

Nomuka Group

Ma'do

Otu Tolu Group
Teleki Tonga

Konumeia
Kelelesia

Hunga Ha'apai
Hunga Tonga



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Tapu Group



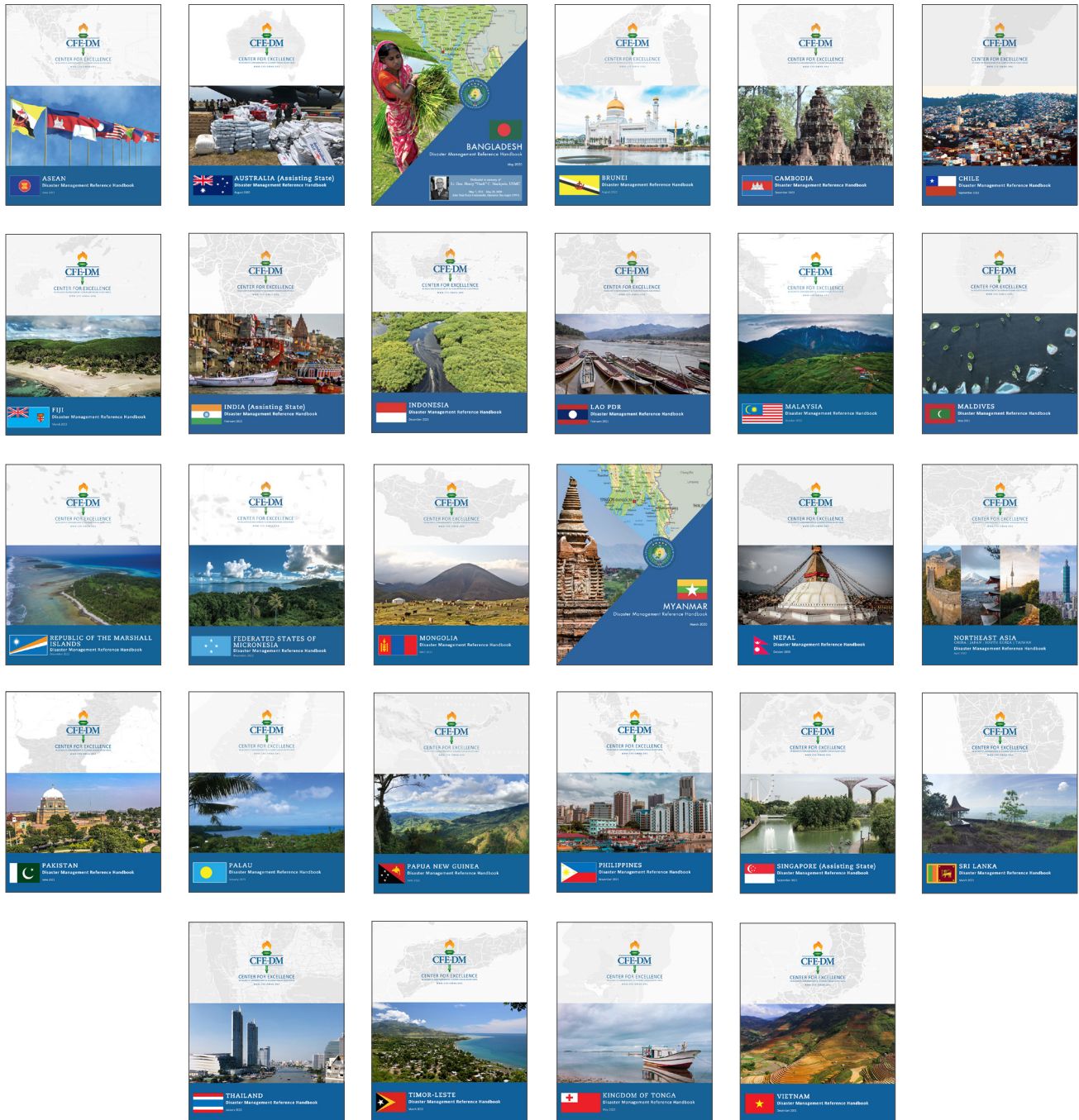
KINGDOM OF TONGA

Disaster Management Reference Handbook

May 2023

Disaster Management Reference Handbook Series

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Front Cover

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Letter from the Director

Tonga is frequently exposed to various natural hazards and is vulnerable to the impacts of climate change, which is expected to exacerbate human and economic losses as, for example, rising sea levels cause more flooding, coastal erosion, and contamination of fresh water.

