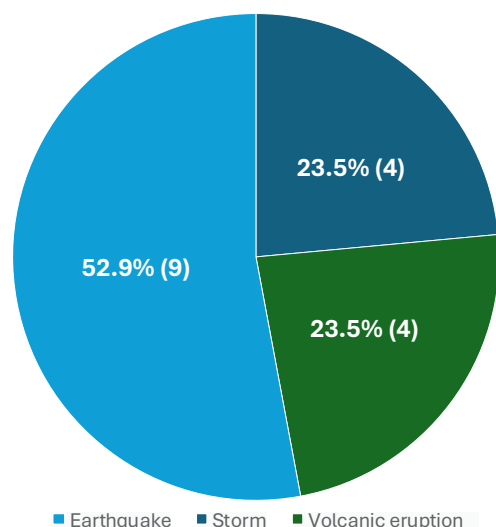


Figure 5: Fatalities, by Disaster Type (2000-2025)

Figure 6 depicts the disaster events that incurred the greatest economic losses, based primarily on EM-DAT data for total damage and supplemented by Tongan government data for TC Gita.⁷⁰

Figure 7 shows the seasonality of cyclones in Tonga. The graph depicts the number of TC occurrences by month and reflects the region's cyclone season, November-April.

It is beyond the scope of EM-DAT data to disaggregate losses by demographics of populations affected. However, specific reports, especially for the two disasters that incurred the greatest economic losses (TC Gita and the HTHH event), often mention disproportionate impacts and the efforts to address them.

The TC Gita Immediate Response Plan stated that the cyclone “disproportionally affected children, women and girls, young people, persons living with disability, and other vulnerable populations.”⁷¹

In their final report on the HTHH response, the International Federation of Red Cross and Red Crescent Societies (IFRC) observed that the Tonga Red Cross Society (TRCS) aid distribution strategy was implemented in Tongatapu with “a commendable focus on reaching the most vulnerable segments of the population. A significant proportion of the aid beneficiaries were adults, reflecting the demographic composition of the affected areas. The aid was distributed with a mindful approach

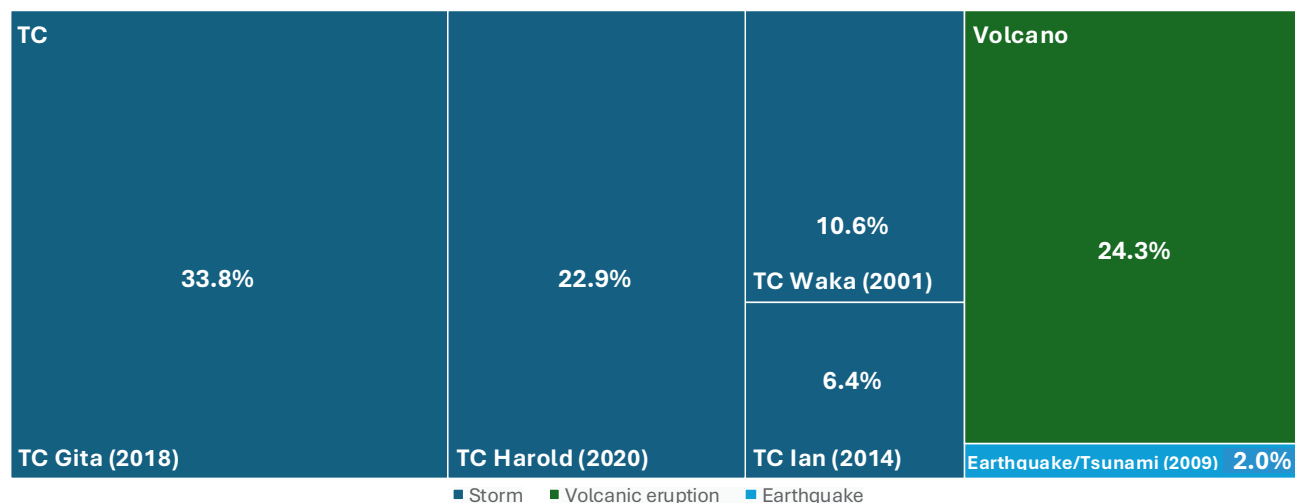


Figure 6: Disaster Events Incurring Most Economic Losses



Figure 7: Tropical Cyclone Occurrences, by Month (2000-2025)

to gender balance, ensuring that both males and females received equitable support.” It stated, “Notably, both males and females with disabilities in Tongatapu were supported.” In reporting on the response in Ha‘apai, the IFRC said, “Support for children under 18 and PWD [people with disabilities] in Ha‘apai shows TRCS’s dedication to reaching all sections of the population, including the most vulnerable.”⁷²

To summarize these findings:

- The hazard that caused the most fatalities in Tonga was earthquakes – nine deaths all due to a single quake in 2009.
- The most economically damaging disaster hazard during the period 2000-2025 was storm or tropical cyclone.
- Tropical cyclone is also the most prevalent disaster hazard.

As both the most prevalent and costly hazard, cyclones cause economic losses that have recurring, long-lasting impacts on individual livelihoods as well as societal economic recovery. Beyond economic damage, recurring cyclones also disrupt housing, essential services, education, health, livelihoods, and community support systems, with recovery taking longer for households that already face economic, geographic, or accessibility barriers. The high cost of economic damage has an outsized proportional impact on Tonga’s GDP as a small economy because it suppresses economic growth long-term. This trend is particularly strong across Small Island Developing States (SIDS). Tonga is among 38 SIDS that comprise

over 30% of countries with the highest relative annual losses due to disasters. Due to SIDS’ small geographic size and small economies, single disaster events can have significant systemic implications across sectors with lasting macro-economic impacts.⁷³

That tropical cyclones can be forecast with relatively high confidence days in advance lends increased significance to Tonga’s early warning activities. Tongan government agencies and civil society organizations (CSO) also disseminate messages of disaster preparedness ahead of the November-April cyclone season as part of disaster risk reduction,⁷⁴ a practice that has helped reduce loss of lives from cyclones.

Recent Disasters

The following is an overview of the impacts of disasters in Tonga in the past 10 years.

2025-2026 – Dengue

On 17 April 2026, the Ministry of Health declared a dengue fever outbreak.⁷⁵ The outbreak affected multiple islands, including Tongatapu, Ha‘apai, and ‘Eua.⁷⁶ As of 26 June 2026, there were 76 confirmed cases, with the majority reported among people aged 15-19 years, predominantly male, and the highest number of cases was on Tongatapu. No dengue-related deaths were reported at that time. The dengue virus serotype was identified as DENV-2.⁷⁷ In 2025, Tonga had reported at least 897 dengue fever cases and 3 deaths, with confirmed cases from Tongatapu (512), Vava‘u (312), ‘Eua (69), and Ha‘apai (4).⁷⁸

2023 – Drought

On 29 September 2023, a drought was declared by the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC). The declaration covered the areas of Fua‘amotu (southern Tongatapu Island), Nuku‘alofa (northern Tongatapu Island), and ‘Eua. The drought threshold was rainfall observations less than or equal to the 10th percentile of average precipitation. The MEIDECC report included drought warnings for Vava‘u and Ha‘apai, which had rainfall observations in the 25th to 10th percentiles. It also included drought alerts for Niuafo‘ou and Niuatoputapu, for which the threshold was rainfall observations within the 40th to 25th percentiles.⁷⁹ MEIDECC and other government agencies worked to provide desalination machines for the outer islands to convert seawater into drinkable water.⁸⁰

January 2022 – Hunga Tonga-Hunga Ha‘apai Volcanic Explosion, Ashfall, and Tsunami

Note: This section contains only details of the HTHH event’s impact. A longer case study into the response is available at the end of the Disaster Management Policy, Planning, and Response section, on page 37.

On 14 January 2022, the HTHH volcano, located approximately 70 km (43 mi) northwest of Nuku‘alofa, began to erupt, culminating in a prolonged violent eruption on 15 January. It generated a massive atmospheric pressure wave and series of tsunamis.⁸¹ The eruption dispersed ash across the Ha‘apai, Tongatapu, and ‘Eua islands; it ranged in thickness from 5 to 50 mm (0.2-2.0 in). Four deaths, one indirectly, were officially attributed to the volcanic eruption and tsunami. Around 3,000 people were displaced in the immediate aftermath. Government estimates were that 84,176 people (84% of the population) were affected, particularly by ashfall.⁸² Tonga’s government declared a state of emergency for the entire country, and on 19 January, the government submitted a request to the UN Resident Coordinator for urgent humanitarian

assistance to support populations affected by the eruption and tsunami.⁸³ Various bilateral and multilateral partners delivered financial, technical, and material assistance.

The eruption and tsunami damaged undersea fiber optic cables and, thus, severed Tonga’s communications link to the rest of the world. While initial satellite phone calls were made several days after the eruption, it would not be until 22 February that repairs to severed sections of the Fiji–Tonga undersea communications cable largely restored telecommunications services to Tongatapu. Communications between Tongatapu and outlying islands would take many more months to restore.⁸⁴ The New Zealand Defence Force (NZDF) and Australian Defence Forces (ADF) assisted with initial surveillance flights, which showed significant damage to houses, roads, water tanks, and other infrastructure on the west coast of Tongatapu, the Ha‘apai group, and the west coast of ‘Eua.

The ongoing COVID-19 pandemic added a complicating factor to disaster response. Tonga stressed the need for external aid to be delivered in a “contactless” way to keep the virus out. Emergency provisions were accepted from outside but not personnel, and strict COVID protocols were followed upon supply delivery. Aid agencies provided assistance remotely, but local authorities and community groups led the response on the ground.⁸⁵

April 2020 – TC Harold

On 9 April 2020, TC Harold struck Tonga as a Category 4 storm, with sustained winds of more than 150 km per hour (kph; 93 mi per hour [mph]).⁸⁶ There were no reported deaths.⁸⁷ Storm surge affected the country’s east and southeast, measuring 3 m (9 ft) in Tongatapu.⁸⁸ The surge brought extensive flooding to Tongatapu and ‘Eua.⁸⁹

More than 730 family homes suffered minor damage, 210 sustained major damage, and 41 were destroyed.⁹⁰ National assessments found that 8,000 people were severely impacted. Wharves, coastal roads, and power supplies were also badly damaged.⁹¹ The government estimated the cost of damage at more than

US\$111 million.⁹²

The response to TC Harold was complicated due to the recently declared COVID-19 pandemic and new implementation of social distancing measures. As the cyclone approached, Tonga (as well as Vanuatu and Fiji) lifted COVID-19 social distancing and movement restrictions to allow people to shelter together in evacuation centers.⁹³

2021-2022 – COVID-19

Tonga did not record its first confirmed case of COVID-19 until 29 October 2021; it was detected in a seasonal worker returning from Christchurch, New Zealand.⁹⁴ Tonga's pandemic response was characterized by early pre-emptive lockdowns,⁹⁵ border closures,⁹⁶ and strict quarantine periods for later international arrivals. By 30 March 2022, two months after the HTHH event, a total of 6,144 COVID-19 cases had been recorded in the country. Of those cases, 11 people died; 6 deaths were attributed solely to COVID-19, while another 5 people with the virus died from underlying illnesses. By mid-2022, around 98% of the target population had their first dose of the COVID-19 vaccine, and 90% had their second dose.⁹⁷

October 2019 – Measles Epidemic

In early October 2019, a measles epidemic began after a national youth rugby team returned from New Zealand. The index case developed measles while in New Zealand, and 12 teammates subsequently developed laboratory-confirmed measles. The outbreak spread primarily to other teenagers from associated boarding schools on Tongatapu and Vava'u. The Ministry of Health stood up an Epidemic Task Force to meet weekly to advise on response. A vaccination program targeted secondary school students and infants between October and December. As of 12 February 2020, when the epidemic was largely contained, 659 confirmed and suspected cases had been reported. The majority of the cases, 581 (88%), occurred on Tongatapu, and 66 (10%) occurred on Vava'u. No deaths were reported.⁹⁸

February 2018 – TC Gita

On 12 February 2018, TC Gita struck Tongatapu and 'Eua. It was the strongest cyclone to impact the area since 1982. The government preemptively issued a Declaration of a State of Emergency on the morning the storm was expected, and 4,000 people evacuated to 120 shelters. The storm surge reached 1 m (3 ft) above normal high-tide levels. Localized flooding was also caused when 200 mm (7.8 in) of rain fell over a 24-hour period. The storm affected approximately 80,000 people, most of the population. It downed power lines, damaged and destroyed schools, destroyed crops and fruit trees, and damaged public buildings, including an airport, the Parliament building, and the Tonga Meteorological Services (TMS) offices. More than 800 houses were destroyed and 4,000 were damaged, with an estimated 5% of Tongatapu's population displaced and 56% of 'Eua's housing stock damaged by the storm. The government requested international assistance, specifically the Pacific Humanitarian Team and coordination from UN OCHA.⁹⁹

TC Gita caused approximately T\$356.1 million (US\$164.1 million) in damage and loss, equivalent to 37.8% of GDP. The housing sector sustained the greatest damage (53% of total damage cost). Tourism was also badly hit, with 13% of the loss and damage accruing to the sector, and the agriculture sector was also disrupted.¹⁰⁰

2016 – Zika Outbreak

During 2016, Tonga reported 2,299 cases of Zika, including 41 suspected cases in pregnant women. Tongan health authorities improved disease surveillance through the National Response Plan and clean-up campaign, with the assistance of Australia, New Zealand, the World Health Organization (WHO), and the TRCS. Efforts resulted in the collection of over 55,000 tons of trash to eliminate potential breeding sites for the mosquito responsible for the spread of the Zika virus.¹⁰¹

DISASTER MANAGEMENT POLICY, PLANNING, AND RESPONSE

Tonga maintains a strong, civilian-led DM structure built to coordinate rapid response while emphasizing proactive risk management. Established under the DRM Act 2021, operations are centrally commanded by the Cabinet and coordinated through the National Disaster Risk Management Committee (NDRMC). The national DM system is designed to connect quickly to international support when necessary. Internationally, Tonga aligns with the Sendai Framework and proactively manages relationships with an expansive network of UN entities, NGOs, regional institutions, humanitarian coordination arrangements, and bilateral partners to ensure external aid remains demand-driven and effectively coordinated.

National Disaster Management System

The DRM Act, enacted in 2021 to replace the Emergency Management Act 2007, establishes the roles and responsibilities of DM institutions and mechanisms across all levels of government. Marking a policy shift from reactive disaster response toward proactive risk management, the DRM Act describes the national framework, structures, functions, and responsibilities of those responding to disasters. The legislation further requires a National DRM Plan, which translates the legislative framework into practice through disaster risk reduction and emergency management systems and processes. There are committees for DRM at the strategic, operational, and community levels, with work coordinated by MEIDECC and the NDRMO. Tonga adopted the cluster system in 2015, and it was activated for the first time that same year when TC Ian struck the Ha'apai group.

Key Laws, Policies, and Frameworks

Disaster Risk Management Act 2021

The overarching legislative framework

for DRM, the Act provides a comprehensive system for reducing disaster risk, strengthening preparedness, coordinating emergency response, and supporting recovery and reconstruction. It establishes the NDRMO, national and local DM committees, the National Emergency Operations Centre (NEOC), and a multi-hazard early warning system (EWS). It empowers authorities to respond effectively to emergencies through coordinated planning, evacuations, emergency powers, resource mobilization, and access to emergency financing, while promoting resilience, community participation, and risk-informed development across all levels of society.

Tonga Disaster Risk Management Policy 2023–2030

The DRM Policy establishes the overarching framework for implementing the DRM Act by shifting the national approach from reactive response toward proactive, whole-of-society resilience through national, island, district, and village DRM plans. It strengthens monitoring and evaluation systems and aligns with regional and global commitments such as the Sendai Framework, the Framework for Resilient Development in the Pacific (FRDP), and Tonga's Strategic Development Framework.

Tonga Multi-hazard Early Warning System Policy (MHEWS) 2024–2030

The MHEWS policy establishes a national framework to strengthen the country's capacity to anticipate, communicate, and respond to multiple natural hazards. Grounded in a people-centered approach, the policy emphasizes timely and accessible warnings, last-mile connectivity, and coordinated action among civil authorities, Tonga Police, and HMAF. Led by MEIDECC, the policy was developed through community consultations across Tonga's islands.

Tonga National Emergency Management Plan (NEMP) 2020

The NEMP established a comprehensive DRM framework and is set to be revised into a National DRM Plan. It set out the roles and responsibilities of national, district, and village level committees to ensure coordinated preparedness, response, and recovery efforts. It emphasized a multi-hazard approach that integrates both natural and technological risks, and outlines procedures for activation, coordination, and communication during emergencies.¹⁰²

DM Institutions and Mechanisms

The Cabinet, as the highest governing body, can declare a state of emergency (Prime Minister or Cabinet Minister) and authorize extraordinary powers and mobilization of resources during emergencies. It provides strategic oversight of the national DRM and ensures whole-of-government coordination at the highest level. The Cabinet approves national DRM laws, policies, and regulations, and receives advice from the NDRMC. The Cabinet is provided disaster governance support by three

national committees:

- National Disaster Risk Management Committee (NDRMC)
- National Disaster Operations Sub-Committee (NDOPSC), and
- National Disaster Recovery Sub-Committee (NDRSC).¹⁰³

Figure 8 depicts the Tonga DRM governance and coordination structure.¹⁰⁴

National Disaster Risk Management Committee (NDRMC)

The NDRMC serves as the principal coordinating body within the framework. It advises the Cabinet on the performance of key DRM entities, approves national DRM plans and frameworks, coordinates among ministries during emergencies, and endorses funding requests associated with its functions. In the lead-up to or during a disaster, in coordination with the NDRMC, NDRMO leadership activates and manages the NEOC, establishes role priorities, liaises with islands, and directs the allocation of resources. The NDRMC also consolidates reporting and provides the

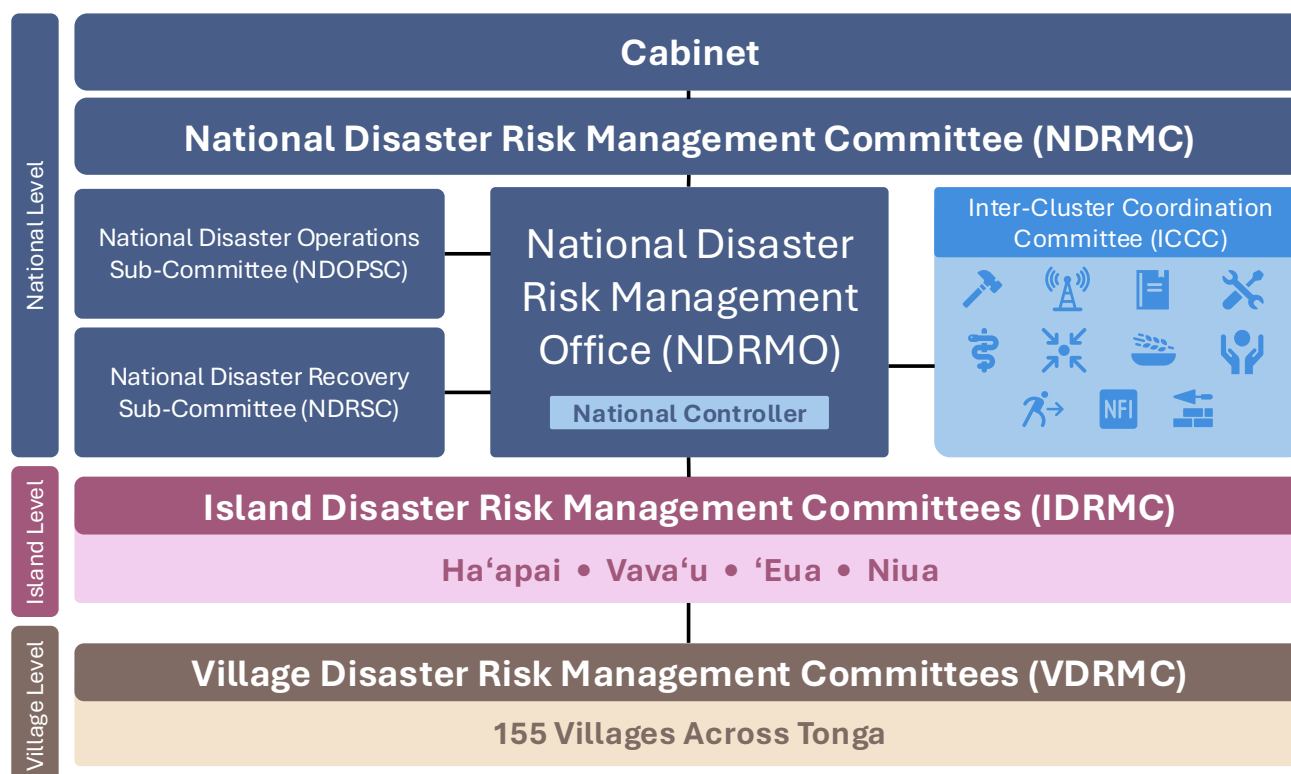


Figure 8: Tonga Disaster Management Governance and Coordination Structure

secretariat for the NDRMC. These arrangements are intended to support timely decision-making during disaster events and throughout post-disaster recovery.

NDRMC members include the MEIDECC Minister as Chair, MEIDECC CEO, Chief Secretary and Secretary to the Cabinet, NDRMO Director, Finance CEO, Agriculture, Food Security and Forest CEO, Health CEO, Lands CEO, Internal Affairs CEO, Education and Training CEO, Foreign Affairs CEO, Public Enterprises CEO, Infrastructure CEO, Police Commissioner, Fire and Emergency Services Commissioner, HMAF Chief of Staff, Government Statistician, Attorney General, and Tonga Red Cross Secretary General.

The NDRMC activates two sub-committees during response and recovery phases. The two sub-committees report to and operate under the direction of the NDRMC.

- The NDOPSC is activated during the response phase to coordinate and direct multi-agency response operations during emergencies. It is responsible for initiating operational response activities, preparing initial damage assessment reports, collating and prioritizing immediate relief requirements, and managing the distribution of emergency relief supplies. The NDOPSC supports the National Controller by aligning clusters' actions and allocating response resources. Members include the MEIDECC Chief Executive Officer (CEO) as Chair, NDRMO Director, Police Commissioner, Fire and Emergency Services Commissioner, HMAF Chief of Staff, Finance CEO, Internal Affairs CEO, and Tonga Red Cross Secretary General.
- The NDRSC coordinates recovery and rehabilitation activities and prepares detailed damage assessment reports to inform recovery planning. It oversees reconstruction, rehabilitation, and alignment of recovery support across sectors and partners to guide national disaster recovery planning. Members include the MEIDECC CEO as Chair, NDRMO Director, Finance CEO, Internal Affairs CEO, Infrastructure

CEO, and Agriculture, Food and Forest CEO.

National Disaster Risk Management Office (NDRMO)

The NDRMO (formerly NEMO) functions at the operational level under MEIDECC. It was established by and is responsible for:

- Implementing the DRM Act
- Coordinating disaster risk reduction, preparedness, response, and recovery activities
- Providing secretariat services to all governing bodies established under the Act
- Facilitating collaboration across government, communities, CSOs, and development partners

While NEMO was renamed NDRMO, core roles remained the same as the central coordinating body that operated the NEOC, was the primary point of contact, coordinated support to responders, coordinated impact assessments, and issued public information.

NDRMO serves as the national focal point for disaster information, early warning dissemination in support of TMS, anticipatory action, emergency assistance requests, and coordination and distribution of relief supplies.¹⁰⁵

At the sub-national level, Island DRM Committees and Village DRM Committees strengthen preparedness, response, recovery, and risk reduction at the community level. These committees report through the NDRMO to the NDRMC and provide a direct link between national decision-making and local implementation.

National Controller

The National Controller is the Director of the NDRMO, or another person appointed by the NDRMC. The National Controller has authority to activate the NEOC, determine response priorities in consultation with the NDRMC, and coordinate the allocation of available government resources during emergencies. HMAF, Tonga Police, and Tonga Fire and

Emergency Services (TFES) play critical operational roles through the NEOC Task Force and the NDOPSC but no longer hold the statutory role of Deputy National Controller under the framework instituted after 2021.¹⁰⁶

National Emergency Operations Centre (NEOC)

The NEOC, administered through the NDRMO, serves as the national coordination and command center for emergency operations. It may be activated when a disaster threat develops or a disaster occurs, and it operates under two levels of activation: standby mode and full activation. The Director of the NDRMO may activate standby mode, while full activation is undertaken by the Director in consultation with the NDRMC, or directly by the Director where urgent circumstances require immediate action.

During full activation, the Director automatically assumes the role of National Controller and oversees 24-hour operations supported by liaison officers and surge personnel from key ministries and agencies. The NEOC is responsible for coordinating disaster monitoring, response operations, relief activities, information management, situation reporting, and requests for assistance.¹⁰⁷ As of August 2026, there are plans to move the NEOC to Matatua, in the Tofoa area on the outskirts of the capital.

Additional Lead Agencies

Lead agency responsibilities are specified by the DRM Act.

- TFES leads responses to fires, explosions, gas leaks, and chemical, fuel, or oil spill incidents.
- The Ministry of Health leads responses to epidemics, plagues, and public health emergencies.
- HMAF and Tonga Police jointly lead responses to terrorist incidents.
- The NDRMO is the lead agency for cyclones, storms, storm surges, earthquakes, tsunamis, volcanic eruptions, and other disasters not otherwise assigned.¹⁰⁸

A state of emergency may be declared by the Prime Minister upon recommendation of the Minister responsible for natural hazards, jointly with the relevant lead agency for human-induced hazards, or jointly with the Minister of Health for public health emergencies. The DRM Act provides for declarations of a state of alert and a small-scale disaster. Unless ended earlier or renewed, declarations remain in force for up to 28 days. Upon declaration, the National Controller may activate the NEOC, mobilize resources, issue public directives, and coordinate response actions in accordance with the DRM Act.¹⁰⁹

Cluster System and Inter-Cluster Coordination Committee (ICCC)

Tonga endorsed the cluster system in 2015 to organize provision of relief aid in accordance with clusters – i.e., functional sectors. The establishment of clusters was further codified in the 2021 DRM Act, which specified at least 11 clusters.¹¹⁰ Each cluster is accountable to the NDRMC, submits an annual report, and prepares recommendations for the NDRMC based on issues under consideration. All clusters must have members, terms of reference, SOPs, and plans.

The Inter-Cluster Coordination Committee (ICCC) oversees and coordinates across the 11 national clusters. The ICCC aims to avoid duplication, ensure information flow across, align response planning, and strengthen accountability across all clusters. Through this approach, Tonga's cluster system supports coordinated planning and implementation of preparedness, response, and recovery activities across functional or thematic sectors. Key established thematic clusters include food security and livelihoods; health, nutrition, and WASH; emergency shelters and non-food items; coordination and logistics; reconstruction; essential services, and economic and social recovery. Figure 9 depicts all 11 clusters legally recognized by the DRM Act.¹¹¹ Each cluster lead is a Tongan government ministry or agency, supported by NGOs and the private sector.

INTER-CLUSTER COORDINATION COMMITTEE (ICCC)	
Coordinate across the 11 Humanitarian Clusters	
	EDUCATION — Ministry of Education
	ESSENTIAL SERVICES — Ministry of Public Enterprise
	EMERGENCY TELECOMMUNICATION (ETC) — MEIDECC
	COORDINATION AND LOGISTICS — NDRMO
	DISASTER DISPLACEMENT AND EVACUATION CENTRE MANAGEMENT — MEIDECC
	EMERGENCY SHELTERS AND NON-FOOD ITEMS — NDRMO
	HEALTH, NUTRITION, WATER, SANITATION AND HYGIENE — Ministry of Health
	FOOD SECURITY AND LIVELIHOODS — Ministry of Health
	SAFETY AND PROTECTION — Ministry of Internal Affairs
	ECONOMIC AND SOCIAL RECOVERY CLUSTER — Ministry of Finance and National Planning
	RECONSTRUCTION — Ministry of Infrastructure

Figure 9: Tonga’s Cluster System for National Coordination of Relief

Subnational and Local Implementation

At the subnational level, both Island and Village DRM Committees function to coordinate preparedness, response, and recovery. These committees connect with the NDRMO and broader national structures to ensure effective implementation on the ground. Island DRM Committees are tasked with developing and executing Village DRM Plans, which are shaped by the National DRM Policy. The DRM Act directs establishment of emergency management plans at the national, district (island), and village levels. These plans are treated as living documents, reviewed periodically to reflect evolving conditions.

Island Disaster Risk Management Committees

Island DRM Committees are established for each of Tonga’s main island groups, including Vava’u; Ha’apai; Niuatoputapu; Niuafo’ou; and ‘Eua. They coordinate preparedness, response, and recovery at the island level and draw operational funding from the Emergency Fund, especially during an emergency. They support activation of Island EOCs and oversee Village DRM Committees and plans. Island DRM Committees are accountable to the NDRMO. On or before 30 July each year, each Island DRM Committee provides to the NDRMC an annual

report on DM for its respective island.

The Tongatapu Island DRM Committee was created as part of the nationwide decentralization process for DRM. It helps shift decision-making to the community level on this main island. In the Tongatapu Island DRM Committee, there are representatives of the NDRMO (Chair), District Officers of Tongatapu, and any other member nominated by the Chair and approved by the Minister within MEIDECC.

Village Disaster Risk Management Committees

Village DRM Committees are implementing bodies at the community level and are linked to the Island DRM Committees. They relay information upward and help ensure that national DRM priorities are carried out at the grassroots level. By law, a Village DRM Committee is to be established in each village of the Kingdom to align work and objectives with the respective Island DRM Committees.

Village DRM Committees are responsible for supporting village communities to ensure effective DRM before, during, and after a disaster. Activities include developing and implementing Village DRM Plans and supporting community education and awareness, including through community drills. This initiative marks a transformative

shift in Tonga's approach to DRM by moving from a centralized system to one that is community driven and inclusive. By locating leadership, planning, and decision-making at the village level, the decentralization process ensures that preparedness and resilience are grounded in local knowledge, participation, and ownership. The roll-out is supported by the Pacific Community's (SPC) Building Safety and Resilience in the Pacific Programme and technical assistance from the United Nations Development Programme (UNDP).¹¹² Other donors and partners include Australia's Department of Foreign Affairs and Trade and New Zealand's Ministry of Foreign Affairs and Trade.¹¹³

Tonga Police

At the subnational level, Tonga Police assist with the initial emergency relief assessment process, provide back-up radio communications, provide representation to committees and working groups, maintain law and order during a disaster, and put available personnel on stand-by for emergency operations.¹¹⁴ Key roles include supporting establishment and operation of emergency operations centers (EOC), initial damage assessments, search and rescue, relief distribution, and overall logistics management. The Tonga Police also contribute to activities of the national Logistics and Coordination Cluster.¹¹⁵

Island Emergency Operations Centre

The main purpose of the Island EOC is to serve as the central location at the island level from which public officials and support staff manage response activities during an emergency or disaster. It functions similarly to the NEOC and provides a facility where overall direction, interagency coordination, resource management, information sharing, and task management can occur. Island EOCs are present on:

- 'Eua Island – TMS Office, 'Eua Kaufana Airport
- Ha'apai Island – Multi Hazard and Emergency Coordination Centre, Pangai
- Vava'u Island – Vava'u Emergency

Coordination Centre, Neiafu (at Tu'i and Tapueluelu Roads)¹¹⁶

Civil-Military Coordination in Disaster Response

HMAF comprise Land and Naval components and an Air Wing. Their declared mission is to defend the sovereignty of the Kingdom of Tonga. There are approximately 500-700 active military personnel.¹¹⁷

His Majesty's Armed Forces Act (2016) is the legal foundation for HMAF. In addition to functions and duties that His Majesty may determine, the law describes three functions of the military:

- Defense of the Kingdom
- Aid of the civil authorities in the maintenance of order in the Kingdom
- Support of the civil authorities

"Support of the civil authorities" relates to emergencies – e.g., natural hazard events, food shortages, epidemics, or transport incidents – during which the Defence Board, at the request of relevant civil authorities, may direct HMAF or a part thereof to provide support. His Majesty may also direct vehicles, vessels, aircraft, or equipment of HMAF to be used for public service.¹¹⁸ These provisions are interpreted as enabling HMAF to provide logistics, engineering, transport, and security support during national crises and to ensure effective integration with Tonga Police and other civilian agencies in coordinated emergency operations.¹¹⁹

The Tonga Navy is generally tasked with medical evacuations, search and rescue, disaster relief, and other humanitarian assistance missions. The Land Force may be called upon for regional disaster response operations, with the Support Unit also available to assist as needed.¹²⁰

Based on the DRM Act, in addition to the civilian leaders and members of key bodies, HMAF is represented by:

- The Chief of Staff of HMAF on the NDRMC and the NDOPSC

- The Deputy Chief of Staff of HMAF on the NEOC Task Force, which is responsible for operating the NEOC to monitor threats, support response operations, coordinate assistance, share information, etc.
- A senior officer of HMAF as Disaster Liaison Officer to the NEOC

Only in the case of a terror attack against the Kingdom is HMAF the Lead Agency for emergency response.¹²¹

HMAF leadership's presence on strategic committees ensures visibility of trends in capacity, policy, and planning. HMAF is an important member of the Logistics Cluster and supports transport of relief items to remote islands using their ferries and personnel.¹²²

HMAF's capabilities, roles, and responsibilities, as outlined in the NEMP, are:

- Provide high-frequency (HF) radio network as an alternative back-up resource
- Provide and maintain operations room facilities as an alternative NEOC
- Provide air support to initial impact assessment
- Support distribution of relief supplies
- Support search-and-rescue operations
- Provide representative to DRM committees at all levels

Meanwhile, the Ministry of Foreign Affairs provides the link between the national DM committees and the diplomatic corps in Tonga, coordinates the Kingdom's external relations, and liaises with overseas countries/agencies on aid issues, and provides a representative to the national committees.¹²³

HMAF regularly supports disaster responses within the country. HMAF played an active role alongside NDRMO (then NEMO) during the response to the 2022 HTHH eruption and tsunami. Troops cleared volcanic ash from the runway at Fua'amotu airport and restored other critical infrastructure, including roads and commercial premises. HMAF personnel also assisted with water distribution on Tongatapu. Offshore, Tonga's two Guardian-class patrol boats evacuated people from islands in the

outlying Ha'apai group, while the landing craft VOEA Late supported the delivery of both pre-positioned and newly arrived relief supplies to remote communities.¹²⁴ The vessel VOEA Ngahau Koula departed for Ha'apai the day after the eruption to reestablish contact with the affected islands and provide immediate situation overview on the ground, while VOEA Ngahau Siliva was already stationed in Vava'u. By 27 January 2022 (more than 10 days after the eruption), HMAF forces in Ha'apai had helped return the Ha'afeva Health Centre to operational status through clean-up efforts. Ngahau Koula and Late remained on standby for follow-on tasking.¹²⁵

Training and Exercises

HMAF regularly practices disaster-related operations with regional partners. Exercise Tafakula is a biennial, multinational military exercise hosted by HMAF; it draws participation by the French Army of New Caledonia and the NZDF, as well as U.S. personnel from the Marine Rotational Force – Darwin (Australia) and the Nevada National Guard. Tafakula activities include civic actions such as school clean-ups and medical training, and it allows HMAF to build greater proficiency in basic lifesaving and first aid techniques.¹²⁶

Every second year, ahead of cyclone season, HMAF joins fellow first responders – NDRMO, cluster representatives, and NGOs – in Exercise Longreach, jointly led by MEIDECC and the ADF.¹²⁷

This type of rehearsal and skills development ensures that HMAF is prepared when disasters strike. Among lessons learned are that civil-military preparedness, exercises, and disaster response planning involving HMAF and foreign military assets should consider the different needs, capacities, and protection risks of affected people, including women, children, older people, and people living with disabilities. Logistics-relevant considerations include accessible communication, safe and dignified evacuation and assistance, equitable access to relief, disability inclusion, safeguarding, and prevention of sexual exploitation and abuse, as

well as awareness of gender-based violence and child protection in emergencies. Military teams coordinating with civilian authorities, protection actors, and service providers, as well as having awareness of established protection referral pathways, help ensure the health and safety of disaster-affected populations.¹²⁸

Training and engagements also form a large part of HMAF's relationship with U.S. forces. The Nevada National Guard maintains a State Partnership Program with Tonga, and together they conduct training on a regular basis. The United States also holds a ship-rider agreement with Tonga, and it enables Tongan law enforcement officials to embark aboard U.S. Coast Guard vessels in support of security missions. In addition, the U.S. contributes Coast Guard and Navy air assets to regional Forum Fisheries Agency (FFA) operations that counter illegal, unreported, and unregulated fishing within Tonga's EEZ and promote the long-term sustainability of its fisheries. Tonga likewise participates regularly in U.S. Pacific Command-sponsored workshops covering humanitarian assistance and disaster relief, maritime security, peacekeeping, and international humanitarian law.¹²⁹

Pacific Response Group (PRG)

HMAF is part of the Pacific Response Group (PRG), which is a regional asset that brings together militaries from the Pacific to support the region's responses to humanitarian crises at the request of an affected state. PRG is an initiative of the South Pacific Defence Ministers Meeting (SPDMM), which endorsed it in 2024 to enable multi-national military deployments in support of a crisis-affected Pacific state. The initiative is Pacific-led, in support of PIF member-states, and in line with PIF strategies.

PRG forces train together through key engagements, including Regional Exercise Longreach and France's Exercise Croix du Sud. The PRG deployed for the first time for disaster response after the December 2024 earthquake in Vanuatu. The group maintains a 15-person standing force full-time in New Zealand.

In addition to Tonga's HMAF, other

participating militaries in PRG are the Australian Defence Force, French Armed Forces, New Zealand Defence Force, Papua New Guinea Defence Force, and Republic of Fiji Military Forces. A deployed element can take various forms, but the Forward Planning Team is specifically tailored to support military liaison, operational planning, and identification of military support tasks.¹³⁰

When an affected PIF state makes a request to the diplomatic mission of the PRG lead within the country, PRG pools Pacific resources and personnel to efficiently execute disaster response tasks as requested by the affected state. PRG supplements civilian-led disaster response options in a cooperative approach that strengthens regional security cooperation and collective action. PRG supports integrated planning among PIF member states by providing subject matter expertise to inform states of available capabilities. PRG deployments can be made upon short notice; the deployable headquarters element helps coordinate military contributions to a disaster response and supports assessments on the ground.¹³¹

International / Regional Organizations

Tonga's national DRM system is able to connect rapidly with international support when necessary. It sits within a wider network of global norms, Pacific regional institutions, humanitarian coordination arrangements, and technical support mechanisms. These external structures help shape Tonga's policy environment, provide operational support, reinforce technical capacity, and open channels for immediate assistance when national and subnational resources prove insufficient to execute a response.

Global and regional frameworks – e.g., the Sendai Framework for Disaster Risk Reduction 2015–2030 and the Sustainable Development Goals (SDG) – set out broad principles for disaster risk reduction and preparedness. Pacific regional institutions translate those principles into island-specific contexts and deliver technical and policy support, while

humanitarian coordination platforms connect Tonga to operational assistance during major emergencies. Tonga's approach to DM rests on its commitments under international agreements, which steer its national and subnational policies beyond immediate response toward comprehensive DRM.

Sendai Framework for Disaster Risk Reduction (2015-2030)

Every UN member state, including Tonga, is a signatory of the Sendai Framework, which aims to achieve a substantial reduction of disaster-related risk, loss of life, and negative health, economic, physical, social, and environmental impacts. To prevent new and reduce existing disaster risk, it outlines the following four priorities for action:

- Understanding disaster risk
- Strengthening disaster risk governance
- Investing in disaster risk reduction for resilience
- Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery¹³²

Sustainable Development Goals (SDG)

Tonga is focusing its work toward the SDGs on building climate resilience, reducing poverty, and expanding clean energy. As a SIDS, the country aligns the 2030 Global Agenda with its national development framework to protect its environment while improving economic stability.¹³³

An example of work toward the SDGs came in the aftermath of the 2022 HTHH event, when Tonga moved quickly to engage international partners in advancing recovery and resilience efforts. Drawing on World Bank support, the country upgraded ports, roads, and at least one airport to better withstand storm surges, flooding, and high winds. The Asian Development Bank (ADB) has likewise extended grant assistance for recovery from disasters and health emergencies, including the COVID-19 pandemic. Tonga's National Infrastructure Investment Plan III identifies 99 priority projects across a 15-year horizon at an estimated total cost of roughly T\$1.49

billion (US\$6.18 billion), of which water supply projects alone represent approximately T\$103.4 million (US\$42.9 million). As the country pursues large-scale infrastructure development, safeguarding the climate and disaster resilience of new investments remains essential to protecting long-term economic returns.¹³⁴

Regional Organizations

Pacific Islands Forum (PIF)

PIF is the preeminent political organization that allows PICTs – plus Australia and New Zealand – to share experiences and resources to address pressing issues and challenges and to foster collaboration and cooperation in the pursuit of shared goals. It comprises 18 members: Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Naoero, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. The Chair of PIF rotates among its members. In August 2024, as Chair, Tonga hosted the 53rd Forum Leaders Meeting, during which leaders discussed regional priorities including climate change, oceans, regional security, health, and education.