The country has developed an “all-hazards” disaster management approach that focuses on emergency support functions coordinated by the National Emergency Management Office, and it integrates disaster risk reduction and climate change adaptation in its plans and policies. Despite this preparation, the country’s disaster management capacity was sorely tested in early 2022 when the Hunga Tonga-Hunga Ha’apai (HTHH) volcano sent a massive atmospheric pressure wave, a plume of ash, and a series of tsunamis out over Tonga and throughout the region. The United States (U.S.) was among the international partners who responded immediately when helicopters embarked on the USS Sampson conducted aerial damage assessment and dropped supplies to support the people of Tonga in coordination with other partners and allies. But even before the HTHH events, the U.S. military and civilian agencies had been building relationships with Tongan responders via various programs, not least of which is the U.S. National Guard State Partnership Program.

These interactions all fit within the framework of growing U.S. investments of time and resources in the Pacific Islands region, including Tonga. In the U.S. Indo-Pacific Strategy, published in February 2022, Tonga and its neighbors are identified as critical to the pursuit of a free and open, prosperous, and secure region. Among the strategic imperatives is ensuring that countries in the region can meet civilian security challenges, including preparing for and responding to natural disasters. Because of this status, the United States is ramping up work with Tonga to reduce the Kingdom’s vulnerability to the impacts of climate change and environmental degradation. The U.S. government’s September 2022 launch of the U.S. Pacific Partnership Strategy for the Pacific Islands lays out ways the U.S. can align with the Pacific Islands Forum’s 2050 Strategy for the Blue Pacific Continent by investing in diplomacy and other resilience-building efforts not only by establishing a U.S. Embassy in Tonga but also funding better climate forecasting and research that enhance the country’s ability to detect and respond to hazards.

This Tonga Disaster Management Reference Handbook is a contribution by the Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) to the bilateral relationship and to multilateral efforts to build the Kingdom’s resilience. The Handbook focuses on Tonga’s disaster management framework and disaster risk reduction strategies. It also provides an overview of the country’s government, geography, demographics, socio-cultural practices, and history of natural disasters. The aim of this handbook is to serve as an initial source of information for individuals preparing for disaster management, response, and risk reduction activities or immediate deployment with Tonga partner responders in a crisis.



Sincerely,

Joseph D. Martin, SES
Director

About the Center for Excellence in Disaster Management & Humanitarian Assistance

Overview

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) is a United States (U.S.) Department of Defense (DoD) 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 nongovernmental 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. Indo-Pacific Command (USINDOPACOM) and is located on Ford Island, Joint Base Pearl Harbor-Hickam, Hawaii.

Vision

The Joint Force, allies, and partners are fully prepared to conduct and support foreign humanitarian assistance.

Mission

CFE-DM builds crisis response capacity in U.S. and partner militaries, enhances coordination and collaboration with civilian and foreign partners, and strengthens those relationships to save lives and alleviate human suffering before, during, and after humanitarian crises.

Contact Information

Center for Excellence in Disaster Management and Humanitarian Assistance
456 Hornet Ave
JBPHH, HI 96860-3503
Telephone: +1 (808) 472-0518
<https://www.cfe-dmha.org>

EXECUTIVE SUMMARY

Tonga is a kingdom in the South Pacific. It is an archipelago comprised of 176 islands, home to a population of approximately 100,000 people, 74% of whom live on the main island, Tongatapu.¹ While Tonga's economy relies heavily on remittances from Tongan workers overseas and on foreign budgetary aid, it also has a productive agricultural sector, in which an estimated 64% of households engage in some way.² This level of exposure to the global economy and reliance on agriculture leaves the country vulnerable to global economic shocks and to the ravages of natural disasters and climate change. Indeed, Tonga's losses from natural disasters as a percentage of Gross Domestic Product (GDP) are among the top five in the world over the last decade. Moreover, climate change is expected to exacerbate these losses. These factors have led Tonga to develop a disaster management approach that is "all-hazards" and focuses on emergency support functions.

Since 2007, the National Emergency Management Office (NEMO) has been the lead office for coordinating disaster risk reduction (DRR). Since 2015, NEMO has overseen the national cluster system, which adapts the international humanitarian cluster system as advocated by the United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA). Tonga's 10 clusters integrate various stakeholders, including other government agencies, non-governmental organizations (NGO), His Majesty's Armed Forces (HMAF), and UN bodies such as the World Health Organization (WHO) and OCHA.

Passed into law in mid-2021, the Disaster Risk Management (DRM) Act was written with the goal of enhancing the legal, institutional, and regulatory framework for disaster management. Under the 2021 Act, NEMO is to become the National DRM Office, which will establish and maintain the National DRM Policy and will be the focal point for all requests and donations of relief supplies from partners, private

contributors, and international organizations in times of emergency. Local DRM committees are expected to have representation of "women, young people, people with disabilities, and other vulnerable groups."³

In addition to its explicit disaster management efforts, Tonga, like many of its neighbors in the South Pacific, views climate change mitigation and climate change adaptation (CCA) as integral parts of DRR. It was the first country in the region to develop a Joint National Action Plan (JNAP) on Climate Change Adaptation and Disaster Risk Management in 2010. In 2018, the government updated the plan, JNAP2, to build a new approach in line with the Sendai Framework for Disaster Risk Reduction and the Paris Agreement. Like the DRM Act of 2021, the JNAP2 promotes inclusion and empowerment of vulnerable groups.

The country's disaster management capacity was sorely tested in early 2022 when the Hunga Tonga-Hunga Ha'apai (HTHH) volcano sent a massive atmospheric pressure wave, a plume of ash, and a series of tsunamis out over Tonga and throughout the region. National and island emergency operations centers had been activated before the event, and the government declared a state of emergency, followed a few days later by a request to the UN Resident Coordinator for urgent humanitarian assistance. The world responded. Coming as it did amidst the Coronavirus Disease 2019 (COVID-19) pandemic, the disaster abetted Tonga's first large-scale exposure to the disease after nearly two years of closed borders that kept the virus at bay. NEMO coordinated with international relief actors to deliver assistance through a modified, contact-free distribution system. The combined eruption, ashfall, and tsunami affected at least 85,000 people, displaced 2,400 people, and killed four people. The events affected 85% of agricultural households, and the long-term effects could include severe disruptions to fishing-based livelihoods.⁴

COUNTRY OVERVIEW

Tonga is a Polynesian kingdom in the South Pacific. It is an archipelago comprised of 176 islands, 36 of which are inhabited by a population of approximately 100,000 people. The islands are divided into three main groups – Tongatapu, Ha‘apai, and Vava‘u – with smaller islands stretching further north and south from these main groups. While Tonga’s economy relies heavily on remittances from Tongan workers overseas and foreign budgetary aid, it also has a productive agricultural sector.

History

Tonga was first inhabited between 1500 and 1000 BCE by seafarers belonging to the Lapita cultural complex that had spread from East and Southeast Asia; they settled the islands that would become Melanesia and Polynesia. The oldest date for a site containing Lapita pottery in the islands of Tonga is 950-850 BCE, from an excavated site in the village of Nukuleka in eastern Tongatapu.⁵ Additional dating of 20 sites in Tonga in 2015 suggested that most of the rest of the islands of the modern country were settled within 50 years of the original settlement as a combination of resource depletion, cultural push factors, and a desire to explore drove people outward. At the same time, archeologists found evidence that these “daughter” settlements retained contact with the communities from which they originated for hundreds of years.⁶ Among the suite of plants and animals that appear to have traveled with the Lapita voyagers to Tonga were taro, yam, breadfruit, banana, coconut, domesticated pigs, dogs, fowl, and Pacific rats.⁷

The voyaging Lapita people may have mixed with people already resident in some of the islands where they arrived. However, Tongan is an Austronesian language, related to those languages also spoken by other communities that live where people from the Lapita culture settled; it is not related to Melanesian languages.⁸ Recent DNA studies of the remains of ancient

individuals found in Tonga and other Lapita-settled islands in the Pacific reveal that these early settlers were closely genetically related to aboriginal Austronesian communities in Taiwan. Later infusions of settlers from Melanesia – particularly Papuan-inhabited islands – arrived up through about 1000 CE and leant supplementary heritage to create the Polynesian people from which today’s Tongans and others descend.⁹