The Forum Leaders Meeting is held annually. Decisions made by Leaders are reached by consensus. In 2016, PIF endorsed the Framework for Resilient Development in the Pacific 2017–2030 (FRDP), which stands as the world's first such regional strategy that spans all sectors; it allows a broader range of people and interests to participate in and share ownership of and accountability for the resilience agenda. Within the Council of Regional Organisations of the Pacific (CROP), the PIF Secretariat and eight other regional entities work to advance the climate change and resilience priorities of PICTs.¹³⁵

The Pacific Community (SPC)

SPC is the principal scientific and technical organization supporting regional development. It works across wide-ranging sectors, including climate resilience, natural resources,

biodiversity, food systems, equity, education, social development, sustainable economies and livelihoods, planetary health, and transforming institutional effectiveness.¹³⁶ SPC's Polynesia Regional Office (PRO) in Tonga is the connector, coordinator, and facilitator that brokers and leverages opportunities to advance development needs and priorities of members. The creation of the PRO, in addition to the Micronesia Regional Office and Melanesia Regional Office, places SPC in a strategic position to deliver services that reach even the most remote Pacific communities. It acknowledges both the distances that separate some Polynesian members and the realities of SIDS that require tailored support to bring regional services closer to the people. The PRO serves SPC's 10 Polynesian Member Countries – American Samoa, Cook Islands, French Polynesia, Niue, Pitcairn, Samoa, Tokelau, Tonga, Tuvalu, and Wallis and Futuna.¹³⁷

Pacific Islands Emergency Management Alliance (PIEMA)

PIEMA aims to improve collaboration, strengthen communication, and increase effectiveness of emergency management agencies across 14 PICTs, including Tonga. Supported by the New Zealand and Australian governments, the Alliance is at the forefront of emergency and disaster management training regionally. Established in 2013, PIEMA serves as a coordinating mechanism that works directly with Pacific countries to strengthen resilience and build excellence in emergency management for safer Pacific communities. It constitutes a partnership among the national disaster management offices, police, armed forces (where these exist in the region), and fire and emergency services.¹³⁸

Framework for Resilient Development in the Pacific (FRDP)

The FRDP was endorsed by PIF leaders in 2016 and provides an integrated strategy for climate action and DRM. PIF members, including Tonga, use the FRDP to coordinate their efforts. The voluntary guidelines promote

a whole-of-society approach, bringing together governments, the private sector, and civil society to build resilience across all sectors.¹³⁹ FRDP goals are:

- Strengthened integrated adaptation and risk reduction to enhance resilience to climate change and disasters
- Low-carbon development
- Strengthened disaster preparedness, response, and recovery¹⁴⁰

These goals are well-aligned with Tonga's whole-of-society, proactive approach to DRM.

United Nations

The UN has maintained a presence in Tonga since 2011. The Tonga Country Implementation Plan 2025–2027 sets out the UN's strategic engagement to help Tonga achieve the 2030 Agenda for Sustainable Development through the SDGs. Coordinated by the Resident Coordinator, UN entities work with government counterparts, the diplomatic community, and civil society to shape a sustainable and resilient future for the country. The Tonga Strategic Development Framework provides a blueprint for strengthening coordination and aligning UN support with national priorities.¹⁴¹

An example of the coordinated work UN entities can deliver is the Joint Programme on Accelerating Progress Towards Rural Women's Economic Empowerment. Carried out jointly by the Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD), the UN Entity for Gender Equality and the Empowerment of Women (UN Women), and the World Food Programme (WFP), this project assists rural women in raising household income through climate-smart agricultural practices while improving food security and broadening market access. The program's effects extend beyond economic outcomes, as participating women assume larger leadership roles within their communities, reinforcing local decision-making processes and strengthening resilience against climate-related shocks.¹⁴²

International Organization for Migration (IOM)

IOM is the lead organization in the UN system dedicated to promoting humane and orderly migration. It is a key operational partner to Tonga across issues of shelter, logistics, and management of pre-positioned relief supplies. It also contributed to Tonga's Migration and Sustainable Development Policy.¹⁴³ IOM supported Tonga's implementation of the Migration Information and Data Analysis System (MIDAS) as its new border management information system to improve border security and administrative efficiency and increase the ability to detect and prevent human trafficking, migrant smuggling, and other security risks.¹⁴⁴ IOM also supports government plans to introduce e-Visa, e-Health and e-Passport systems.¹⁴⁵

United Nations Children's Fund (UNICEF)

UNICEF has maintained a presence in Tonga since the late 1970s. Its work in the country spans emergency response in addition to supporting programs that strengthen health, education, social protection, and disaster resilience systems. Working alongside national authorities and communities, UNICEF concentrates on expanding access to health care, education, and safe drinking water while reinforcing child protection through cash transfer mechanisms.

In the aftermath of the HTHH event, UNICEF established child-friendly spaces offering children a secure environment for play and activated 80 previously trained church volunteers to deliver psychological first aid and psychosocial support to children and families affected by the disaster. Roughly 10,000 children and caregivers received psychosocial support interventions during the first year following the disaster. UNICEF subsequently worked with the government to administer a humanitarian cash transfer program reaching 3,200 households, prioritizing those with children and children living with disabilities. The initiative reinforced Tonga's social protection system and its capacity to absorb future shocks and has since served as a model

for social protection systems elsewhere in the disaster-prone Pacific.¹⁴⁶

Food and Agriculture Organization of the United Nations (FAO)

The FAO launched the inception workshop for its flagship Hand-in-Hand (HiH) Initiative in Nuku'alofa in April 2026. It marks a significant step in Tonga's effort to transform its agrifood system. The HiH Initiative is a country-led FAO approach intended to accelerate progress toward eliminating hunger and poverty by aligning national priorities with targeted investment, advanced analytics, and strong partnerships.¹⁴⁷

World Food Programme (WFP)

WFP plays a central role in enhancing emergency preparedness and response regionally, with a focus on providing food assistance. It provides technical assistance, information management, and coordination support before and during emergencies. It also leads cash coordination and readiness efforts to ensure people-centered solutions are in place ahead of disasters. Through the WFP-led Pacific Logistics Cluster, WFP supports governments and partners in strengthening emergency logistics preparedness and responding effectively to crises. Due to its expertise in humanitarian logistics, WFP has often interacted with militaries supporting logistical aspects of a large-scale disaster response.

UN Women

UN Women supports gender-responsive and inclusive disaster preparedness, resilience, and humanitarian action throughout the Pacific and provides leadership to the regional Pacific Humanitarian Protection Cluster (PHPC). Through the PHPC, UN Women works with governments, UN agencies, CSOs, and humanitarian partners to strengthen nationally led protection coordination and the integration of gender, protection, and inclusion across humanitarian preparedness and response. In Tonga, UN Women provides technical support to the Ministry of Internal Affairs and the national Safety & Protection Cluster

to strengthen coordination systems, Standard Operating Procedures, terms of reference, and capacity for gender-responsive and inclusive humanitarian action. UN Women also supports gender-responsive disaster risk reduction, inclusive early warning, and climate resilience, including women's participation in national preparedness and planning. Tonga falls under UN Women's Fiji Multi-Country Office (MCO), which covers 14 PICTs.¹⁴⁸

United Nations Office for the Coordination of Humanitarian Affairs (OCHA)

OCHA, through public and private advocacy, raises awareness of humanitarian crises and the needs of affected people. It advocates for the protection of civilians and amplifies the voices of crisis-affected people and provides greater access to humanitarian assistance for people who need it.¹⁴⁹ Tonga is among 14 PICTs covered by OCHA's Office of the Pacific, which is based in Suva, Fiji. When Tonga receives international assistance following a disaster, OCHA plays a key role in coordination among UN entities and supporting inter-cluster coordination.¹⁵⁰

World Health Organization (WHO)

The WHO provides technical support for public health emergencies and disease surveillance. WHO provided technical and operational support for the Ministry of Health's establishment of the Tonga Emergency Medical Assistance Team (TEMAT) in 2018.¹⁵¹ The Pacific Islands–WHO Multi-country Cooperation Strategy 2024–2029, developed by WHO through a consultative process involving 21 PICTs, outlines WHO's comprehensive and tailored medium-term support plan in the Pacific.¹⁵² Tonga's strategic priorities in the Cooperation Strategy focus on integrating health services toward a goal of universal health care, reducing non-communicable diseases, bolstering systems capacity, and building resilience to climate-related health risks, disease outbreaks, and other key health threats.¹⁵³

Pacific Humanitarian Team (PHT)

OCHA's Regional Office for the Pacific Islands established the PHT in 2008 as a network of humanitarian organizations working collectively to support disaster preparedness and response across 14 PICTs, including Tonga. When disasters occur, the PHT assists Pacific governments, NGOs, and communities in mounting rapid, effective, and appropriate responses. In periods between emergencies, it works with governments and partners to ensure that the arrangements and systems required to enable international support for nationally led disaster response remain in place. Membership consists of representatives from UN agencies, NGOs, and the International Red Cross and Red Crescent Movement through the IFRC, and these organizations form the core of the team. The PHT operates through a cluster structure, with OCHA serving as its secretariat and coordinating the meetings and activities of the regional coordinators drawn from each of the 10 cluster support teams.¹⁵⁴

Other Disaster Management Partners

Civil society plays an important role in Tonga to support social and economic wellbeing and development, including all phases of DM. Tonga relies on a broad network of partners to supplement national and state capacity. In addition to UN entities and regional humanitarian mechanisms, there are local CSOs and faith-based organizations embedded in national coordination structures to support preparedness, assessments, logistics, and response operations. For a foreign responder, these partners operate within a nationally led and state-implemented system, not as parallel authorities. CSOs are essential DM partners because they provide local access, trusted community relationships, and deliver what government agencies and international organizations may struggle to maintain across a dispersed island geography.

Tonga Red Cross Society (TRCS)

TRCS received formal government

recognition on 31 October 1972 with the passage of the Tonga Red Cross Act, and in 1981, it was admitted as a part of the International Red Cross and Red Crescent Movement. The National Society works to prevent and alleviate human suffering in Tonga through DM, support for people living with disabilities, health promotion, and the advancement of humanitarian law and values.

Operating from headquarters in Tongatapu and drawing on a network of volunteers, TRCS delivers services throughout the Kingdom and maintains officers in branches in Vava'u, Ha'apai, and 'Eua. The National Society comprises three local units, 14 staff, and 49 volunteers. Annually, it reaches more than 1,000 people through long-term services and development programming and participates in disaster response and early recovery activities.¹⁵⁵

CARE

CARE has operated in Tonga since 2017. It assists communities in preparing for natural disasters and adapting to the intensifying effects of climate change. The organization works through local partners to deliver emergency assistance and support family recovery in the aftermath of disasters. After the HTHH event, CARE and its partners distributed shelter materials, clean water, and dignity kits for women and girls, and it prepositioned emergency supplies to enable faster community-level response to future disasters.¹⁵⁶

Caritas

Caritas Tonga's work began in 1972, when it was established as the Catholic Commission for Justice and Development under the Episcopal Conference of the Pacific. It serves as the justice, peace, and development agency of the Catholic Diocese of Tonga and Niue. Through campaigns addressing disaster awareness and climate change, the organization raises public understanding of the environmental threats confronting Tonga. Its main office in Nuku'alofa employs approximately 10 staff and draws on 30 volunteers to carry out program activities.¹⁵⁷

Live & Learn Tonga

Live & Learn Tonga helps communities in prepare for, respond to, and recover from disasters through risk assessments, EWS, and emergency planning. The organization advances shelter resilience by providing education and support for the design and construction of safe, climate-resilient, and culturally appropriate housing that protects families and facilitates recovery. It also helps communities adapt to a changing climate through education, infrastructure investment, and sustainable practices that reduce vulnerability and strengthen long-term resilience.¹⁵⁸

Civil Society Forum of Tonga (CSFT)

CSFT is an integral coordination body of the country's CSOs and NGOs. It has the mandate to coordinate disaster preparedness and response in Tonga among these organizations.¹⁵⁹ CSFT's mission is to strengthen the capacity, coordination, and voice of CSOs through advocacy, capacity building, information sharing, and partnership development. Its strategic priorities are:

1. Institutional Strengthening – Building the capacity and sustainability of CSFT and its members
2. Good Governance – Promoting transparency, accountability, and best practices
3. Strengthen CSO Voice – Amplifying civil society advocacy and representation
4. Partnership and Cooperation – Building strong networks across the Pacific and beyond

Established in 2008, CSFT has at least 47 registered CSOs and is itself a member of the Pacific Islands Association of Non-Governmental Organizations (PIANGO).¹⁶⁰

Other CSOs and NGOs actively partnering to support DRM in Tonga include:

- Habitat for Humanity Tonga
- Tongan Women's Helping Hands
- Talitha Project
- The Tonga National Council of Churches
- Friends of Tonga

- The Pacific Disability Forum
- Tonga National Disability Council
- Lavame‘a Ta‘e‘iloa Disabled People’s Association
- Naunau ‘o e ‘Alamaite Tonga Association
- Tonga National Youth Congress
- Women & Children Crisis Centre Tonga
- Ola Fou
- Save the Children, Tonga
- Mainstreaming of Rural Development Innovations (MORDI) Tonga
- Oxfam in the Pacific
- World Vision Pacific

Case Study: Hunga Tonga–Hunga Ha‘apai Volcano

An assessment of the immediate response to the 15 January 2022 HTHH underwater volcanic explosion and tsunami underscores the importance of regular bilateral and multilateral training and exercises among regional military forces, exchanges of expertise between HMAF and the militaries of Tonga’s regional neighbors, and training that ensures that HMAF and foreign forces maintain facility with a variety of communications platforms; all of this work allows them to plan and conduct logistically challenging responses in support of their own civilian lead agencies.

Introduction

The work of coordinating the contributions to a disaster response of domestic and foreign military assets alongside civilian responders emphasizes planning, task allocation, and information sharing. The objective is to avoid duplication of effort and sequence international relief deliveries so as not to overwhelm the affected state but, rather, to support the government of the affected state and humanitarians in meeting the needs of the affected population at the right time. Especially in a small-island state like Tonga, there is significant potential for an influx of international civilian and military responders, logistics platforms, and supplies to lead to congestion at transport hubs, increase the cost of key relief and recovery items, generate waste

(both financial and material), and place too many demands on the time and capacity of local and national officials overseeing the response.

To mitigate these risks, civil-military coordination and military-military coordination in the pre-disaster phase and during the immediate emergency response can include, among others:

- Exchanges of best practices and lessons learned
- Shared planning and exercising of plans
- Identification and maintenance of available equipment and supplies
- Practice utilizing the communications platforms available for disaster responders
- Allocation of tasks based on capabilities, capacities, and availability of resources

This mini case study examines how civil-military and military-military coordination during the international response to the HTHH event contributed to relief for affected Tongans. It not only elaborates HMAF’s role and actions but also those of foreign military assets that responded in the first weeks after the event. To conclude, this study will posit potential shifts in civil-military coordination during disaster response once the Pacific Response Group (PRG) matures and provides HMAF a dedicated, formal mechanism for military-military and civil-military coordination.

Method

This study uses desk research to build on available communications from the first days of the response and post-disaster reflections from and interviews of key players. Analysis considers how findings from these sources compare or contrast with previous best practice, doctrine, and planning. This assessment then feeds recommendations for future consideration. It should be noted that this assessment focuses only on civil-military and military-military coordination during the immediate emergency phase of the response; civilian-civilian coordination and longer-term recovery coordination, especially involving HMAF are outside the scope of this discussion.

Study

The foundations of civil-military coordination in DM in Tonga lie in several key laws and policies, as well as in HMAF's experience gained during previous responses and from participation in international missions – e.g., peacekeeping and exercises. On domestic responses, HMAF works closely with local and national civilian agencies and police to:

- Deliver relief supplies
- Conduct search and rescue
- Support evacuations

During major responses that involve international civil-military coordination – e.g., TC Gita (2018) – Tonga's government and HMAF commonly coordinate with the ADF and NZDF, as well as other international forces, who provide airlift, transport, and logistical and engineering support.

Finally, HMAF participates in regional mechanisms that may see it respond to disasters elsewhere in the region.

HMAF leads defense coordination with foreign militaries, including during disaster responses. Once the Kingdom's government accepts bilateral assistance that involves foreign military assets, requests for assistance routed to those foreign contingents are integrated through the NEOC and civilian (Tongan and assisting state) leadership, with HMAF acting as the primary liaison with foreign militaries. The NEOC may establish a Civil-Military Coordination Cell with or without the assistance of UN or other international experts, but it may coordinate the response without this cell. The most common issues upon which HMAF and foreign militaries collaborate are:

- Logistics
- Distribution of relief supplies or equipment
- Engineering
- Communications

Ideally, HMAF liaison officers embed with each foreign military force if those forces are operating within Tonga's territory.¹⁶¹

Policy

Based on the legal and policy framework in effect at the time of the HTHH event, HMAF is integrated into the strategic and operational aspects of DM, and its forces are available and trained as first responders. There are several multinational regional arrangements or agreements that facilitate international disaster assistance, but the aspects related to military involvement are commonly secondary to larger civilian and international humanitarian aspects.

At the strategic level, the HMAF leadership are integrated into policy and oversight committees and task forces. The Chief of Staff of HMAF sits on the NDRMC, which coordinates all government ministries and their resources during an emergency, although the NDRMO (formerly NEMO) conducts operational coordination of all responders. The Deputy Chief of Staff of HMAF is part of the NEOC Task Force, which supports the National Controller within the NEOC.¹⁶² While NEMO was renamed NDRMO by the 2021 DRM Act, its core role remained as the central coordinating body that operated the NEOC, coordinated support to responders, coordinated and impact assessments, and issued public information.

HMAF's roles and responsibilities nationally in the HTFF response are based on the DRM Act (2021), NEMP (2020), and HMAF Act (2016), all of which are described as key laws, policies, and frameworks starting on page 24.

The Tongan government's HTHH response was also shaped by the Strategic Road for Emergency and Disaster Risk Management for 2021-2023, which was in effect at the time of the disaster. How HMAF coordinated with assisting foreign militaries during the response was also influenced by the FRANZ Arrangement.

Strategic Roadmap for Emergency and Disaster Risk Management

In effect at the time of the disaster, Tonga's Strategic Roadmap for Emergency and Disaster Risk Management (SRE DRM) for 2021-2023 laid out the path for a shift to more holistic DM – including disaster risk reduction (DRR) and DRM – among the country's DM institutions

and to ensure that the country's responders met the obligations laid out in the 2021 DRM Act. These obligations included developing the DRM Policy Framework to guide and regulate all DM work in the Kingdom by the end of 2022. Thus, the DRM Policy Framework emerged after the HTHH event and marked an incremental adjustment from the SRE DRM (in effect during the event).

Under the SRE DRM, national, district, and village DM councils had responsibility and authority to plan for and implement DM activities. Under the subsequent DRM Policy Framework, this authority did not change in terms of duties during an emergency but, rather, responsibilities were added for DRR – i.e., preparedness and resilient recovery. Under the SRE DRM, NEMO (now the NDRMO) within MEIDECC coordinated work by government actors, including the Tonga Police, TFES, and HMAF, as well as by the TRCS, volunteers, humanitarians, faith-based groups, and utility corporations. The National Cluster system of coordination under NEMO was used for the first time in 2018, but under the 2021 law, somewhat modified responsibilities for sector management were coming into effect.

Under both the SRE DRM and the subsequent DRM Policy Framework, first responder agencies – police, fire and emergency services, and HMAF – operated on the legal foundations laid out in their respective laws – e.g., His Majesty's Armed Forces Act (2016). Standard operational procedures (SOP) for communication and coordination between NEMO and HMAF were and are in effect, with HMAF representation on NDRMC sub-committees.¹⁶³

FRANZ Arrangement

An agreement among France, Australia, and New Zealand, the FRANZ Arrangement dates to 1992. It is a civilian-led arrangement for coordinated disaster reconnaissance and relief assistance within the Pacific when such relief is requested by a partner country. The partner countries are Cook Islands, Fiji, Kiribati, Naoero, Niue, Papua New Guinea, Samoa,

Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu.

The defense forces of each signatory support the civilian leadership during action.¹⁶⁴ During a disaster response, the three signatories' embassies and foreign ministries coordinate amongst themselves and with the affected country, and they individually mobilize their military assets as needed to support the civilian response. The militaries then coordinate amongst themselves and with the affected country. Maintaining capacity for military coordination is a task undertaken by annual military exercises among the signatories.¹⁶⁵ Photo 1 shows U.S. Marines joining the 2025 iteration of Exercise Croix du Sud, held every other year in France's Pacific territories, where multinational military forces, especially the FRANZ signatories, rehearse responding to disasters and other crises to enhance partnerships and interoperability in Oceania.¹⁶⁶

Even before the HTHH event, FRANZ had mobilized to deliver assistance to Tonga.

- 2009 Tsunami – French military aircraft and naval vessels delivered personnel, medical supplies, and other equipment to Tonga; the supplies and personnel came from all three FRANZ signatories
- 2014 TC Ian – New Zealand sent relief supplies to Tongatapu on a C-130; Australia released pre-positioned supplies held by the TRCS; relief supplies were broken down into light units and loaded onto a French



Photo 1: Mass Casualty Drill During Exercise Croix du Sud (2025)

aircraft to be flown to Ha‘apai; supplies were also transported by two Tongan Navy patrol boats, funded by the ADF¹⁶⁷

- 2020 TC Harold – Supplies, shelter kits, equipment, damage assessment support, and funding delivered by all three signatories¹⁶⁸

The HTHH Event

Based on a warning from the TMS, the NEOC activated on 14 January 2022. Evacuations were ordered on 15 January, and people from many communities clustered in evacuation centers, mostly churches and community halls. First responders – Tonga Police, TFES, and HMAF – sent representatives to the NEOC to support NEMO and participate in planning and information sharing.¹⁶⁹

Within the context of the COVID-19 pandemic, Tonga remained without any local transmission of the virus up to the HTHH event. In fact, the Kingdom entered its first ever COVID lockdown on 3 February 2022 after two cases of the illness were confirmed at Nuku‘alofa port, where HTHH-related relief supplies were being delivered.¹⁷⁰ Thus, through the first two weeks of the response, the NEOC could operate based on in-person SOPs, and there was little concern about transmission of the virus within evacuation centers. Face-to-face coordination among domestic responders was possible even as they also used what communications platforms remained amidst damage caused by the tsunami, pressure blast, and ashfall.

Communications Aspects

The undersea telecommunications cable linking Tonga with Fiji and another linking the islands to each other were severed in the eruption and pressure blast.¹⁷¹ Immediate disruptions challenged affected communities’ ability to reach out for assistance, authorities’ ability to notify affected communities of available assistance, and responders’ ability to coordinate.

Immediately after the eruption and tsunami, the ADB office in Nuku‘alofa retained the single operational very small aperture satellite

(VSAT) terminal in the country.¹⁷² The global Emergency Telecommunications Cluster (ETC) began to mobilize global assets and experts to attempt to support remotely while also moving equipment into Tonga. Additional, undamaged equipment sourced from within the country proved invaluable to responders. Figure 10 shows a timeline of communications milestones during the first 25 days of the response, during which international military forces formed the backbone of the support to the Kingdom’s responders.¹⁷³

The first TEMAT to deploy to Ha‘apai carried a satellite telephone borrowed from the World Bank’s office in the country. They used that satellite telephone to report damage and needs that informed the composition of the second TEMAT team, dispatched two days after the first. This single device was TEMAT’s only means of communication from islands in the Ha‘apai group to the Ministry of Health during the emergency phase of the response.

The ETC and partners Télécops Sans Frontières (TSF) and the University of the South Pacific (USP) worked to stage equipment in Brisbane, Australia, for delivery by the Royal Australian Air Force (RAAF). Some of the first shipments sourced pre-configured equipment from neighboring Fiji.

From mid-February, additional satellite phones and VSAT terminals came online for use by NEMO, other government ministries, and additional responders. Seven “Chatty Beetles,” two-way satellite messaging devices, were sent by the U.S. Agency for International Development and arrived for use by TMS to re-establish early warning capabilities on outer islands.¹⁷⁴ High-speed VSAT did not come online until mid-March, when two high-capacity kits sent by the Government of Luxembourg, were airlifted by ADF from Brisbane and installed to deliver outer-island connectivity.¹⁷⁵ This slow arrival of additional communications capability meant that the Australian and New Zealand naval ship presence was required for longer because they served as communications platforms in addition to delivering water and supplies. As communications connections

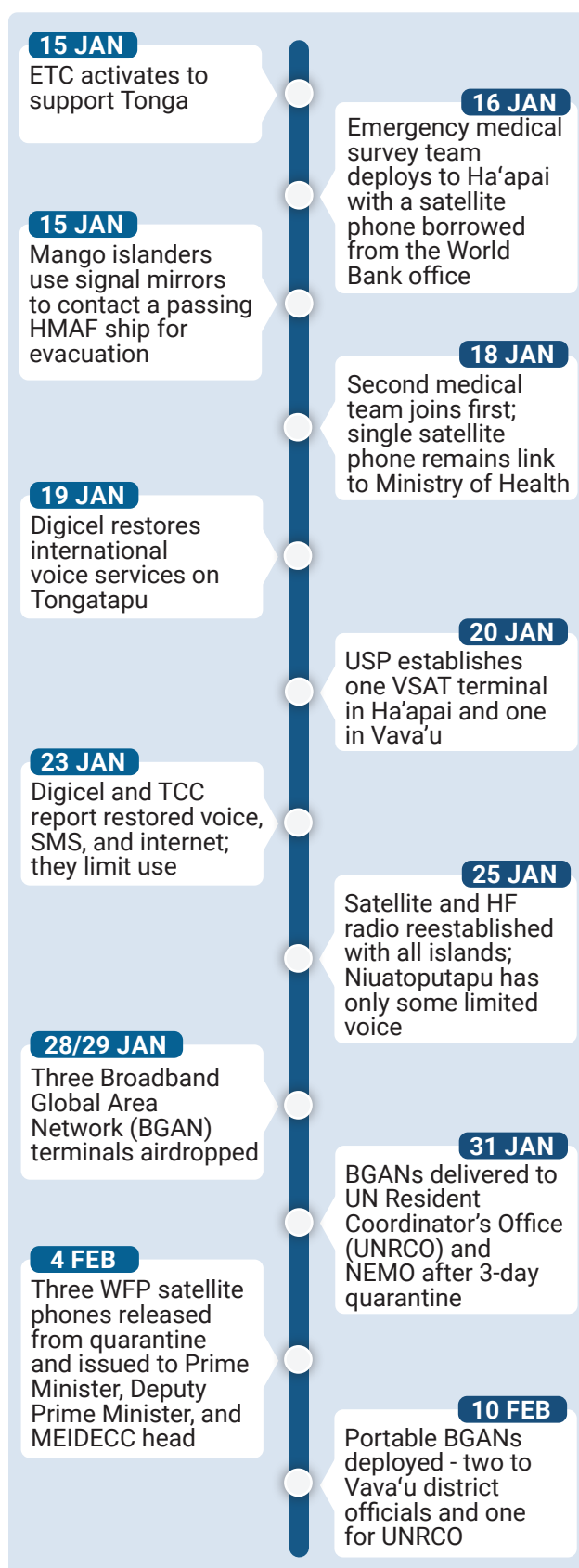


Figure 10: Communications Timeline – Hunga Tonga-Hunga Ha’apai (HTHH) Event

returned, these final military partners could transition tasks to civilian counterparts.

Domestic Coordination Tasks

During the response, NEMO used the NEOC for coordination of all operations, and all national-level stakeholders collaborated on security, logistics, evacuations, damage assessments, and relief distribution.¹⁷⁶

HMAF were key providers of logistics support to and from outer islands¹⁷⁷ as they deployed naval vessels and personnel to:

- Ha’apai and ‘Eua for rapid assessments, evacuations, and relief distribution¹⁷⁸
- Ha’apai for support to clean-up Ha’afeva Health Centre¹⁷⁹
- Tongatapu for ash clearing at Fua’amotu airport

HMAF also provided liaison with incoming foreign military assets once they began arriving.¹⁸⁰

Due to the country’s COVID-19 restrictions, most international civilians and humanitarians had left Tonga earlier in the pandemic period. The PHT noted that not having staff in the country when the eruption and tsunami struck meant that many agencies, including UN OCHA, were unable to swiftly undertake their mandated roles.¹⁸¹ In various NEMO situation reports (SITREPS), Tongan authorities noted efforts by UN agencies and other international organizations to remotely contribute, mostly through providing advice or mobilizing international assistance that was then delivered by air or sea as available transport platforms were available.

During the first week of the response, before international deliveries of relief supplies commenced, HMAF, along with other first responders, supported work in the Logistics and Coordination Cluster through work to clear ash and debris from critical infrastructure – roads, airports, utilities facilities, etc.¹⁸² Figure 11 shows a timeline of actions taken by domestic responders during the first week.¹⁸³

The Ministry of Foreign Affairs formalized acceptance and receipt of bilateral assistance.¹⁸⁴

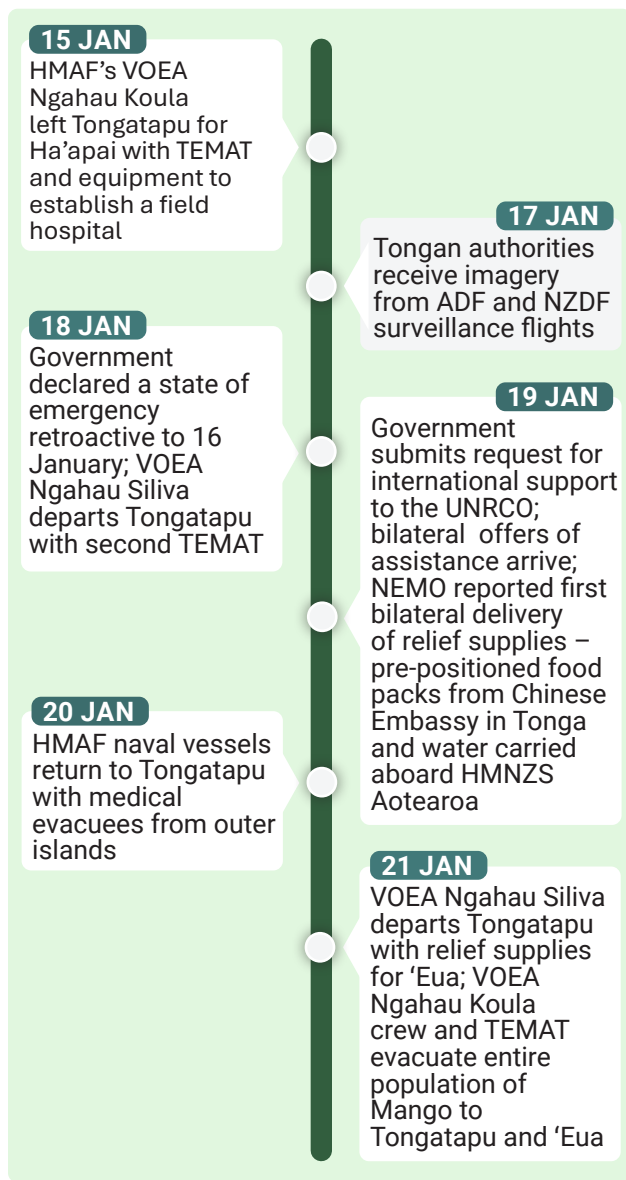


Figure 11: Timeline of Domestic Military Involvement in HTHH Response

Immediate commitments of financial assistance for emergency response activities came from the U.S. (US\$100,000),¹⁸⁵ Australia (US\$700,500), Japan (US\$1 million), and the People's Republic of China (PRC; US\$100,000), in addition to the extension of funding by the World Bank and ADB.¹⁸⁶ The country's bilateral partners increased funding within a week due to assessments revealing the extent of the damage.

In addition to official bilateral arrangements, the TRCS and CSOs mobilized. TRCS had begun distributing pre-positioned relief supplies on 16 January, but the declaration of a state of emergency allowed it to seek international

assistance from the International Red Cross and Red Crescent Movement via the IFRC.¹⁸⁷

International Assistance

NEMO's daily SITREPS began noting the delivery of foreign assistance (supplies and equipment) with SITREP #7 (19 January); it reported that the Chinese Embassy handed over food packs that had been pre-positioned in-country. Meanwhile, as of that SITREP, HMNZS Aotearoa was at the port in Nuku'alofa and prepared to deliver water. From 20 January, the SITREPS noted additional relief items arriving on dedicated military flights and naval vessels. Photo 2 shows imagery of USS Sampson and HMNZS Aotearoa during a replenishment at sea as both vessels supported the multinational HTHH response.¹⁸⁸

Figure 12 provides a breakdown of international military platforms and their tasking during days 5-13 after the eruption and tsunami; this week saw almost entirely military platforms delivering relief supplies and equipment and providing aerial surveillance to contribute to the Kingdom's damage assessment process.¹⁸⁹

From the arrival of the first military ships and aircraft from foreign partners, the Tongan government, represented by NEMO, scheduled, approved, and received deliveries of relief supplies and equipment.¹⁹⁰ Tonga's strict COVID-19 protocols included a 21-day quarantine for any people arriving in Tonga,¹⁹¹ thus, military aircraft and naval vessels offloaded cargo without contact with local



Photo 2: USS Sampson and HMNZS Aotearoa during HTHH Response

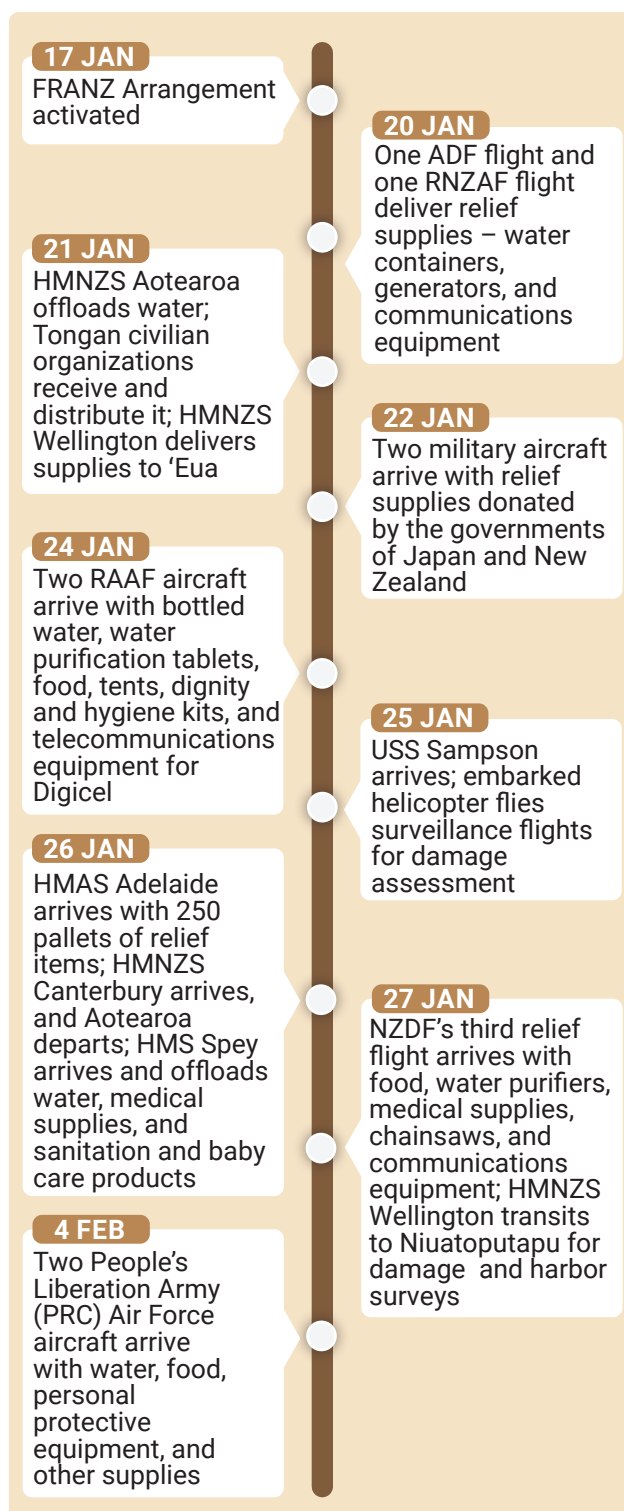


Figure 12: Timeline of Foreign Military Asset Support to HTHH Response

Tongan personnel, and then the supplies were quarantined for 72 hours before government and volunteer personnel managed their onward distribution.¹⁹² TRCS, Tonga National Youth Congress, and MORDI Tonga were common distributors of water and relief supplies after they cleared quarantine.¹⁹³

Due to the effective prohibition (21-day quarantine) of foreign disaster responders entering the country, coordination among external stakeholders mostly took place outside the country. Given the limitations of communications within the country after the damage to the subsea communications cable, arrangements between the international community and Tongan stakeholders relied on very few operational platforms – HF radio, satellite phones, VSAT – that either remained operational or were delivered in the first days of the response. Commonly, military communications capabilities were critical to information sharing with ADF and NZDF maritime assets relaying messages from Tonga to the world.

As the largest and nearest of Tonga's key partners, Australia and New Zealand were early to coordinate their relief efforts to ensure they were complementary.¹⁹⁴ In addition, on 17 January, the FRANZ Arrangement was activated after Tonga requested it, and France announced it would coordinate assistance with Australia and New Zealand through the tri-partite arrangement.¹⁹⁵

- The main hub for military-military coordination among foreign military responders was the ADF's Headquarters Joint Operations Command (HQJOC), which conducted Operation Tonga Assist in support of the Australian Government's HTHH response, led by the Department of Foreign Affairs and Trade (DFAT)
- HQJOC, just outside Canberra, established a dedicated Humanitarian and Disaster Relief (HADR) International Coordination Cell
- Personnel from the militaries of Australia, Fiji, France, Japan, New Zealand, Tonga, the United Kingdom, and the U.S. integrated into the Cell

- To ensure that the air and naval platforms of the participating forces did not overwhelm Tonga's ports and airports, the HADR Cell focused on schedules, acquisition and delivery of specialized equipment and supplies, and planning for recovery work¹⁹⁶
- Complementing other information streams, HQJOC was able to receive footage from RAAF, NZDF, and U.S. Navy flights and to integrate all of the various surveillance feeds¹⁹⁷ for onward sharing with NEMO
- At the Tongan government's request, HMAS Canberra became a mobile distribution node for supplies transiting to the Ha'apai group
- HMAS Supply, an auxiliary oiler, and the Japan Maritime Self-Defense Force (JMSDF) Ship Osumi made supply runs between Tonga and Australia (Adelaide and Canberra)¹⁹⁹
- Japan Air Self-Defense Force (JASDF) aircraft used RAAF Base Amberley, Australia's largest operational airbase, southwest of Brisbane, as its base for loading and delivering relief supplies to Tonga²⁰⁰
- HMNZS Aotearoa conducted multiple resupply-at-sea operations for ships from Australia, France, the United Kingdom, and the U.S.²⁰¹

Photo 3 shows Tongan telecommunications technicians about to board an Australian Army CH-47F Chinook helicopter on Tonga's Kao Island after repairing a critical radio communications tower.¹⁹⁸

Beyond the presence of representatives and liaisons at HQJOC's HADR Cell:

- Troops from the Republic of Fiji Military Forces (RFMF) and French Armed Forces of New Caledonia (FANC) joined ADF troops aboard HMAS Canberra

Based on NEMO's 3 February SITREP and OCHA's 10 February Internationally Deployed Assets update, military-assisted relief delivery came from the countries detailed in Table 1.²⁰²

Civilian logistics capacity came online during



Photo 3: Tongan Telecommunications Technicians Go to Board an Australian Army Helicopter

Government	Description
Australia	Reconnaissance and humanitarian relief cargo: • 13 flights (12 supply, 1 surveillance) • HMAS Adelaide
Fiji	Humanitarian relief cargo – 1 vessel (Lomaiviti Princess 1)
France	Reconnaissance and humanitarian relief cargo: • 3 flights (2 supply, 1 reconnaissance) • 2 vessels: FS Arago and La Glorieuse
People's Republic of China	Food packs handed over by Embassy. Humanitarian relief cargo: • 2 flights • 2 vessels
Japan	Humanitarian relief cargo: • 5 flights • MSDF Ohsumi w/embarked helicopters
New Zealand	Reconnaissance and humanitarian relief cargo: • 6 flights (5 supply, 1 imagery) • HMNZS Aotearoa; HMNZS Wellington and Canterbury, both w/embarked helicopters
United Kingdom	Humanitarian relief cargo – HMS Spey (in addition to supplies aboard HMAS Adelaide)
United States	Logistics and reconnaissance support: • USS Sampson w/embarked helicopters • USCG Stratton

Table 1: Bilateral Government Disaster Relief Contributions after HTHH Event (2022)

February and served as the signal for military actors to transition response tasks to local, regional, and international civilians.²⁰³

Each military force ended its participation in the response as civilian response capabilities came online and as their respective civilian government lead agencies phased out the need to request the assistance of military assets for tasks. On 10 February, FRANZ held its final meeting regarding the immediate emergency relief phase.²⁰⁴

ADF support (Operation Tonga Assist) to DFAT's mission in Tonga continued well after many other military forces had ceased their support. ADF not only conducted reconnaissance flights to provide updated information to the Tonga Government²⁰⁵ but also airlifted personnel and equipment to remote and damaged islands.²⁰⁶

- One hundred troops from the ADF and RFMF worked with town offices on outer islands where they cleared debris, remediated beaches, and ensured buildings were safe.²⁰⁷
- HMAS Canberra relieved HMAS Adelaide on 1 March, as the ADF continued to support DFAT into the recovery period.²⁰⁸

- ADF's support to DFAT's relief mission ended on 16 March.²⁰⁹

By early March, the WFP was able to operate the Pacific Humanitarian Air Service (PHAS) to deliver 3.2 metric tons (3.5 tons) of relief supplies and equipment from various international NGOs and other UN partners.²¹⁰ Relief and recovery work continued for many months. In fact, the ETC mission to re-connect the Kingdom to the global telecommunications network did not close until April 2023, when the global partners handed over the mission to Tonga's national cluster.²¹¹

Analysis

The Kingdom's work to develop, activate, and enforce strategies, practices, and SOPs for coordinating a response meant that Tongan government civilians were prepared to make critical decisions and direct aid and assistance. The integration of HMAF into the civilian-led apparatuses and HMAF's (and other first responders') experience conducting response missions and executing tasks were at the root of civil-military coordination during the HTHH response. Tongan stakeholders understood the

tasks they should execute, what plans existed for conducting the response, and how to communicate amongst themselves.