The Lapita sites excavated in Nukuleka are not far from the historic sites of the Ha‘amonga ‘a Maui and the Ancient Royal Tombs of Lapaha, and some historians argue that the Nukuleka Lapita site may suggest a direct link between the early settlers and the later Tu‘i Tonga Empire,¹⁰ which oral tradition records as having formed around the year 950 CE. The first Tu‘i Tonga (named ‘Aho‘eitu) located his capital at the village of Toloa, also in eastern Tongatapu. The Ha‘amonga ‘a Maui, which is named to refer to the Polynesian god, Maui, is at the site of the second capital, known as Heketā, the site to which the 10th Tu‘i Tonga (Momo) relocated the royal compound from Toloa late in the 10th century. Shown in Photo 1,¹¹ the Ha‘amonga ‘a Maui itself is a trilithon, a monumental stone structure comprising three coral limestone slabs, each of which stands 6 meters (m; 19 feet) in height and is estimated to weigh more than 20 tons. It is said that the 11th Tu‘i Tonga (Tu‘itatui)



Photo 1: Ha‘amonga ‘a Maui Trilithon

built the trilithon in approximately the year 1200 although the reason for its construction remains a subject of debate.

The village of Mu'a, 12 kilometers (km; 7.5 miles) from the current capital, Nuku'alofa, is the site of the third Tu'i Tonga capital, active from the 13th through 19th centuries. In the northeastern sector of Mu'a is Lapaha, which is said to have been the permanent home and center of chiefly power. It is the site of more than 20 ancient royal tombs, which are platforms of earth supported by stone slabs that reputedly demonstrate the spiritual and political power of the Tu'i Tonga at the Empire's peak.¹² In about 1470, the reigning Tu'i Tonga transferred his temporal powers to his brother, the Tu'i Ha'a Takalaua, and a similar transfer of power in about 1600 resulted in the creation of a third line of monarchs, the Tu'i Kanokupolu, who became the rulers.¹³ These transfers corresponded with a period of civil wars during the 15th and 17th centuries, periods that weakened the traditional system just as European explorers, missionaries, and merchants were beginning to reach the islands.¹⁴

Two Dutch exploratory expeditions in 1616 and 1643 marked the first contact between Tonga and Europeans. They were followed over a century later by the arrival of English Captain James Cook who visited between 1773 and 1777 and called the Tonga islands the "Friendly Islands" because the native inhabitants provided him with supplies and gave him a warm welcome.¹⁵ The northern island group, Vava'u, was "claimed" by Spanish navigators in 1781, and from that period onward, traders would increasingly visit Tonga. Tensions grew, culminating in the 1806 sacking of the British ship *Port-au-Prince* in Lifuka in the Ha'apai island group.¹⁶

Meanwhile, between 1799 and 1852, Tonga went through a period of internal disorder that was eventually ended by Taufa'ahau,¹⁷ who was the Tu'i Kanokupolu and ruler of Ha'apai. He had converted to Christianity in 1831 after Wesleyan Methodist missionaries had arrived and begun proselytizing in the 1820s. After a succession

of wars, in 1845, Taufa'ahau emerged as King George Tupou I (1845–1893).¹⁸ During his reign, Tonga became a unified and independent country with a modern constitution (1875), legal code, and administrative structure.¹⁹ Despite these structures that marked Tonga as a modern state in the mold of European nation-states, it could not escape the competition among European powers that brought much of the region – and the world – under colonial or semi-colonial control. Initially, Tonga was harassed by the French navy and forced into an unequal treaty with France in 1855. Twenty years later, Germany, increasingly active commercially in the region, was keen to establish a coaling station on Vava'u, and King George took advantage of this interest to conclude a treaty of friendship in 1876. The treaty recognized Tongan nationhood, and, as an added benefit, prompted Great Britain to seek a treaty on similar terms. A treaty of friendship with Britain was ratified in 1879,²⁰ and Tonga and the U.S. subsequently signed a treaty that also recognized Tonga's independence.²¹ What followed were protracted negotiations among colonial powers over territorial spoils in the Pacific after Germany annexed Western Samoa and the United States annexed eastern Samoa in 1899.²²