Meanwhile, Tonga's integration into regional mechanisms for mobilizing and delivering humanitarian assistance promoted coordination of the international response in the immediate period after the eruption and tsunami across the following elements:

- Expeditious mobilization of potentially critical relief supplies for movement into the Kingdom
- Immediate activation of multilateral mechanisms that integrated both civilian and military responders capable of delivering supplies, technical support, and funding
- Exchange of liaisons among responding militaries

Although foreign partners' civilian agencies retained leadership and the authority to delegate tasks to their respective militaries, those militaries also drew upon their experience and available information to conduct planning and to execute tasks efficiently on the basis of:

- Centralization of planning within Tonga's NEMO and the Australian-hosted HADR Cell with direct communication between them once satellite phones and VSAT terminals were operational
- Information sharing via a dedicated set of communications platforms and tools that supported transmission of up-to-date imagery and data on damage and needs, as well as reporting on task execution
- Assignment to foreign military assets of tasks related to bulk delivery of relief supplies and equipment while tasks related to aid distribution to affected communities remained the purview of local and national civilians

Years of rehearsals and many iterations of exercises to rehearse for a large-scale event meant that trust existed among responders. Even without the robust communications

networks that would ideally allow smooth coordination, the ability to use one or two communication nodes and rely on liaisons until full communications capacity could be restored facilitated a response wherein the delivery of relief supplies and equipment was sequenced to meet the most pressing needs and not lead to bottlenecks or civil strife.

Years of shared training and operational experience that saw all participating militaries engage in field, command, tabletop, communications, and simulation exercises, as well as subject matter expert exchanges was augmented by the advantages gained by co-locating personnel from responding forces, including HMAF liaisons in both the HADR Cell and Tonga's own NEOC.

Recommendations

1. Extra-regional militaries should continue to or initiate participation alongside HMAF and other regional militaries to augment the ability to conduct shared planning. Even small-scale subject matter expert exchange events allow communication of known needs, capabilities, and SOPs.

As the PRG matures, it will be integrating lessons learned from responses. Tonga's international partners – especially regional ones – are poised to continue and even intensify shared planning, training, and mobilization across the DM cycle. U.S. military forces and other extra-regional stakeholders can consider aspects of the first weeks of the HTHH event response alongside details emerging from PRG's ongoing development for indicators of how to prepare for and execute future disaster response missions in the Kingdom.

2. Foreign civilian and military stakeholders should maintain a constant line of communication with HMAF – as with all regional militaries.

During the HTHH response, between Tonga and the key responding militaries, respect and trust built over years of shared training illustrated the benefits of these activities as they ensured that responders were familiar with counterparts' capabilities and protocols and promote:

- Swift integration of all responding forces
 - Common understanding of the plan to be implemented
 - Monitoring and evaluation of task execution
3. Tonga's international partners – bilateral and multilateral – should support the Kingdom's resilience-building through technical assessments, planning, and education to ensure that delivered facilities and equipment remain in service.
 4. Finally, responders should consider consulting HMAF regarding measures that indicated that civilian responders were in a position to accomplish the response without military assets. While HMAF would remain a key stakeholder in the recovery after the HTHH event, it could support phasing out of foreign military assets' contributions by planning for transitioning tasks to civilians, while foreign military assets continuously also planned for how to reduce their presence as civilian capacity came on-line.

In addition to promoting efficient planning and tasking, the ability of a country to maintain and train to use or repair critical communications

and transport or logistics equipment and infrastructure allows civilian and military responders to more effectively use whatever networks, systems, and tools are available and used by affected communities during a response.

Photo 4, sourced from HMAF, shows the VOEA Ngahau Koula arriving at Masefield Naval Base in Vava'u with people evacuated from Mango Island after the HTHH disaster.²¹²



Photo 4: HMAF Transports Evacuated Persons to Masefield Naval Base

CRITICAL INFRASTRUCTURE FOR DISASTER MANAGEMENT

Due to Tonga's geographic characteristics and the concentration of the population on Tongatapu, critical infrastructure is fragmented into island-wide networks, and the greatest concentration of transport, communications, health, and utilities infrastructure is on Tongatapu. These elements mean that logistics to support a disaster response can be complex. The country established a standing Logistics Cluster in 2014 and has been training with WFP since 2016. The Cluster mostly includes government departments and TRCS.²¹³ At the same time, infrastructure networks are vulnerable to the impacts of hazard events. Storms can knock out power and cut supply lines, slowing the dispatch of rescue personnel or delivery of relief items to affected communities. When air- and seaports sustain damage or must shutter during a major storm, these disruptions mean limited access to storage spaces at these facilities. There is limited redundancy across all infrastructure networks throughout the islands.

The Ministry of Infrastructure (MoI) includes divisions for regulating transport modes, including roads, ports, and airports. It also maintains the country's relationships with key technical, scientific, and financial organizations, like SPC, International Civil Aviation Authority (ICAO), and ADB. The Ministry's Civil Aviation and Marine and Ports Divisions work with Tonga Airports Limited (TAL) and Ports Authority Tonga (PAT), respectively.²¹⁴ MoI is also the national cluster lead for early recovery and has significant responsibility when responses transition from the NDRMO to reconstruction and recovery.

Transportation

The main obstacles to efficient transport are weather-related. The November-April wet and cyclone season can see heavy rain events and cyclonic storms that drive flooding on

roadways, lead to landslides that cover roads, and deliver powerful winds and torrential rains that damage facilities at airports and ports. Some areas of the country can be cut off entirely by these events as there are many areas served by only one road or one small jetty. During a response, the small air- and seaport facilities outside Nuku'alofa can swiftly become overwhelmed by a surge of responders and relief supplies. Sailing time from the capital to outer islands can be more than 16 hours even in good weather. There are no cranes or other reliable handling equipment at ports other than Nuku'alofa. Airports are small and have minimal storage space or handling equipment. Humanitarian supplies being delivered to outer islands via air will require onward transport using local residents' vehicles.

Figure 13 shows a map of the Kingdom with key transport infrastructure highlighted.²¹⁵

Airports

Air transport is considered the most reliable means of moving people and cargo to/from and within the country. Nonetheless, the islands' air transport facilities can be impacted by heavy rain events and cyclones. Main gateways can be temporarily closed or operations delayed when storm winds or heavy rains damage or scatter debris over runways. Meanwhile, secondary airstrips may be closed for longer periods, especially during the rainy season. Minimal ground handling equipment and limited storage exist at airports, and onward overland transport requires arrangements for local vehicles.

There are six airports across the islands; all are managed by TAL, a state-owned enterprise. Two of the airports – Fua'amotu (Nuku'alofa) and Lupepau'u (Vava'u) – are certified for international traffic, but Fua'amotu is the main international gateway. A third airport – Niuatoputapu (also called Kuini Lavenia) in the far-north Niua group – may be used as a port

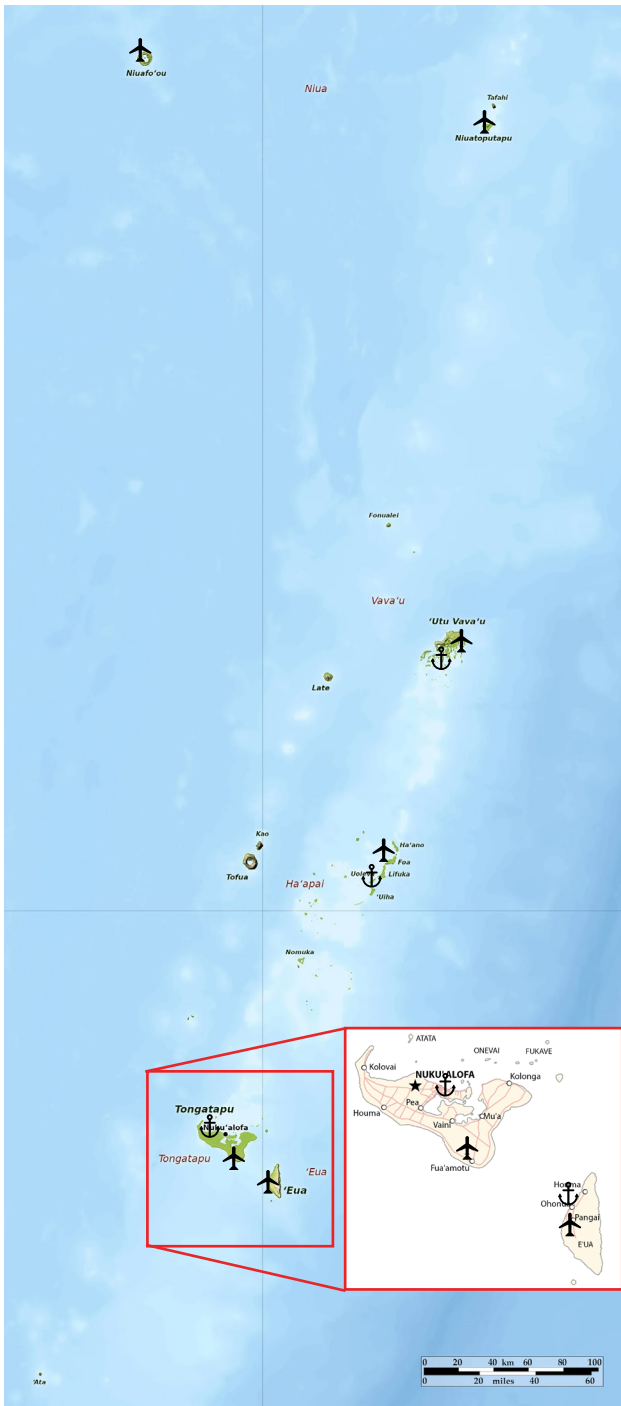


Figure 13: Logistics Map of Tonga

of entry by prior arrangement with TAL after at least 48-hours' notice in advance of intended arrival time.

Fua'amotu has undergone significant expansion in the past decade. It can accommodate aircraft as large as the Boeing 777, and the apron was expanded and resurfaced to allow 777-size aircraft to park or wait while another aircraft is using the runway.

Handling equipment and some storage spaces are available at the airport; one 150-m² (1,615-ft²) warehouse is fully used by the cargo handling company, but it may be available in emergencies, and the other storage space is a 150-m² (1,615-ft²) warehouse used by the quarantine and customs services.

Other airports have minimal storage area and no handling equipment for bulk or palletized cargo.

Table 2 provides details of the country's airports.²¹⁶

Seaports

Tonga's ports are critical nodes for its people and economy as they handle most of the international freight that delivers imports and allows local businesses to export goods. Three larger ports – one in each island group – serve as hubs for large shipments of equipment and supplies, while small ferries and boats move those supplies to smaller islands. There is minimal storage at any of the ports and jetties around the islands, and immediate land transport away from the port requires arrangements for use of local vehicles. Only the port in Nuku'alofa can handle the largest cargo ships, but even it is not immune to disruptions; high winds and rough seas during storms can slow or halt maritime transport.

PAT, a state-owned enterprise, manages and maintains operations at the Kingdom's commercial ports.²¹⁷ These ports are Nuku'alofa (Tongatapu), Pangai (Ha'apai), and Neiafu (Vava'u). Nuku'alofa is the main international cargo gateway and transshipment point for goods moving to the other islands. It is also the hub for passenger ferries to all other islands.²¹⁸

Port of Nuku'alofa

The Nuku‘alofa port on Tongatapu supports container, roll-on roll-off (RORO), general cargo, and tanker traffic. There are two main channels to the port’s berths; the north channel can be used by all vessels, and the east channel is available for vessels of less than 110 m (360 ft) length overall. There are no dockside cranes.²¹⁹

Airport	IATA / ICAO	Latitude / Longitude	Elevation	Runway Dimensions	Runway Surface	Notes
'Eua (Kaufana) Airport	EUA / NFTE	19° 46' 36.0114" S 174° 20' 27.96" W	9 m (31 ft)	1: 800 × 30 m (2,624 × 98 ft)	Bitumen	-
Fua'amotu International Airport	TBU / NTFB	21° 14' 27.9996" S 175° 8' 57.9978" W	39 m (129 ft)	11/29: 2,671 × 45 m (8,763 × 148 ft) 17/35: 1,270 × 30 m (4,167 × 98 ft)	11/29: Asphalt 17/35: Grass	One helipad, surfaced with asphalt; large grassy areas for other helicopter operations
Lifuka Island (Salote Pilolevu) Airport	HPA / NFTL	19° 46' 36.0114" S 174° 20' 27.96" W	7.6 m (25 ft)	11/29: 1,200 × 30 m (3,937 × 98 ft)	Bitumen	-
Niuafo'ou (Kuini Lavinia) Airport	NFO / NFTO	15° 34' 15.9954" S 175° 37' 50.8794" W	45 m (149 ft)	08/26: 1,060 × 30 m (3,578 × 98 ft)	Coral / grass, unsealed	-
Niuaotoputapu (Mata'aho) Airport	NTT / NFTP	15° 58' 36.0012" S 173° 47' 29.976" W	7 m (23 ft)	11/29: 1,085 × 30 m (3,560 × 98 ft)	Coral / grass, unsealed	-
Vava'u (Lupepau'u) International Airport	VAV / NFTV	18° 35' 7.2096" S 173° 57' 42.1806" W	72 m (236 ft)	08/26: 1,700 × 30 m (5,577 × 98 ft)	Tar / asphalt, oiled	One helipad (grassed with asphalt apron)

Table 2: Details of Tonga's Airports

Vuna Wharf – the cruise terminal – is less than 2 km (1 mi) west of the main port. Domestic passenger ferries use the protected area behind breakwaters adjacent to the main port.

The Queen Salote International Wharf (QSIW) sits at the end of a port access road on a small peninsula. QSIW has two main container wharves (1 and 2) and two smaller wharves (3 and 4) on its southwestern side. The wharves form the edges of the container yard. Since 2022, the port has been undergoing major upgrades through an ADB- and Australia-funded project to extend berthing space, reorganize the container yard, improve road access, and modernize various systems. Several mooring and berthing dolphins were added. In 2024, partners commissioned the refurbished QSIW 1 and moved on to adding a 50-m (164-ft) extension to QSIW 2, completed in 2025.²²⁰

- Berths
 - QSIW 1: Length = 93 m (305 ft); maximum draft = 12 m (39 ft)
 - QSIW 2: Length = 160 m (525 ft); maximum draft = 11 m (36 ft)

- QSIW 3 & 4
 - Total length = 320 m (1,050 ft)
 - Maximum draft = 15 m (49 ft)
- RORO capacity = 110-m (360-ft) length and 11-m (36-ft) draft
- Berthing Tugs: 2
- Handling equipment: Reachstackers (3 × 35-ton capacity) and forklifts (18 × 3-26-ton capacity)
- Storage
 - Space for up to 700 containers (63 reefer plugs)
 - Warehouse (covered): 3,500 m² (37,675 ft²)²²¹

Port of Neiafu

A deepwater port serving the Vava'u island group, Neiafu's "Port of Refuge" serves both international and domestic cargo and passengers traveling to and from Vava'u. However, the size of vessels it can welcome is much smaller than Nuku'alofa, as Neiafu's access channel has a maximum draft of only 6.6 m (21.6 ft). There are no cargo handling facilities or dockside cranes. There is no storage at the port.

- Berths
 - Queen Halaevalu Wharf (container and cargo)
 - Length = 65 m (213 ft)
 - Maximum draft = 6.6 m (21.6 ft)
 - Toulua Terminal (tankers; east of the main wharf)
- Handling Equipment = forklifts (×2; 3-7 tons)²²²

Port of Pangai

On the western shore of Lifuku island, the Port of Pangai serves the Ha'apai group. It is a small wharf handling only domestic cargo and passenger traffic. There are no handling facilities or equipment and no storage area. All cargo is offloaded to local vehicles for transport away from the port.

- Berth
 - Length = 165 m (541 ft)
 - Maximum draft = 1.5 m (5 ft)²²³

While some islands have ferry ports served by RORO ferries run by local shipping companies, others only have moorings off the beach.

- Nafanua ('Eua) – Ferries connect Tongatapu's Queen Salote wharves with 'Eua's Nafanua port multiple times every day. The 25-km (15.5-mi) crossing usually takes 2-2.5 hours. The port is on 'Eua's northwest coast, facing Tongatapu, and it lies inside a small harbor. The port is connected to the main settlement, 'Ohonua, by road.²²⁴
- Niuaotuputapu – The largest of the Niua, Niuaotuputapu has a jetty at Falehau, served by the monthly cargo sailing from Tongatapu. Only smaller fishing vessels serve the other two islands in the Niua.

Roads

Roads are the dominant form of transport for local people and goods. During the wet season, road transport can be disrupted when heavy rains cause ponding on roadways. While secondary roads are especially susceptible to damage during the wet season, even primary

(paved and sealed) roads can flood. Landslides also occasionally block roads during heavy rainfall events. Roads in coastal and hilly areas are particularly prone to ponding, washouts, and closures. The condition of bridges and causeways that are critical arteries may also deteriorate due to hazard events.

The country has about 1,940 km (1,205 mi) of roads, 420 km (261 mi) of which are paved.²²⁵ Additional secondary roads link nearly all communities, but their condition can be poor due to insufficient maintenance and severe weather. Most roads are narrow and heavily traveled. Maintenance is costly and not always expeditiously executed.²²⁶

Given the population concentration on Tongatapu, the road infrastructure on that island also is the most expansive and the most used. Some 86% of all registered vehicles in the country are on Tongatapu.²²⁷ Congestion and poor condition of roadways on the island can be obstacles during emergencies. People asked to evacuate at-risk areas may have difficulty departing, and first responders may be unable to reach people needing assistance.

Many of Tongatapu's low-lying areas are prone to flooding, and the 2022 HTHH event inundated large swaths of the island's northern coast. While Nuku'alofa escaped the extremely high waves that struck Tongatapu's western end, the city still recorded tsunami waves of 2-4 m (6.5-13 ft) and wave run-up in excess of 300 m (980 ft). Roads along the capital city's coast and in and around the port were damaged and covered in debris, and these areas required significant clearing before assistance started flowing from the port. Fortunately, Fua'amotu airport, in the island's south and at higher elevation, was protected from the waves, and once ash cleanup was completed, it provided an alternative delivery point with road access to the rest of the island.²²⁸

In September 2025, the Tongan Government and ADB engaged a construction company to build the Fanga'uta Lagoon Bridge to connect Nuku'alofa to the southern shore of the Lagoon. The 720-m (2,362-ft), 2-lane bridge will cross the narrow entrance to the western lobe of

Fanga‘uta Lagoon, and additional work on more than 2 km (1.25 mi) of access roads will improve the resilience of the roads by modernizing drainage and reducing congestion. The bridge was conceived to ensure that areas of Nuku‘alofa that had been impacted by the HTHH tsunami would, in the future, be easier to evacuate.²²⁹ Construction is expected to be complete in 2028 / 2029.²³⁰

On ‘Eua, home to nearly 5% of the population,²³¹ roads are unsealed. Many roads on the island have suffered damage from successive major cyclones (Zena, Gita, and Harold) that struck in the past decade, as well as from the 2022 HTHH event. The port is connected to ‘Ohonua settlement and onward to Pangai and the Kaufana Airport, by a single road with a bridge over the country’s only permanent stream. That bridge was damaged by the HTHH tsunami. The rebuilt structure is a 20-m (66-ft) span; the traffic lane is 3.5 m (11.5 ft) in width, and there is a 1-m (3.2-ft) wide footpath.²³²

The remainder of islands also have only unsealed roads. There are few vehicle bridges, and small, personal cars and trucks are the dominant means of transport.

Communications

Very high rates of mobile telephone and internet uptake are increasing the opportunities for Tongans to access hazard and risk information and to contribute information on hazards they encounter. Nonetheless, some traditional media remain key outlets for accessing trusted, actionable information, and radio is thought to reach the largest percentage of the population. All of Tonga’s communications nodes – cables, power supplies, towers, or dishes – are exposed to the impacts of extreme weather and geophysical events. The ability of the meteorological service or NDRMO to communicate with communities who are at-risk or have been affected by a hazard may be disrupted for extended periods – months – due to a lingering lack of redundancy in parts of the telecommunications networks.

The Communications Department of MEIDECC serves as the lead entity for the

ETC. It ensures that emergency communication systems are in place and operational, including maintaining alternative channels such as satellite and very high frequency (VHF) and HF radio for use when standard networks fail and overseeing the installation and upkeep of EWS, such as tsunami sirens, to support timely alerts and coordinated response.²³³

Early Warning Systems and Information Sharing

The Tongan EWS operates through cooperation spanning multiple sectors and institutions. Government bodies including the TMS and the NDRMO coordinate with telecommunications providers, regional organizations, and development partners to guarantee that warnings are both produced and distributed without delay. Digital mechanisms such as mobile alerting services and cell broadcast technology extend the reach of warnings to remote and outer-island communities, including people with limited or disrupted internet connectivity. In recent years, an expanding array of meteorological equipment has been deployed throughout the country, encompassing automatic weather stations, weather radar installations, and digital alerting platforms. This equipment records rainfall, wind speed, temperature, and humidity, enabling the TMS to monitor cyclones, intense rainfall episodes, drought, and severe winds.

The advantages for rural communities are concrete. EWS diminish the losses inflicted by cyclones and floods, preserve livelihoods, and reinforce the capacity to adapt amid a changing climate. They also equip communities with knowledge, allowing residents to reach informed decisions regarding farming, fisheries, and household preparedness.²³⁴

Tonga participates in the UN Early Warnings for All (EW4All) initiative, a global effort to bring every person under the protection of an EWS by 2027. In March 2026, when an M7.6 earthquake prompted a nationwide tsunami alert, authorities and institutions responded immediately: sirens sounded, national radio transitioned to emergency broadcasting, and

the population was directed to higher ground. The response proceeded without panic and demonstrated the country's improving state of preparedness. This monitoring infrastructure forms the backbone of Tonga's EWS. By detecting hazards before they escalate, authorities can issue warnings that give communities crucial time to prepare.

People-centered EWS should be accessible and understandable to people with different communication needs and circumstances, including people living with disabilities, older adults, children and caregivers, people with limited digital access, and communities in the outer islands. Effective warnings are determined by reach, access, timeliness, and clear instructions on actions. EWS ideally use multiple and accessible communication channels and formats, consider different communication needs and barriers, and provide clear, actionable information that reaches communities across Tonga, including the outer islands. The EW4All initiative addresses some of these gaps by focusing on the availability, accessibility, and effectiveness of EWS, especially in vulnerable and high-risk regions. Tonga is among the first Pacific countries to roll out the UN initiative, guided by a national roadmap developed through consultations with government, partners, and communities.²³⁵

Coordinated investment in early warning draws on multiple actors across the UN system. The United Nations Office for Disaster Risk Reduction (UNDRR) works with Tonga's national authorities to strengthen disaster risk knowledge and advance implementation of the Sendai Framework to ensure that hazards such as tsunamis are well understood and incorporated into national planning. The World Meteorological Organization supports detection, monitoring, and forecasting so that hazards are identified early and accurately, while the International Telecommunication Union underpins rapid warning dissemination through reliable and inclusive communication systems. The United Nations Satellite Centre (UNOSAT) and the United Nations Educational, Scientific and Cultural Organization (UNESCO)

contribute satellite data, risk analysis, and scientific expertise that help close information gaps and build national capacity.

In 2023, Tonga announced further development of its EWS through the Tonga Mobile Applications Community Multi-Hazard Early Warning and Response System, which will improve rapid mass dissemination of warnings to communities through the Climate Risk and Early Warning Systems initiative, Accelerated Support Window.²³⁶ In early 2026, the TMS started rolling out the new EWS that will use mobile phone networks to send out alerts and impact-based advice across the country to help communities understand the type of action they may need to take. No data or credit is needed on the mobile phones to receive notifications.²³⁷

Emergency communication should ideally be two-way, where communities can also identify unmet needs, ask questions, identify access challenges, report protection concerns, correct misinformation, and otherwise provide feedback. Trusted ways for communities to provide feedback strengthens disaster communications and DRM. Toward that end, the NDRMO has held district- and town-level whole-of-society consultations to gain feedback, particularly regarding the new structure following the 2021 DRM Act.²³⁸

Meteorology and Hydrology

The Tonga Meteorological and Coast Radio Services is one of the departments of MEIDECC. Under the Meteorology Portfolio and mandates under the Meteorological Act 2017, the meteorology department provides accurate, timely, and reliable weather and climate observations and ocean warnings and information services to the people of Tonga.²³⁹

Tsunami Early Warning System

Tonga's tsunami EWC key actors include TMS, NDRMO, Tonga broadcast and radio stations, and major mobile service providers including TCC and Digicel.²⁴⁰ Support is also provided by the Pacific Tsunami Warning Center (PTWC), under the U.S. National Oceanic and Atmospheric Administration (NOAA). PTWC

is the primary international forecast center for the Pacific Basin.²⁴¹ Sirens, text messages, and broadcast are key mediums for disseminating warning messages.

The NDRMO office has installed 10 tsunami evacuation map signboards across vulnerable communities in the Lifuka and Foa Districts of Ha‘apai, as part of the government’s “100 Days Priorities.” The signboards were officially commissioned on 25 February 2026, marking a key milestone in strengthening disaster preparedness in the island group.²⁴²

Information Sharing Focal Points

National Disaster Risk Management Office

3rd Floor, O.G. Sanft & Sons Building
Western Corner of Taufa‘ahau Road and Wellington Road, Nuku‘alofa
Tel: 676-26340
NDRMO Toll Free: 0800-6366
Email: nemo@mic.gov.to
Website: nemotonga.gov.to
Facebook: <https://www.facebook.com/NDRMOTONGA/>

Tonga Red Cross Society

P O Box 456, Taufa‘ahau road, Nuku‘alofa
Tel: (676) 21360 / 21950
Fax: (676) 21 508
Email: sg@tongaredcross.to or sionetenisoni@gmail.com

Tonga Meteorological Services

Fua‘amotu Airport
Tel: 676-35123 or 35355
Email: metstaff@met.gov.to
Website: <http://www.met.gov.to/>
Facebook: <https://www.facebook.com/tongametservice/>

Telecommunications Infrastructure

The islands’ telecommunications infrastructure is extremely vulnerable to damage from hazard events. As illustrated in the HTHH event, submarine cables that deliver connectivity between Tonga and the rest of the world are exposed to geophysical (seismic and volcanic) hazard impacts. Until very recently, each cable

was a single point of failure, but in 2026, a second international link was completed, and it added some redundancy to the network. Power supplies, towers, and other nodes in the telecommunications network remain exposed to severe weather, volcanic ashfall, and tsunamis, among other natural hazards.

Tonga has more than 96,800 mobile telephone connections, and more than 96% of these connections are at least 3G and offer broadband data. More than 60,700 Tongans (58.5% of the population) are internet users. Surveys find that about 56% of internet traffic is via mobile phone, and most of the remainder is via lap- or desktop computer. Android handsets outnumber Apple devices 3:1.²⁴³

Mobile phone and internet services are available nationwide, and the Kingdom ranks among the PICTs with the most affordable mobile internet (cost as a percentage of gross national income [GNI]); a standard mobile data plan costs as little as 2.09% of GNI.²⁴⁴

Three mobile service operators are present in the market. They are UCall by Tonga Communications Corporation (TCC), Digicel, and WanTok; TCC’s mobile service covers the entire country, Digicel reaches all but the Niuaus, and WanTok is available only on Tongatapu, Ha‘apai, and Vava‘u.²⁴⁵ TCC is a state-owned enterprise and is the only operator of fixed telephone lines. All mobile providers also operate or sell broadband access through internet service providers.²⁴⁶ TCC maintains about 50% of the total mobile market and 70% of the internet market.²⁴⁷ By mid-2026, both TCC and Digicel had rolled out 5G service to about one-third of the country, concentrated on Tongatapu.²⁴⁸ Median speeds for mobile broadband (UCall and Digicel) are between 79 Megabits per second (Mbps) and 119 Mbps for downloads and between 17 Mbps and 20 Mbps for uploads.²⁴⁹

Digicel has a key node in the inter-island communications network with its 189-km (117-mi) microwave relay station on Kao, in the Ha‘apai group; it supplies 200 Mbps of data connection to Ha‘apai and 600 Mbps to Vava‘u and is powered autonomously using its own solar, batteries, and generator.

Tonga Cable Limited (TCL) built and manages submarine fiber optic cable linking the islands as well as the main 827-km (513-mi) Tonga Cable that connects Tonga to Fiji.²⁵⁰ Between 2024 and 2026, TCL partnered with the Governments of Tonga, Australia, and New Zealand to build the country's second international cable connection. The 405-km (252-mi) link is a branch of the 15,000-km (9,320-mi) Hawaiki Transpacific Cable that runs from Portland (U.S.) to Sydney (Australia) and Auckland (New Zealand). It lands at a cable landing station on Vava'u.²⁵¹

Mass and Social Media

There are a variety of independent media available in the country. Radio and online outlets are the dominant information sources, and there is growing availability of satellite communications. Nonetheless, radio is the key mode of emergency communications as it connects first responders and reaches the entire country.

The mass media market is small and confronts key challenges:

- Digitization has progressed rapidly, and legacy outlets that have been unable to compete have been pushed out
- Experienced journalists have also been sidelined as the profitability of news media has fallen and consumers have turned to social media for information
- The shift to digital exposes more people to mis- and disinformation
- There remain some legal restrictions on what information can be published or broadcast, and the threat of criminal proceedings has prevented some journalists from reporting on key issues
- As the HTHH event demonstrated, digital communications are also vulnerable to disruption by extreme hazard events²⁵²

Broadcast

Radio is a key information medium for the country. AM radio allows people across the islands to send inter-island communications, including during emergencies.²⁵³

The Tonga Broadcasting Commission (TBC),

a state-owned enterprise, is the dominant player with two radio stations. TBC also has three TV stations – Television Tonga and Television Tonga 2, as well as a station used for broadcasting China Central Television (CCTV) – all are free-to-air.

Stations

- Radio Tonga 1 AM 1017 / A3Z – “Call of the Friendly Islands” (TBC)
- Radio Tonga 2 “Kool FM 90” (TBC)
- FM 87.5 BroadCom Broadcasting (general information) – also available on Facebook and Online Radio Box
- FM 88.1 Le‘o ‘o Tonga (news and music) – Taimi Media Network
- FM 88.6 Radio Nuku‘alofa (music) – also available via Facebook
- FM 89.1 or A3V Tonga Radio Magic (music)
- FM 89.5 Letio Vake-Tali-Folau – also available via its website
- FM 91.5 Kele‘a Voice – also available via Facebook
- FM 92.1 China Global Television Network (radio content)
- FM 93.1 and A3R – Letio Faka-Kalisiatane (Tonga Christian Radio) – also available on Facebook
- FM 98 Letio le‘o ‘o e kakai – women-led community station
- FM 103 – Australian Broadcasting Corporation

Online

All former print publications have moved online. They have been joined by digital-native publications. All are privately-owned. In addition, all government departments post information for citizens on the government portal, while the Prime Minister's office publishes news and information on its own website.

- Matangi Tonga (English) – also available on Facebook and X
- Nepituno Tonga Online News (Tongan and English)
- Talanoa ‘o Tonga (English) – also available on Facebook²⁵⁴

There are nearly 69,000 individual social media profiles registered in the country; as this number is higher than the number of online Tongans, many profiles belong to Tongans with accounts on more than one platform. Facebook is the single largest social media platform for Tongans; it captures nearly all users, many of whom also have profiles on Instagram and LinkedIn.²⁵⁵ Government ministries also participate in social media – especially Facebook and X – where they push out information directly to citizens.²⁵⁶

Utilities

Power, water, and sanitation systems are highly exposed to hazards and susceptible to damage and disruption from hazard events. Damage to these systems has knock-on effects through disruption to health care, education, transport, and communications. Significant public health concerns arise when a hazard impacts power generation or distribution or freshwater access. The Kingdom is historically entirely reliant on imported diesel for power generation. Over the past 10 years, it has begun installing solar and wind generation, with the financial backing of bilateral donors and multilateral development banks. This diversification allows the country to extend grid power to previously unserved areas, ensure grid stability, and reduce exposure to global oil market shocks, thereby bolstering socio-economic resilience. Conversely, the water and sanitation systems have received less investment and are managed by disparate authorities. With water systems susceptible to contamination, shortages, and damage, there is high potential for all Tongan communities to suffer the effects of water insecurity when disasters strike.

Power

Electric power reaches 100% of the population.²⁵⁷ For more than a decade, Tonga has worked to increase the resilience of the electric power grid to reduce the risk of long outages in the wake of severe weather, earthquakes, or volcanic activity. Investments

have gone into diversified generation inputs and locations, backup power for key public facilities, and redundant distribution networks, especially on Tongatapu. The benefits have been swiftly obvious; while TC Gita (2018) knocked out power for five weeks, power was restored across all islands within 4 days after TC Harold struck in 2020.²⁵⁸

The sole electric-power utility in the Kingdom is Tonga Power Limited (TPL), a state-owned enterprise that operates electric grids on Tongatapu, ‘Eua, Ha‘apai, and Vava‘u. Across these four islands, TPL serves 26,000 customers.²⁵⁹ Four other islands have non-TPL grids, and the residents of other islands are entirely off-grid, using household diesel generators or solar systems.

TPL has a total installed capacity of 17.7 Megawatts (MW) of diesel-fired generation and 6.9 MW of renewables, mostly solar photovoltaic (PV), and in recent years, 10–20% of total generated power has come from renewables. All petroleum products are imported,²⁶⁰ and Tonga is, therefore, extremely exposed to global oil market fluctuations and disruptions.

Between 2012 and 2016, TPL installed some 3.5 MW of solar PV generation capacity, with plants at Popua and Vaini (Tongatapu), Neiafu (Vava‘u), ‘Eua, and Ha‘apai. The 1.3-MW Ii ‘o Manumataongo wind project is still under construction. In partnership with independent power producers (IPP), TPL also purchases renewable-generated power and brings it on-grid. The 2-MW Syngyes and 6-MW Sunergise solar PV projects, both on Tongatapu, were the first IPP solar plants to come on-line.²⁶¹

Under its Outer Island Renewable Energy Project, TPL is expanding “off-grid” electric service to more outer islands, including ‘Uiha, Nomuka, Ha‘ano, Ha‘afeva (all in Ha‘apai), as well as Niuatoputapu and Niuafu‘ou in the Niua. Once this project is complete, the total installed solar PV capacity on these outer islands will be 1.3 MW. It focuses on homes, schools, and public facilities by connecting and rehabilitating existing community-owned and -managed mini-grids in ‘Uiha, Nomuka, Ha‘ano,

and Ha‘afeva, and by expanding existing solar capacity and installing a distribution network on Niuatoputapu and Niuafo‘ou.²⁶² The Project is also investing in grid stability and renewables on Vava‘u, ‘Eua, and Ha‘apai.²⁶³

Financed by ADB, the Green Climate Fund, and the Australian government, TPL brought onto the grid two battery storage facilities to improve grid stability as solar is added to the generation mix and to transfer loads during peak times. The 10-MW and 7-MW batteries are on Tongatapu and were operational when the HTHH event damaged parts of the grid. Their storage capacity and flexibility supported TPL’s ability to repair generation facilities and bring them back online without full-island outages.²⁶⁴ Table 3 offers island-by-island details of the TPL power grids, as of 2025.²⁶⁵

While the supply side of the electric power sector has enjoyed significant investment, distribution remains exposed to disruption by hazard events. Power polls, transformers, and overhead cable networks on Tongatapu’s northern coastline are exposed to storm surges, tsunamis, and other coastal flooding events.²⁶⁶

Water and Sanitation

The water-sanitation system is fragmented, and there are few frameworks or SOPs to inform water managers how to respond to a disaster. The system has suffered damage, disruption, and contamination during recent storms and the 2022 HTHH event.

In recent years, groundwater has been increasingly subject to contamination by saltwater linked to sea level rise and wave overtopping. Consequently, the importance of rainwater catchment has risen, and Tongans rely on it for consumption, household use, and even irrigation. However, droughts are also frequent

and lead Tongans to access ever more marginal – brackish or insufficiently treated – water sources that could lead to or exacerbate health problems. Meanwhile, severe weather or seismic activity that leads to power outages can halt pumps that move water either from groundwater sources or within piped systems. The potential for long-term disruption is high, and there are no redundancies built into the system.

The regulatory authorities for water are the executives of the Ministries of Public Enterprise; Health; and Lands, Survey, and Natural Resources. Owned by a combination of the government and Village Water Committees (VWC), water assets are operated by the Tonga Water Board (TWB) in urban areas and VWCs in rural areas. Neither TWB nor the VWCs receive subsidies, and they are generally unable to mobilize financing for capital improvements that would help them meet regulatory demands or global standards. Moreover, VWC members are selected from village residents, and the levels of knowledge and skills to manage water systems vary from community to community.

Most Tongans rely on rainwater catchment for drinking water. Even on Tongatapu, an estimated 65% of residents are considered “rural” and, therefore, are served by VWCs, while TWB serves about 30,000 people in and around Nuku‘alofa.

Groundwater is a source on Tongatapu. Water is piped from aquifers and reservoirs into the reticulated system. Nonetheless, what is available is very hard (high in mineral content). Consequently, even in houses served by piped water, people tend to rely on rainwater for drinking and cooking.

Most water infrastructure is exposed to flooding – pluvial or coastal. These assets are already aging and are unlikely to withstand the

Island	Installed Diesel-Fired Generation Capacity	Installed Renewables Generation Capacity	Distribution (High-Voltage) Network
Tongatapu	16.96 MW	13.92 MW	221 km (137 mi)
‘Eua	1.37 MW	0.55 MW	16.6 km (10.3 mi)
Ha‘apai	1.27 MW	0.5 MW	15.2 km (9.4 mi)
Vava‘u	2.87 MW	0.7 MW	73.1 km (45.4 mi)

Table 3: Tonga Power Electric Grid Details

impact of a hazard event either because they are directly damaged or because rains or high waves erode the soils on which they sit.²⁶⁷

There is no centralized reticulated sewerage system in the country. The population is served entirely by on-site facilities. As of 2021, 89% of households had a flush toilet with a septic tank.²⁶⁸ New buildings within the Nuku'alofa urban core have a piped system that flows to the communal soak-away in the middle of the central business district. The communal soak-away acts via soil absorption. Effluent passes through different layers of soil before infiltrating the ground water. Residents also use wet-type septic tanks, which also use the soil absorption method. Many septic tanks do not discharge effluent into the soil absorption system but let it seep onto the ground surface around the septic tank.²⁶⁹ The potential for waste to contaminate freshwater sources is high.

Health Systems

Located in the South Pacific, Tonga's geographic isolation presents ongoing challenges for delivering healthcare services. Despite these constraints, the country has made notable progress in improving population health, including reductions in infant and maternal mortality. At the same time, Tonga faces a high burden of non-communicable diseases (NCD), such as diabetes, cardiovascular diseases, obesity, and cancer. NCDs are responsible for approximately 80% of all deaths in the country. Behavioral risk factors – smoking, alcohol use, poor diet, and limited physical activity – continue to drive this growing disease burden. The prevalence of NCDs reinforces the need for a resilient DM system that can maintain essential health services, protect vulnerable populations, and ensure continuity of care during crises.²⁷⁰

In addition to long-standing NCDs challenges, Tonga continues to address emerging infectious disease threats. On 17 April 2026, the Ministry of Health (MoH) declared a dengue outbreak, with confirmed and suspected cases increasing in Tongatapu, Ha'apai, and 'Eua.²⁷¹ As of 26 June 2026, most reported cases

were occurring among individuals aged 15-19 years, predominantly male, with the highest case numbers in Tongatapu.²⁷² These outbreaks highlight the urgent need for stronger disease surveillance and vector control systems.