In 1893, George I had been succeeded by his great-grandson, George II, who died in 1918.²³ During his reign, British involvement in Tongan affairs deepened to the point that a new treaty resulted in Britain declaring Tonga a British protectorate in 1900.²⁴ Under the treaty, Tonga agreed to conduct all foreign affairs through a British Consul, who had veto power over Tonga's foreign policy and finances.²⁵ Although Tonga remained governed by a monarchy, which claimed absolute powers based on the constitution, the third monarch, Queen Salote Tupou III (1918-1965), demonstrated somewhat greater respect for the constitutional nature of the state because it both protected her constitutional rule and provided a stable framework within which she could exercise many of her traditional powers.²⁶ Queen Salote Tupou III was succeeded upon her death in 1965 by her

son Prince Tupoutoʻa Tungi, who ruled as King Taufaʻahau Tupou IV until 2006. It was during his rule, in 1970, that Tonga regained full control of domestic and foreign affairs and reasserted full independence²⁷ with a fresh agreement with Britain keeping Tonga within the British Commonwealth.²⁸

After independence, a pro-democracy movement took shape. From the 1990s, reform advocates won ever greater representation in the legislature even as the government resisted change. Although some members of the royal family were sympathetic to the pro-democracy cause, reformist leaders, including ʻAkilisi Pohiva, a member of the legislature, were occasionally arrested and imprisoned. The country's first non-noble prime minister, Feleti (Fred) Sevele, was appointed in March 2006. In September that year, King Taufaʻahau Tupou IV died and was succeeded by Crown Prince Tupoutoʻa, who ruled as King George (Siaosi) Tupou V (2008-2012). Later in September 2006, a National Committee for Political Reform, whose formation had been approved by King Taufaʻahau Tupou IV, reported to the legislature with recommendations for reducing the size of the legislative assembly, the Fale Alea, and increasing the number of seats for popularly elected representatives. The Fale Alea passed an amended version, but dissatisfied pro-democracy protesters launched a demonstration that turned into a riot that went on for several weeks. Troops were called in from New Zealand and Australia to reestablish peace.

Ahead of his coronation in August 2008, King George Tupou V began divesting himself of ownership in many of the state assets that constituted much of the wealth of the monarchy. At the same time, he ceded much of the monarchy's absolute power such that most of the monarch's governmental decisions, except those relating to the judiciary, were to be made in consultation with the prime minister. In November 2010 general elections, the pro-democracy movement made a strong showing with Pohiva's Democratic Party winning 12 of the 17 contested seats; the other five elected seats went to independents. This total was

insufficient to allow the party to form an outright majority after the independents joined the body's nine nobles in electing a noble, Tu'ivakano, rather than a commoner, as prime minister in December. In 2012, King George Tupou V died and was succeeded by his brother, Crown Prince Tupoutoʻa Lavaka, who ruled as Tupou VI. After general elections in December 2014, the Democratic Party's wins brought ʻAkilisi Pohiva to the Premiership. Pohiva died in September 2019 and was eventually replaced by Pohiva Tu'ionetoa,²⁹ who held power until fresh general elections in November 2021. Siaosi Sovaleni was elected to the Premiership following that election.³⁰

Culture and Demographics

In its 2021 census, the Tonga Statistics Department found 100,179 people residing in the country. Of the enumerated people, men accounted for 48.7% (48,749 people) and women for 51.3% (51,430 people). The median age was 22 years, and only 9,500 residents were over the age of 60 years. While the nominal average household is home to 5.3 people, one-third of the population reports living in a household of seven or more people while only 7% of households include a single person.³¹

Large families – nuclear and extended – are broadly valued in Tongan culture, which places immense importance on the knowledge gained with age and the stories that can be told by elders. Many families continue to work a plot of land where they not only grow some crops that sustain their families but also spend time each day in the valued activity of tending crops. Any land held by a family is generally passed down to the eldest son. Thus, younger siblings from large families often move into towns in order to earn money because they have been shut out of land use and the economic opportunities that come with it. Most of these rural-urban migrants will eventually move back to their villages, but an increasing number make a bigger move – to Australia, New Zealand, or the U.S. – and will

send money home to their families but may never return to their villages.³² Tonga's diaspora of 100,000-150,000 Tongans is critical to the economy as these Tongans working overseas remit significant amounts of cash.³³