The MoH is responsible for delivering prevention and health services for the people of Tonga. It aims to maintain a responsive health system capable of adapting service delivery to meet the evolving needs of the population. Service delivery remains its central priority, supported by key areas such as health workforce development, infrastructure, medicines and technology, leadership and governance, health information systems, research, policy and planning, and healthcare financing.²⁷³

As of 2026, the MoH is undergoing organizational reform designed to streamline reporting lines and strengthen healthcare services structure. Complementing these efforts is the Tonga Health Sector Support Program (THSSP), a commitment from the Government of Australia established in 2010. The THSSP is structured into five phases, with Phase 1 implemented in 2023 and the program currently in Phase 4 for the period 2025-2030.²⁷⁴

The Public Health Act provides the primary legal framework for protecting and promoting public health. It defines authorities to manage communicable diseases, sanitation, water quality, and quarantine. It includes explicit provisions for declaring a public health emergency and designating emergency officers, including health workers, police, and members of the armed forces.²⁷⁵ During crises such as the COVID-19 pandemic, the Act empowers authorities to enforce quarantine, isolation, movement restrictions, and border health controls. These measures are supported through coordinated efforts with Tonga Police, Customs, Immigration, and HMAF. The Act serves as a critical foundation for interagency cooperation in managing health emergencies and supporting population resilience.²⁷⁶

Tonga's healthcare system includes both public and private sectors. The public health system is funded by the government and provides primary and secondary healthcare

services across the islands. Access to specialized care remains limited, especially in remote areas. Private healthcare facilities also operate, mainly in urban centers. Although medical facilities are limited, they are generally sufficient for minor health conditions. Tonga's healthcare infrastructure includes one national referral hospital, three district hospitals, multiple health centers, and numerous community clinics. Approximately 90% of health services are delivered through these public facilities. Consultations are free for Tongan citizens at public hospitals and health centers, while foreigners pay a small fee for consultations and medications. Private clinic fees typically range T\$10 - 30 (US\$4.17 - 12.52).²⁷⁷

Vaiola Hospital, located in Nuku'alofa, serves as Tonga's primary referral center and is at the core of the healthcare system. It provides specialized medical services and critical care to patients across the island groups. Its facilities include emergency services, surgical units, obstetrics and gynecology departments, and diagnostic imaging services.²⁷⁸

Beyond the referral hospital, Tonga's healthcare infrastructure consists of a network of health centers and clinics across both urban and rural communities. These facilities are essential for delivering primary health care, preventive services, health education, maternal and child health programs, and treatment for common illnesses. Ensuring equitable access to specialized care remains a challenge, particularly in remote and underserved areas. Geographic barriers make accessing care difficult. Resource constraints, including shortages of medical equipment, medications, and healthcare personnel, further impede service delivery. To address these challenges, Tonga continues to explore innovative solutions, including telemedicine programs, expanding the number and capacity of health centers and clinics, and deploying mobile healthcare units to reach isolated communities.²⁷⁹

Within Tonga's DM system, the MoH plays a critical role by participating in the NDRMC and national working groups. During and after major incidents, the MoH monitors emerging

or potential health problems, supports rapid damage assessments, and advises on appropriate public health interventions.²⁸⁰ The MoH also serves as the lead agency for the "Health, Nutrition and Water, Sanitation and Hygiene" Cluster. In these capacities, it is responsible for coordinating sector partners, applying a need-based approach, and fulfilling all responsibilities outlined in each cluster's Terms of Reference.²⁸¹

In 2018, the MoH, in collaboration with the WHO, established the Tonga Emergency Medical Assistance Team (TEMAT). TEMAT was created to provide clinical care and public health support during disasters, disease outbreaks, and other health emergencies. TEMAT was activated on 16 January 2022, immediately following the eruption of the HTHH undersea volcano and the subsequent tsunami. The event caused widespread destruction, including severe infrastructure damage and contamination of water supplies. A five-person TEMAT advance team conducted initial damage assessments on the day of activation. Over the following two months, additional TEMAT rotations were deployed across the Ha'apai island group. Throughout the response, TEMAT provided daily reports to both the MoH and the NEMO (now the NDRMO).²⁸²

In 2025, Tonga conducted its first Public Health Emergency Operations Centre simulation exercise with support from WHO. The exercise strengthened national health security coordination and tested integration among the health sector, NDRMO, Tonga Police, and the HMAF, with a focus on preparedness and response for epidemic scenarios.²⁸³

The UN Office for Project Services is providing advisory support and capacity building to MoH's Project Management Unit under a three-year World Bank-financed initiative. This project aims to strengthen the management of NCDs, expand access to resilient health services in Tonga's northern islands, and enhance national emergency response readiness. A key component of the project is the development of the Prince Wellington Ngu Hospital on Vava'u to improve the health system's capacity to prevent, detect,

and manage NCDs and support more resilient service delivery.²⁸⁴

The SPC Public Health Division, in collaboration with partners of the Pacific Public Health Surveillance Network, works to build epidemiology, surveillance, data analysis, and operational research capacity across PICTs. This work is carried out through the Strengthening Health Interventions in the Pacific-Data for Decision Making program, an accredited training program delivered through the Fiji National University and offered to Tonga and other PICTs. The program supports disaster-ready health systems by improving workforce capabilities for evidence-based public health decision-making.²⁸⁵

Shelter and Housing

The most significant threat to the Kingdom's built environment is damage from the winds, storm surges, and rain delivered by tropical cyclones. However, housing is also exposed to the effects of seismic and volcanic activity, including corrosion from ashfall on top of shaking or direct impacts from earthquakes and tsunamis. The construction of resilient housing has, in recent years, drawn on traditional knowledge, and messages of “build back safer” are baked into recovery plans. Nonetheless, resource limitations can be expected to slow adoption of global resilient-building standards over the short term.

The national Shelter Cluster, led by the NDRMO, works to ensure the availability and accessibility of temporary shelters – churches, town halls, etc. – while the MoI has responsibility for shelter during the recovery and reconstruction phases.²⁸⁶ During the 2022 HTHH event:

- NDRMO (then NEMO) provided immediate relief items – e.g., tents, tarps, kitchen kits, hygiene kits
- NEMO worked to ensure affected people transitioned from emergency shelters to more permanent shelter
- MoI worked to ensure enforcement of building codes to promote physical structural resilience

- MoI took over work from NEMO from late April onward
- MoI worked to facilitate restoration and reconstruction of damaged housing²⁸⁷

Due to traditional land tenure practices, many Tongans do not own the land upon which they live, although they may own the housing structure. Resources – financial, material, or technical – for building to code are not always available, and families commonly build using whatever materials are available locally and whatever labor and knowledge are readily accessible. Consequently, on Tongatapu, most houses are built using concrete block, timber, and corrugated iron roofing, while in the Vava'u and Ha'apai groups, more traditional housing remains common. In both cases, housing stock is highly prone to damage from hazard events.²⁸⁸

Housing was the sector with the greatest recorded loss after major storms:

- TC Gita (Tongatapu and 'Eua) – 50% of total damage was to housing stock
- TC Ian (Ha'apai) – 50% of damage was to housing stock²⁸⁹

Meanwhile, in the HTHH event, half of all damaged buildings were residential, and damage to residential buildings was equal to some 3% of GDP compared to 5.9% for non-residential buildings, 4.3% each for infrastructure and agriculture, and 1% for ash cleanup. Simultaneously, tourism-related buildings were heavily damaged by the tsunami, and ashfall damaged agriculture.²⁹⁰ Both of these sectors bore a larger share of damage than housing.

Given the emphasis on localization and integration of traditional knowledge within the DRR community of practice in the past decade, there is high potential in Tonga to integrate traditional housing into more resilient communities. 'Fale' is the traditional Tongan house; though it can take many forms, it is mainly built using wood, thatch, and rope. In 2014, TC Ian damaged some 1,100 western-style houses, while many fale remained unaffected. In many ways, fale are more storm resistant due to design, and they are also more

easily rebuilt using materials, tools, and skills that are locally available as long as construction practices and architectural knowledge related to fale can be retained and transferred from generation to generation.²⁹¹

Even with resilient building, evacuation during key moments may save lives. During hazard events, people may be instructed to evacuate from high-risk areas to evacuation centers in areas with lower risk profiles. The objective is to ensure that damage or destruction to homes and buildings does not also mean human casualties.

The Internal Displacement Monitoring Centre reports that, between 2008 and 2025, there were 20,000 cases of internal displacement in Tonga. These displacements were caused by 12 disasters, with the 2022 HTHH event causing 2,400 displacements, while the remainder of displacements were linked to storms (cyclones). Two massive cyclones – Ian (2014) and Gita (2018) – forced nearly 6,000 displacements each.²⁹² As of 2023, studies found that 200–300 outer-island residents impacted by HTHH remained displaced to Tongatapu due to complete destruction of the built environments on ‘Atata and Mango islands.²⁹³

Churches and town halls serve as emergency evacuation shelters. They are also vulnerable to the impacts of hazard events.²⁹⁴ In the after-action review for the HTHH event, the Tongan government noted that one of the challenges in that response was that evacuation center governance and management were weak, and the process of managing mass evacuations could be improved.²⁹⁵ These reflections echoed some of the findings from TC Gita (2018).

Major areas of Tongatapu and ‘Eua experienced the devastating impacts of TC Gita. Some 4,500 people (of the nearly 80,000 affected) were displaced from their homes to evacuation centers.²⁹⁶ An assessment of the damage to housing stock found 819 houses destroyed and 3,889 houses damaged. During the immediate response, 6,500 tarpaulins and 1,288 tool kits were distributed by relief agencies in an effort to ensure that repairs and reconstruction could start immediately.²⁹⁷

However, during the storm and before houses could be repaired, many Tongans relied on emergency evacuation shelters. A post-disaster review by shelter cluster stakeholders noted several key issues:

- Many emergency evacuation shelters were not accessible to people living with mobility disabilities
- Supplies, mental and emotional health support, and security protocols were insufficient
- Toilet facilities were not sex-segregated, had no locks, and had insufficient lighting²⁹⁸

Post-disaster assessments also revealed that poor compliance and enforcement of building codes played a role in the degree of devastation experienced during TC Gita. Only a few buildings were designed to withstand the most severe categories of cyclones or severe earthquakes.²⁹⁹

Build Back Safer

Government housing policy promotes improving resilience and reducing exposure and vulnerability whenever public resources are spent on housing recovery. It aims to improve the fairness and efficiency of housing recovery and prioritizes DRR, but it also promotes self-recovery supported by technical assistance and training, and there are no guidelines or action plans to implement the policy.³⁰⁰

In the absence of laws or formal enforcement, as part of the “build back safer” strategy for the built environment, NDRMO and other stakeholders work to support communities to incrementally improve the construction of their homes. After TC Ian and during TC Gita, authorities translated this strategy into key messages:

1. Build on adapted foundations/wall bases that anchor a house to the ground.
2. Tie-down from bottom up. In a cyclone, a house can be sucked apart or blown away by the wind; so, it is necessary to tie every part of the building right through to the ground.
3. Brace against the storm. Strong bracing stops a house being pushed over or pulled

apart by the wind.

4. Use strong joints.
5. A good house needs a good roof. The way of designing and building a roof is critical to protect a house against strong winds and rain. Build a roof the right shape and pitch. Nail it down well.
6. Site the house safely. Identify the hazards in the location and build in protected zones where potential hazard effects are non-existent or less powerful.
7. A simple shape will help keep safe. The shape of a house is important to reduce damage in strong winds or earthquakes. Simple designs (compact and symmetrical) present advantages.
8. Be prepared. Preparedness is critical because it is the main way to reduce the impacts of a disaster. Thus, it is important to start taking actions and prepare before the hazard comes, rather than having to react in a post-disaster situation.³⁰¹

Mol's Housing Resilience Division addresses the challenges of disaster impacts on housing. It focuses on post-disaster rebuilding in collaboration with NGOs.³⁰²

Food Security

Environmental, economic, and cultural factors play a role in Tonga's food system, and disruptions or changes to any of these spheres can lead to food insecurity or, worse, degrading health due to hunger. Severe hazard events – e.g., cyclones or volcanic activity – can directly damage food crops, temporarily halt fishing, and damage logistics infrastructure through which food products move. The challenges that result require coordinated responses, ranging from distributing stockpiled supplies locally to sourcing emergency supplies from the wider region and transporting them via air- and sealfight to remote islands.

Within the national coordination structure, the Ministry of Agriculture, Food, and Forests (MAFF) leads the Food Security and Livelihoods Cluster,³⁰³ which has the support and participation of key international

and national stakeholders. Under the Tonga Strategic Development Framework, MAFF has a particular role in the goal of “Improved resilience to natural disasters and impacts of climate change” through:

- Tree-planting projects
- Improving importation of key agricultural, livestock, and forestry inputs
- Delivering recovery programming after disasters

Among MAFF's specified responsibilities are disaster relief and economic recovery, and the approach includes DRR through preparedness programs for home gardeners.³⁰⁴

Under normal circumstances, an estimated 2.5% of Tongans do not have regular access to sufficient food, and 12% do not have access to sufficiently nutritious food. However, an SPC survey found that more than 80% of households do not have access to a balanced diet. Very few children suffer wasting (low weight for height) or stunting (low height for age), but at least 10% of children are overweight, and this proportion worsens as they age; some 58% of adult women and 46% of adult men are considered obese.

Household farming remains a key source of calories. While nearly 60% of all food consumed is purchased for home consumption, 13% is homegrown. Tubers, especially cassava, are grown widely and consumed locally; they make up a large percentage of the homegrown foods that are consumed. Meanwhile, cereals and meat account for 48% of purchased calories; bread, flour, crackers, and chicken – all purchased – make up about one-third of daily calories, on average. Fruits, pulses, seeds, nuts, and vegetables account for only about 12% of all calories consumed. While the actual quantity of fruits and vegetables consumed – 360 grams (12.7 ounces) – is 90% of the WHO-recommended daily intake, Tongans, on average, get 60% of their daily calories from foods the WHO recommends be limited or avoided. Both proteins and fats account for somewhat more calories than recommended for a balanced diet.³⁰⁵

While the agricultural sector is a traditional

mainstay of the economy and agriculture remains a key source of livelihoods, most agricultural activity is subsistence and relies on traditional practices. Fewer than 10% of farmers are commercial producers,³⁰⁶ and they concentrate in export-oriented root crops – cassava, yams, and taro – as well as kava and watermelon.³⁰⁷ The sector has been stagnant in recent decades due to a combination of rural-urban migration, an aging agricultural workforce, declining export opportunities, and the impacts of hazard events.³⁰⁸

There remains significant space for locally produced foods to be marketed for local consumption, but this opportunity requires a cultural shift away from convenient and cost-effective imported foodstuffs. A study of grocery stores in Nuku‘alofa in 2022 found that most packaged food products available were non-dairy beverages (38.5% of all packaged products) and confectionary (26.9%); the remaining one-third of packaged foods included breakfast cereals, instant noodles, dairy beverages, and salty snacks. Of products in the survey, an estimated 10% were “healthy” options.³⁰⁹ Nonetheless, the accessibility and relatively low cost of these products, as well as a tendency to see them as affordable luxuries and convenience items, combines with other aspects of the food system to erode resilience.

Fruits and vegetables are widely available, in contrast to pulses, which are significantly less available in Tonga than elsewhere in the Pacific Islands region or globally. Meanwhile, meat is significantly more available than elsewhere. While the value of total sales of packaged foods per capita is less than half that of the rest of the world and the total value of sales of ultra-processed foods is about half of their value globally, a significant break on the purchase of packaged and processed foods may be the absence of modern grocery retail outlets, with Tonga having only 7.6 retail groceries per 10,000 people, in contrast to a regional and global average of 23.7 and 26.8 per 10,000 people, respectively.³¹⁰

In addition to systemic challenges to the local food system, the hazards that threaten local agriculture and fisheries include:

- Cyclones – storms are common, and high winds, heavy rains, and storm surges all threaten crops and disrupt near-shore fishing; flooded or wind-damaged fields and orchards require significant rehabilitation after a storm, especially if saltwater contaminated the land
- Droughts – El Niño events tend to correlate with freshwater shortages in Tonga; limited rainfall during these periods translates into insufficient groundwater and shortfalls in catchment that mean communities must prioritize human consumption over agricultural uses; drought-related decreases in agricultural productivity both disrupt the food supply chain and reduce wellbeing by driving people who would normally rely on subsistence plots to purchasing food on the markets, where their entry drives up prices
- Seismic and Volcanic Activity – earthquakes and volcanic activity can drive tsunamis that lead to saltwater contamination of agricultural plots; in addition, volcanic ashfall contaminates water sources and fields and disrupts agricultural activity³¹¹

Production shortfalls combine with processing and distribution challenges to create an overall difficult environment for the Kingdom’s food system. Tonga’s dispersed, small-island geography means that each island’s farmers and fisherfolk have insufficient market heft to attract investment in processing facilities or in expanding logistics infrastructure to transport produce to larger domestic or international markets. Meanwhile, the delivery of a greater variety of foods to outer islands is insufficient for total nutrition. A survey during the recovery from the COVID-19 pandemic found that only about 70% of rural households have sufficient nutritional inputs³¹² due partly to production shortfalls and partly to the availability of and preference for lower-nutrition convenience foods.

CONCLUSION

Tonga is frequently exposed to tropical cyclones, earthquakes, and tsunamis, in addition to other hazards. As more than 80% of the population lives within 1 km (0.62 mi) of the coast, homes, businesses, and infrastructure are all highly exposed to hydrometeorological and geophysical hazards.

Tonga maintains a strong, civilian-led DM structure built to coordinate rapid response while emphasizing proactive DRM. Established under the DRM Act 2021, operations are centrally commanded by the Cabinet and coordinated through the NDRMC. HMAF leads defense coordination with foreign militaries, including during disaster responses. Once the Kingdom's government accepts bilateral assistance that involves foreign military assets, requests for assistance routed to those foreign contingents are integrated through the NEOC and civilian leadership, with HMAF acting as the primary liaison with foreign militaries.

Tonga has recently revised its DM approach to strengthen legal, institutional, and regulatory frameworks and to centralize all requests for and deliveries of emergency relief supplies through the focal point of the NDRMO. The 2021 DRM Act also established DRM committees at the village level where they are, by law, expected to have representation of women, young people, people living with disabilities, and other socially vulnerable groups.

A significant impact of disasters upon Tonga is the repeated economic setback. Annual losses from hazards are estimated at 4.3% of GDP.³¹³ The January 2022 HTHH event was particularly challenging. It covered almost the entire country in ashfall and severed the undersea fiber optic cable that provided most of Tonga's communications. The combined effects of the eruption, ashfall, and tsunamis led Tonga's government to declare a state of emergency

and request international assistance. In addition to HMAF, the response involved eight other military forces – Australia, Fiji, France, Japan, New Zealand, the PRC, the United Kingdom, and the U.S. The disaster caused an estimated US\$90.4 million in damage, or approximately 18.5% of Tonga's GDP.³¹⁴

Aside from the HTHH event, tropical cyclones and droughts have been the costliest disasters in recent decades. The economic cost of rebuilding is a concern within the context of Tonga's significant public debt, which, while falling since 2020, remains above 25% of GDP.³¹⁵ The Kingdom's small size, limited market, and difficult logistics environment are deterrents for major investment that would expand productivity and increase revenues to ensure more robust public finances ahead of a disaster. Over the short term, Tonga's CSOs and government agencies work with global NGOs and UN entities to implement programs that build capacity for strong food systems, more resilient housing stock, and communities that are better equipped to address identified hazards and respond to hazard events. All of this work relies on Tonga's sustained relationships with the international bilateral and multilateral donor community.

Beyond economic damage, disasters in Tonga disrupt access to essential services, livelihoods, education, health care, and social support. Disasters increase displacement, unpaid care responsibilities, and protection risks. Disaster impacts are not experienced equally and can place additional pressure on families and households already facing social, economic, or geographic barriers. As reflected in the DRM Policy Framework 2023-2030, Tonga is increasingly embracing an inclusive and integrated approach to DRM to reduce impacts and increase resilience.

APPENDICES

Risk Indices

Risk calculation takes into account exposure to hazards, vulnerability, and coping capacity. Addressing all of these elements is important in reducing and mitigating disaster risk. Various indices emphasize structural or institutional risk while others emphasize hazards or losses (human and economic). Regardless of emphasis, disaster risk calculations use some form of the equation:

$$\text{Disaster Risk} = (\text{Hazard} \times \text{Vulnerability}) / \text{Capacity}^{316}$$

Taken from the UNDRR glossary, definitions will help clarify this formula:

- **Capacity** - The combination of strengths, attributes, and resources available within an organization, community, or society to manage and reduce disaster risks and strengthen resilience.
- **Disaster risk** - The potential loss of life, injury, or destroyed or damaged assets, which could occur to a system, society, or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability, and capacity.
- **Hazard** - A process, phenomenon, or human activity that may cause loss of life, injury, or other health impacts, property damage, social and economic disruption, or environmental degradation.
- **Vulnerability** - The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of an individual, a community, assets, or systems to the impacts of hazards.³¹⁷

In general, the goal of indexing risk is to inform decision makers and DRR practitioners of the level of risk to and underlying capacity of the target community. The various risk calculation models support proactive crisis management frameworks and are helpful for

prioritizing allocation of resources and for coordinating actions focused on anticipating, mitigating, and preparing for humanitarian emergencies.

INFORM Risk Profile

INFORM is a collaboration of the Inter-Agency Standing Committee (IASC) Reference Group on Risk, Early Warning, and Preparedness with the European Commission. It is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. The Joint Research Center of the European Commission is the scientific lead. There are three operational dashboards – i.e., INFORM Risk, INFORM Severity, and INFORM Climate Change.³¹⁸

The **INFORM Risk Index** is an open-source assessment that supports prevention, preparedness, and response decisions. It measures the risk of humanitarian crises and disasters in 191 countries. The INFORM model is based on the standard dimensions of risk: Hazards and Exposure, Vulnerability, and [Lack of] Coping Capacity. The first dimension measures the natural and human hazards that pose the risk. The second and third dimensions cover population factors that can mitigate against or exacerbate the risk. The Vulnerability dimension considers the strength of individuals and households relative to a crisis while the Lack of Coping Capacity dimension considers factors of institutional strength.³¹⁹

The INFORM model is split into different levels to provide a quick overview of the underlying factors leading to humanitarian risk. INFORM gives each country a risk score of 1-10 (1 being the lowest and 10 the highest) for each of the dimensions, categories, and components of risk, as well as an overall risk score.³²⁰ The higher the score the more at-risk a country is. In the 2026 INFORM Risk Index, Tonga had an overall risk score of 3.0/10, which INFORM categorizes as the “Low” risk class and lands the Kingdom as the 120th most at-

risk country of 191 countries in the Index. The Hazards and Exposure dimension score takes into account a combination of both natural and anthropogenic hazards, and Tonga rated 2.2/10 or 135th of 191 countries. The Vulnerability dimension score was 2.7/10 or 143rd of 191. The Lack of Coping Capacity dimension score was 4.4/10 or 87th of 191. Physical exposure to Earthquake, Tsunami, and Cyclone at 7.1/10, 5.7/10, and 5.6/10, respectively, were the greatest threats in the Hazards and Exposure dimension. Aid Dependency, in the Socio-Economic Vulnerabilities category, measured 9.0/10, the highest contributor to risk in the Vulnerability dimension. Lack of DRR, Governance, and Access to Healthcare rated 6.6/10, 5.2/10, and 4.2/10, respectively, to be the most significant contributors to risk in the Lack of Coping Capacity dimension. Figure 14 shows the INFORM Risk dashboard for Tonga for 2026.³²¹

U.S. Government Disaster Management Engagement

As with any sovereign state, Tonga's national government must seek or welcome international assistance to trigger U.S. government disaster response operations. However, programming to develop DM capacities in non-emergency periods can be conducted by U.S. government agencies alongside Tonga's national or local stakeholders. There are on-going projects conducted by U.S. civilian and military entities to sustain and enhance the Kingdom's DM capacities. U.S. Pacific Command (USPACOM) and its component and subordinate commands are among the U.S. government stakeholders working with their Tongan counterparts and others to ensure a shared understanding of civil-

military coordination and other aspects of DM.