The population of the country did fall by 0.1% over the five years between the 2016 and 2021 censuses, and the Ha'apai group saw the largest drop – 1.5%. Only the Vava'u group saw a rise in population over those five years. This overall trend continued the drop in population seen between the 2011 and 2016 censuses; the 2016 count had found a drop of more than 3,000 people. The female population has shown greater stability while the number of men in society has fallen considerably, dropping by 1,724 between 2011 and 2016 and falling a further 1,406 between 2016 and 2021. No area of the country – urban or rural, Tongatapu or the other islands – has been immune from this decrease in population.³⁴ It must be noted that the impact of Tongans stuck overseas due to the COVID-19 pandemic-era travel restrictions may have accounted for some of the loss in the 2021 census, according to the Statistics Department.³⁵

The “Tongan way” or angafakatonga encompasses various values, practices, beliefs, and behaviors beyond the value placed on family, and it also is strongly connected to Christianity. The social structure is highly stratified and status-conscious, and the incorporation of genealogies within the country's strong oral tradition allows Tongans to share the details of their ancestries and cement their identities through communicating the status of their families. Gender and age are major determinants of social status and position in the family. Beyond the family, there is a structured class system with two separate but related concepts: social status and societal rank. Social status is the position inherited from the paternal line, while societal rank is the position inherited from the maternal line. Status governs relationships within the kin group, while rank governs relationships across society. To simplify, in contemporary Tonga, there are three social status categories: royalty, noble, and commoner.³⁶ To generalize

beyond status, age brings higher rank, and men are ranked higher than woman within society at large, but within the family, sisters are ranked higher than brothers.³⁷ Within a family, the highest status belongs to the Fahu, who is the father's oldest sister. Those of high status may receive the best foods, housing, clothing, and opportunities, but they would reciprocate by extending generous support to all family members.³⁸

The fale is the traditional house of Tonga, and the word can also be used to mean “family.”³⁹ A fale is mainly built using wood, thatch, and rope, and there are variations,⁴⁰ such as Falefaha'ua (built like a tent with a low surrounding wall), Fale fata (a four-posted structure with attic space), Falefakamanuka (a Samoan-influenced, four-post building with no walls), Falefakafisi (Fiji-influenced with high walls), and the Falepouono and Falepouvalu, both built with sufficient polls to accommodate the area's nobles as the buildings were used for community functions and ceremonies. Tonga's communities had different types of structures for different activities – i.e., the weaving house, falehanga, which had no walls and allowed ventilation while women wove and could tend children playing inside and out. A whole community would be involved in building a fale and would, therefore, understand how to repair it in the wake of frequent storms.⁴¹ In 2014, Tropical Cyclone Ian damaged 1,130 western-style houses, while traditional fale remained unaffected. Fale are considered both more storm resistant due to design and more easily rebuilt as they use local materials. However, construction practices and architectural knowledge surrounding traditional fale have almost disappeared due to western construction practices and lack of transfer of knowledge and skills.⁴² Photo 2 shows a Tongan fale with the doorway built low to ensure that people had to stoop upon entering and exiting to remind them to be humble.⁴³

Tonga's land is still owned only by the king who may grant one or more estates to nobles and titular chiefs as hereditary estates. Tongans who live on land owned by the king or the nobility



Photo 2: Traditional Tongan Fale

pay no tax for the land but will give goods to the landowner on certain occasions – e.g., funerals, weddings, or birthdays. The ownership of a granted estate is passed only to male members of the family or clan. Every male over 16 years of age may be entitled a number of acres of agricultural land and a small allotment to build a house. Foreigners may lease land for up to 99 years, subject to the approval of the Cabinet. Estate holders are allowed to lease up to 5% of the total area of their estate, and they are not permitted to sell any land.⁴⁴

Ethnic Makeup

Some 98% of the population (98, 574 people) is of Tongan ethnicity. The smaller ethnic groups noted in the 2021 census were Europeans (865 people or 0.8%), Fijians (834 people or 0.8%), Chinese (635 people or 0.6%), Samoans (528 people or 0.5%), other Pacific Islanders (310 people or 0.3%), Indians (224 people or 0.2%), other Asian groups (187 people or 0.1%), and others (19 people).⁴⁵

Key Population Centers

As of the 2021 census, the island of Tongatapu was home to 74,320 people, or more than 74% of the population, and more than two-thirds of the elderly population (6,744 people) lived on the main island with some 3,100 elders living in Greater Nukualofa. Of outer island groups, only the Vava'u group is home to more than 10,000 people.