U.S. Country Team

The U.S. Embassy in Tonga opened in 2023 after more than 50 years of official diplomatic ties.³²² The mission's emphasis is on expanding Tonga's economic base, building bilateral trade and economic ties, and enhancing Tonga's capacity for governance and resilience.

The U.S. Embassy's Chief of Mission (COM) heads a team of foreign service officers, consular agents, and representatives and agents from other U.S. federal government departments and agencies. The Embassy facilitates security cooperation work by USPACOM and its component commands, as well as the U.S. Coast Guard. The U.S. military and Coast Guard have built relationships with Tonga's security forces – HMAF and police. For example, the U.S. Navy's Pacific Partnership (PP) annual mission continues to stop in the country to build interoperability in DM skills, and the Nevada National Guard has signed an agreement with Tonga under the State Partnership Program (SPP) that allows regular joint training opportunities to build shared skills and knowledge.

The U.S. Peace Corps also has volunteers present in Tonga. They focus on English literacy and environmental projects with communities to address disaster response readiness, food security, water and sanitation, coastal restoration, and other environmental challenges.³²³ Over 1,700 volunteers have served in Tonga since 1967, and volunteers returned to Tonga in June 2023 after their 2020 departure due to the COVID-19 pandemic. Averaging 50 Peace Corps Volunteers for approximately 100,000 Tongans, Peace Corps Tonga has one

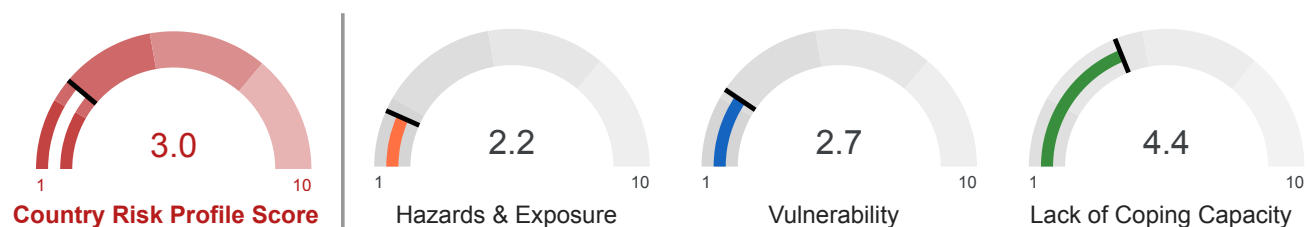


Figure 14: INFORM Risk Index Dashboard for Tonga (2026)

of the highest per capita programs in the world. Volunteers learn to speak Tongan during their service in the country.³²⁴

U.S. Embassy in Nuku'alofa

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Responses in the Past Five Years (2021-2026)

The U.S. State Department is the lead federal agency for U.S. international disaster response. Within the Department, the Bureau of Disaster and Humanitarian Response (DHR) mobilizes funding, supplies, and personnel to support a disaster-affected state when that state requests or will accept international assistance and the U.S. offers assistance within the context that the assistance meets requirements for U.S. interests. The State Department may request other U.S. federal agency support if specific capacities are needed; as such, the Department may request U.S. military support for unique capacities and specified durations.

Hunga Tonga – Hunga Ha'apai Eruption and Tsunami – January 2022

After the HTHH event, the U.S. chargé d'affaires for Tonga declared a disaster on 16 January. A first tranche of funding, US\$100,000 from the agency that was, then, the lead federal agency – the U.S. Agency for International Development (USAID), went to TRCS via the IFRC to support immediate WASH assistance.³²⁵

Overall, USAID delivered US\$2.6 million in assistance and rebuilt DRR partnerships with local stakeholders after the eruption and tsunami.³²⁶ By mid-2022, it had delivered funding to implementing partners – the FAO and CARE – to conduct recovery programs related to agriculture, shelter, and WASH. CARE's main work was in supporting affected Tongans as they rehabilitated their rain catchment

systems, while FAO delivered inputs to rebuild farming livelihoods.

Given the massive disruptions to communications due to damage to undersea cables, USAID supported the WFP-led ETC to repair the damaged cable, and NOAA delivered “chatty beetles” to allow remote communities to communicate with central authorities.

Additional U.S. funding supported UN OCHA, the PHT, and SPC, all of whom organized and oversaw food deliveries. Moreover, as recovery continued, USAID, NOAA, and the U.S. Geological Survey (USGS) participated in projects to collect tsunami data and bolster forecast models.³²⁷

DoW DMHA Engagements

When the capacity of national authorities is outstripped by the requirements of a disaster response and the U.S. government has offered assistance, if the Department of State assesses that it requires additional capacity to deliver relief, it can request support from the DoW via an inter-agency process. If the Secretary of War assesses that U.S. military forces have the capacity to respond, the Pentagon will assign the response to a Geographic Combatant Command (e.g., USPACOM) who can assign the response to an available and trained commander. The assigned unit will support DHR for a specified period of time. On the ground, State and DoW responders utilize a specified process to receive tasking and report the status of tasks.

While the U.S. commonly delivers disaster relief in a bilateral fashion, it coordinates not only with the affected state but also with other key responders. In the Pacific, Australia, Canada, Japan, New Zealand, and Tonga's fellow PICTs frequently provide humanitarian support. To ensure that U.S. forces are ready to fulfill their tasking, U.S. military units and agencies commonly undertake preparedness activities to train with Tongan responders and partner states.

In the past decade, U.S. military personnel and assets have conducted multiple DM activities in Tonga. The multinational response

to the HTHH event of January 2022 not only demonstrated the ability of regional military forces to support the Kingdom and the international humanitarian community but also highlighted both best practices and challenges.

Volcanic Eruption and Tsunami – January 2022

On 15 January 2022, Tonga’s HTHH volcano erupted, producing an atmospheric pressure wave, an ash plume, and a series of tsunamis. The combined effects of the eruption, ashfall, and tsunamis led Tonga’s government to declare a state of emergency and request international assistance. After the COM also declared a disaster, U.S. government processes led not only to financial donations to Tonga but also the participation of U.S. military forces in the disaster response. In addition to HMAF and the U.S., the response involved seven other military forces – Australia, Fiji, France, Japan, New Zealand, the PRC, and the United Kingdom.

Australia’s HQJOC was the hub for multinational military coordination for all responding forces except those of the PRC.³²⁸ The U.S. Navy’s USS Sampson began to deliver assistance in Tonga on 25 January. She joined Australian, British, French, Japanese, and New Zealand naval ships delivering relief and conducting assessments, all in the “contactless” manner required by Tonga’s government due to the COVID-19 pandemic. Helicopters from USS Sampson assessed damage and dropped supplies to residents. The Sampson also conducted a replenishment-at-sea with New Zealand oiler HMNZS Aotearoa.³²⁹

While the Sampson’s mission concluded the first week of February, the U.S. Coast Guard’s Cutter USCGC Stratton joined the response and continued to support additional requests from Tonga’s government in coordination with FRANZ partners and the United Kingdom.³³⁰

Nevada National Guard

The Nevada National Guard maintains relationships with Tonga, Fiji, and Samoa through the U.S. National Guard Bureau’s SPP, which allows National Guard forces from states

across the U.S. to build capable, interoperable partners and strengthen relationships over time. This work ensures that U.S. and partner forces are ready to operate together when the time comes. The SPP relationship with Tonga was established in 2014.³³¹

In the first two years of the partnership, Nevada Guards and HMAF, along with other agencies of the Tongan government, undertook 20 exchanges, with subjects ranging from search and rescue to bio-security.³³² In 2016, members of the Nevada Guard’s 442nd Expeditionary Signal Battalion and Air National Guard joined HMAF in setting up, operating, and troubleshooting radios and communications base stations funded by the U.S. and Australia; this equipment was located across the Kingdom and on one HMAF vessel.³³³ Another exchange later in 2016 saw Guards, Tongan troops, and agents of the MAFF working on mangrove vegetation and its capacity to help protect against tsunami impacts.³³⁴

In 2017, troops from the Nevada Guard’s Medical Group worked alongside HMAF to deliver medical support to forces participating in Exercise Tafakula, a multinational event in and around Vava’u. This event marked an expansion in HMAF’s ability to deliver medical care to its own troops, to allied forces, and to civilians, as it the force had not previously integrated medical skills into its arsenal.³³⁵

As was common in the Pacific Islands during the COVID-19 pandemic, face-to-face exchanges went on hiatus. During 2022, the Nevada Guard re-engaged with Tonga after a more than 2-year absence and reviewed how the SPP could contribute to Tonga’s DM and security efforts in the wake of the 2022 HTHH event.³³⁶ In 2023 and 2024, Nevada Guards joined soldiers from Tonga, as well as from Australia, Fiji, France, New Zealand, and the United Kingdom in Exercise Cartwheel, hosted by Fiji. The exercise focused on military-to-military training to enhance multinational combat readiness.³³⁷

Photo 5 shows the Adjutant-General of the Nevada National Guard as he surveyed damage on Tongatapu after TC Gita passed through the

islands. Brigadier-General Burks noted that Australia and New Zealand would be the first on the scene to deliver international assistance, but that the Nevada National Guard was also ready if the Kingdom requested assistance from the U.S. because the Guard has a State Partnership Program arrangement with HMAF.³³⁸

Pacific Partnership (PP)

PP is the U.S. Navy's largest annual multinational DM mission in the region. For over 20 years, PP has worked with host and partner nations to enhance regional DM capacity and interoperability.

In November 2023, just after the U.S. had opened its Embassy in the Kingdom, PP made its first mission stop in Tonga since 2013. For PP23, the Kingdom had invited U.S. forces to conduct tailored humanitarian and civil preparedness activities. Nearly 1,500 personnel from Australia, Canada, Chile, Japan, Republic of Korea, New Zealand, the United Kingdom, and the U.S. joined the Tonga mission stop to deliver medical care and subject matter expert

exchanges on DM.³³⁹

In July 2025, PP25 stopped in Nuku'alofa for medical engagements, infrastructure improvements, and knowledge exchanges. The PP medical team, consisting of U.S. Navy, Army, and Public Health Service, as well as Tongan MoH personnel, conducted over 30 community health engagements at Vaiola Hospital and Mu'a Health Center. Meanwhile, sailors assigned to Naval Mobile Construction Battalion 4 (NMCB 4) and Tongan engineers formed the PP25 engineering team and created SOP manuals for the operation, maintenance, and preservation of two Mobile Utilities Support Equipment generators that power several health facilities at the Vaiola Hospital, where NMCB 4 Sailors also delivered additional construction projects. The engineering team also broke ground on the 2-month long renovation of a technical classroom building located on the campus of Tonga College 'Atele, where local students learn and practice their technical and mechanical engineering trades.³⁴⁰



Photo 5: Nevada National Guard Surveys Hurricane Damage on Tongatapu (2018)

Additional Resources

This appendix provides additional references, with links, to enable readers to find relevant and contextual information.

International and U.S. Government Sources

U.S. Embassy in Tonga

<https://to.usembassy.gov/>

Sendai Framework for Disaster Risk Reduction 2015-2030

United Nations Office for Disaster Risk Reduction (UNDRR)

<https://www.undrr.org/implementing-sendai-framework/what-sendai-framework>

Pacific Humanitarian Team (PHT)

<https://response.reliefweb.int/pacific-region/pacific-humanitarian-team-pht>

Established by UN OCHA's Office of the Pacific Islands, the PHT is a network of humanitarian organizations working together across 14 PICTs, including Tonga. It supports governments to establish arrangements and systems to respond to a disaster.

National Resources

Tonga Disaster Risk Management Policy Framework 2023-2030

https://www.nemotonga.gov.to/_files/ugd/cedc6f_4c2c944b5cea460d8fe6f033c1fa19ff.pdf

Tonga Disaster Risk Management Act 2021

https://ago.gov.to/cms/images/LEGISLATION/PRINCIPAL/2021/2021-0022/DisasterRiskManagementAct2021_1.pdf

U.S. DoW Resources

Humanitarian Assistance Response Training – Disasters (HART-D) Course

CFE-DM, U.S. Pacific Command

<https://www.cfe-dmha.org/hart-d>

Target Audience: O3-O6, E6-E9, and DoW civilians who may plan for or execute a Foreign Disaster Relief mission or participate in disaster response activities in exercises or security cooperation engagements.

USINDOPACOM Foreign Disaster Response in the Indo-Asia-Pacific April 1991 – January 2024

CFE-DM, U.S. Pacific Command

<https://www.cfe-dmha.org/Publications/New-Releases>

Contemporary historical synopsis of foreign disasters the U.S. DoW responded to in the Indo-Pacific.

Best Practices for Civil-Military Coordination in Disaster Management in the Pacific Islands

CFE-DM, U.S. Pacific Command

<https://www.cfe-dmha.org/LinkClick.aspx?fileticket=P1bo8u2moc8%3d&portalid=0>

China's Multi-Pronged Approach to Gain Influence in Oceania

CFE-DM, U.S. Pacific Command

<https://www.cfe-dmha.org/LinkClick.aspx?fileticket=4GhPZrSmLb4%3d&portalid=0>

Regional Coordination

Pacific Islands Forum

<https://forumsec.org/pacific-islands-forum>

Pacific Community

<https://www.spc.int/>

Asia-Pacific Regional Guidelines for the Use of Foreign Military Assets in Natural Disaster Response Operations (“APC-MADRO Guidelines”)

The Asia-Pacific Conferences on Military Assistance to Disaster Relief Operations (APC-MADRO) & OCHA, 2014
<https://www.unocha.org/publications/report/world/asia-pacific-regional-guidelines-use-foreign-military-assets-natural-disaster-response>

Reference guide for states planning and executing foreign military support for regional disaster response.

Multinational Force Standing Operating Procedures (MNF SOP) – Annex C: Humanitarian Assistance/ Disaster Relief

Multinational Planning Augmentation Team (MPAT), U.S. Pacific Command

https://www.pacom.mil/Portals/55/Documents/J7/MNF%20SOP%20Ver%203.4_14%20FEB%2025_vbf.pdf?ver=4LVTNxMJB8_1xpfYdARg%3d%3d (D1 C1/ PDF pg. 883)

Annex on international humanitarian assistance; part of broad standing procedures for regional multinational force operations other than war.

Humanitarian Civil-Military Coordination in Emergencies: Towards a Predictable Model – The Pacific Region

Australian Civil-Military Centre (ACMC)

<https://www.acmc.gov.au/resources/publications/humanitarian-civil-military-coordination-emergencies-towards-predictable-1>

Publication intended for civilian and military actors engaged in preparedness, response and early recovery across international, regional and national spheres.

Beyond Barriers: Tonga Case Study

Humanitarian Advisory Group (HAG)

https://humanitarianadvisorygroup.org/wp-content/uploads/2022/11/HAG_World-Vision-Case-Study_Tonga.pdf

Acronyms and Abbreviations

°	degree(s) – of temperature (C = Celsius; F = Fahrenheit); or of latitude and longitude (N = North; S = South; E = East; and W = West)
\$	Pa'anga (Tongan [T] currency) or dollar(s) (U.S.)
ADB	Asian Development Bank
ADF	Australian Defence Forces
CEO	Chief Executive Officer
CFE-DM	Center for Excellence in Disaster Management and Humanitarian Assistance (U.S.)
COVID-19	Coronavirus Disease 2019
CRED	Centre for Research on Epidemiology of Disasters
CROP	Council of Regional Organisations of the Pacific
CSFT	Civil Society Forum of Tonga
DFAT	Department of Foreign Affairs and Trade (Australia)
DHR	Bureau of Disaster and Humanitarian Response (U.S. Department of State, succeeded USAID)
DM	disaster management
DoW	Department of War (U.S.)
DRM	disaster risk management
DRR	disaster risk reduction
EEZ	exclusive economic zone
EM-DAT	Emergency Events Database / International Disaster Database, by CRED
ENSO	El Niño-Southern Oscillation
EOC	emergency operations center
ETC	Emergency Telecommunications Cluster
EWS	early warning system
FANC	French Armed Forces of New Caledonia
FAO	Food and Agriculture Organization (UN)
FFA	Forum Fisheries Agency
FRDP	Framework for Resilient Development in the Pacific
ft/ ft ²	foot or feet / square feet
GDP	gross domestic product
HADR	Humanitarian and Disaster Relief (Australia)
HF	high frequency
HMAF	His Majesty's Armed Forces
HQJOC	Headquarters Joint Operations Command (ADF)
HTHH	Hunga Tonga-Hunga Ha'apai volcano
ICAO	International Civil Aviation Organization
ICCC	Inter-cluster Coordination Committee
IFRC	International Federation of Red Cross and Red Crescent Societies
in	inch(es)

IOM	International Organization for Migration
IPP	independent power producers
JASDF	Japan Air Self-Defense Force
JICA	Japan International Cooperation Agency
JMSDF	Japan Maritime Self-Defense Force
km/km ²	kilometer(s) / square kilometer(s)
m / m ²	meter(s) / square meter(s)
M	magnitude (seismic)
MAFF	Ministry of Agriculture, Food, and Forests
Mbps	megabits per second
MEIDECC	Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications
MHEWS	Multi-hazard Early Warning System
mi / mi ²	mile(s) / square mile(s)
mm	millimeters
MOH	Ministry of Health
MOI	Ministry of Infrastructure
MORDI	Mainstreaming of Rural Development Innovations (MORDI)
MW	Megawatts
NCD	non-communicable disease
NDRMC	National Disaster Risk Management Committee
NDRMO	National Disaster Risk Management Office (formerly NEMO)
NDOPSC	National Disaster Operations Sub-Committee
NDRSC	National Disaster Recovery Sub-Committee
NEMO	National Emergency Management Office (now NDRMO)
NEMP	National Emergency Management Plan
NEOC	National Emergency Operations Center
NGO	non-governmental organization
NMCB	Naval Mobile Construction Battalion (U.S.)
NOAA	National Oceanic and Atmospheric Administration (U.S.)
NZDF	New Zealand Defence Force
PAT	Ports Authority Tonga
PHAS	Pacific Humanitarian Air Service (WFP)
PHT	Pacific Humanitarian Team
PIANGO	Pacific Islands Association of Non-Governmental Organizations
PICTs	Pacific Island Countries and Territories
PIEMA	Pacific Islands Emergency Management Alliance
PIF	Pacific Islands Forum
PP	Pacific Partnership (U.S. Navy)

PRC	People's Republic of China
PRG	Pacific Response Group
PRO	Polynesia Regional Office (SPC)
PTWC	Pacific Tsunami Warning Center
PV	photovoltaic
QSIW	Queen Salote International Wharf
RAAF	Royal Australian Air Force
RFMF	Republic of Fiji Military Forces
RORO	roll-on roll-off
SDG	Sustainable Development Goals
SIDS	Small Island Developing States
SITREP	situation report
SOP	standard operating procedures
SPC	Pacific Community
SPDMM	South Pacific Defence Ministers' Meeting
SPP	State Partnership Program (U.S.)
SRE DRM	Strategic Roadmap for Emergency and Disaster Risk Management
TAL	Tonga Airports Limited
TBC	Tonga Broadcasting Commission
TC	tropical cyclone
TCC	Tonga Communications Corporation
TCL	Tonga Cable Limited
TEMAT	Tonga Emergency Medical Assistance Team
TFES	Tonga Fire and Emergency Services
THSSP	Tonga Health Sector Support Program
TMS	Tonga Meteorological Services
TPL	Tonga Power Limited
TRCS	Tonga Red Cross Society
TSF	Télécoms Sans Frontières
TWB	Tonga Water Board
U.S.	United States
UN	United Nations
UN OCHA	United Nations Office for the Coordination of Humanitarian Affairs
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

UNRCO	United Nations Resident Coordinator's Office
UNOSAT	United Nations Satellite Centre
US PACOM	U.S. Pacific Command
USAID	U.S. Agency for International Development (succeeded by U.S. State/DHR)
USCG	U.S. Coast Guard
USGS	U.S. Geological Survey
USP	University of the South Pacific
VHF	very high frequency
VSAT	very small aperture satellite
VWC	Village Water Committees
WASH	water, sanitation, and hygiene
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization

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