More than three-quarters of the population

is classified as rural with only 21,185 people classified as urban residents. Areas considered “urban” are the villages of Kolofou, Ma'ufanga, and Kolomotu'a, which make up Nuku'alofa. Greater Nukualofa is home to 34,142 people or 34% of the population, including all of the “urban population” as well as those living in peri-urban spaces of the capital.

The 2021 census revealed an average population density of 154 people per square kilometer (km²; 398 per square mile). However, the population density in Tongatapu stood at 285 people per km² (738 per square mile).⁴⁶

Language

Tongan is the most common first language and the only language spoken at home by 85% of the population; a further 14% of the population speak both Tongan and another language at home while only 1% of the population do not speak Tongan as a first language, and 1,000 people speak no Tongan at all. Along with this spoken-language dominance, 96% of the adult population can read and write in Tongan, and the adult literacy rate for English is 89%.⁴⁷

Religion

Tonga's constitution provides for free religious practice, worship, and assembly, but it also requires that the Christian Sabbath (Sunday) be kept with a prohibition on most commercial activity and on many recreational activities on that day with no exception for non-Christians although many tourist resorts do have exemptions from the police. Only Christian, church-solemnized marriages are legally recognized. There is a Forum of Church Leaders with a secretariat in the Ministry of Internal Affairs; this Forum includes exclusively Christian leaders and submits reports to the Cabinet on issues of social importance.⁴⁸

The Free Wesleyan Church is the dominant congregation, with 34% of the population affiliated. The next largest congregation is the Church of Latter-Day Saints (20%), followed by the Roman Catholic Church (14%), and the Free Church of Tonga (11%).⁴⁹ There are an estimated

few hundred Buddhists, Baha'i, and Muslims in the country, and only a few hundred survey respondents claim no religion.⁵⁰

Before the arrival of European explorers, traders, and missionaries, Tonga's spiritual landscape was diverse with each chief and community venerating their own gods. Three main types of god were common – Tangaloa, the creator god of the sky, Maui, the god of the fishing and who resided in the underworld, and Hikule'oa, who lived in the island of the dead and ruled over weather and fertility. Priests and priestesses were intermediaries who maintained a temple or god-house and cared for sacred objects therein. There was a general belief that a chief had spiritual power given by the gods and that failure to perform religious duties would bring trouble – e.g., war, famine, or disease. Gods would be consulted before a community undertook a war or went to sea. When a chief died, his spirit would go to the paradise island of the dead and could become a secondary god that could return to the world of the living in the form of an animal or other natural item.

To a certain extent, the ground was prepared for Christian missions to convert Tonga during the civil unrest that reigned between 1799 and 1852; during the conflict, many god-houses were destroyed, and communities defeated in battle began to doubt their gods' powers. Nonetheless, initial proselytism by the London Missionary Society in the final years of the 18th century failed quickly. A follow-on British effort to convert Tonga to Christianity came with the Wesleyan Methodist Mission's arrival in 1822. Initially, it also failed, but a second Wesleyan Mission arrived in 1826 and established a permanent foothold despite strong resistance from Tongans. Significant resistance came from the chiefs because missionaries wanted to teach all members of society – including teaching them to read and write – rather than limiting learning to the chiefly families. However, once a series of chiefs began to convert and gain additional political power, conversion gained momentum, including via native Tongan preachers. After 1840, most resistance to conversion had been

stamped out, often violently.

Observation of the Christian Sabbath has been a law in Tonga since the mid-19th century. Early law codes also included prohibitions against dancing in a reflection of the preoccupations of the Wesleyan missionaries of the day.⁵¹

Vulnerable Groups

Natural disasters do not impact every member of society equally. Underlying inequities in labor markets and social structures as well as shortfalls in access to information and services mean that some groups in society either may not receive or understand pre-disaster preparedness messages or may have fewer resources with which to recover after an emergency. Characteristics that may increase vulnerability include age, disability, poverty, gender, and displacement status, and some members of society may live with more than one of these factors.

Women

Tonga's women have more limited rights to land and access to finance than do the country's men under law. In addition, women's home and care responsibilities place demands on their time that mean they are more likely to work in informal jobs wherein they earn less money and where they have fewer protections. Thereby, they experience greater financial precarity as individuals than do many Tongan men, and in times of crisis, women will be able to marshal fewer resources as informal work is disrupted and the time required to complete chores around the home increases.⁵²

The experience of interpersonal violence and male intimate partner control over females remains common in Tonga. Tonga's Women and Children Crisis Centre (WCCC) reported that the country's 2020 pandemic-related lockdown created "a living hell" for Tonga's women. Prior to the crisis, up to 80% of Tongan women experienced at least one form of violence (e.g., sexual, physical, emotional, etc.) in their lifetimes. During 2020's lockdown, cases presenting to WCCC increased by 54%. Additional lockdowns in 2022 and the scale

of damage and deprivation in the wake of the Hunga Tonga-Hunga Ha'apai eruption and tsunami was expected to deliver a repeat of abuses as financial, health, and social stressors exacerbated already high underlying levels of interpersonal violence.⁵³ By and large, women reporting violence of some kind report that it is perpetrated by a current or former intimate partner or by a colleague or employer. In addition to violence, controlling behavior by male partners is reported by nearly 60% of women with more than 50% saying their partner insists on knowing where she is at all times and 40% saying their partner is angry if she talks to another man. Some 20-25% of women report that a partner keeps her from socializing with other women and/or does not permit her to join a social group or function.⁵⁴

Isolation of women from their own societies and peers will have the impact of reducing information regarding emergencies, hindering preparedness for economic or natural shocks, and even exacerbating health issues. In societies where women rely on traditional networks both to help each other and to influence their communities, this isolation reduces the overall resilience of a community and deepens shortfalls in terms of resources.

Children

Lacking the ability to make decisions regarding many aspects of their own lives, children can be especially vulnerable in the wake of disasters. In the worst cases, they will have lost loved ones and care givers while even in the best cases, they may miss days of schooling as events damage school buildings or force their use as emergency shelters. Any child that experiences a disaster event may experience emotional and psychological changes that cause them years – or a lifetime – of problems if care is not available.

As an example of the ways in which children can suffer disproportionately in the wake of a disaster, after the Hunga Tonga-Hunga Ha'apai eruption and tsunami, homes and schools were damaged, and many children were forced out of their homes. Even among those children who

remained in homes, many saw their schools damaged, and they were forced to attend different schools, away from their friends and potentially far from their homes, forcing them to travel or even relocate just to access schooling. Not only did the disaster disrupt education, but it increased the vulnerability of children traveling distances alone or who may be home-schooled and thereby at higher risk of abuse as household stressors increase interpersonal violence.⁵⁵

In Tonga, physical disciplining of children is common. Tongan children are exposed to relatively high levels of family violence, and the 2009 National Domestic Violence Survey found high rates of physical violence committed against young girls, primarily by their fathers. Even outside the home, children may be exposed to violence. A 2010 Global School-based Student Health Survey of children ages 13-15 years found relatively high levels of peer violence and bullying in Tongan schools. Approximately half of the children surveyed were exposed to bullying in the month before the survey, and approximately half of children were involved in a physical fight within the 12 months before the survey, with girls reporting higher levels of violence than boys. In addition, the National Study on Domestic Violence against Women noted that, even though corporal punishment is not allowed, teachers still feel that they need to regulate their students' learning, including using physical means, which are often considered "discipline" rather than abuse.

Sexual abuse is also an issue of concern. The National Study on Domestic Violence found that 8% of women reported experiencing sexual abuse before they were 15 years of age. In addition, 18% of women whose first sexual experience was before age 18 reported the first experience as forced. According to a 2012 health survey, 6.9% of girls were married before the age of 18 and 0.6% were married before the age of 15 years. In 2016, the Deputy Speaker of the Fale Alea (parliament) castigated lawmakers on the issue of child marriage, and he cited data that recorded 183 child marriages in the three preceding years with 17 children aged 15 years among those

entering marriages.⁵⁶

For many years, the U.S. State Department has reported that some Tongan children are vulnerable to forced labor in domestic work and to sex trafficking.⁵⁷ A combination of displacement, loss of family livelihoods, and a lingering problem with child abuse and marriage indicates that, in times of disaster, Tonga's children may be at higher risk of being forced into labor – including sex work – either because they have lost their guardians or by their guardians who are in desperate circumstances.

Elderly

Elders in Tonga are respected members of society. However, in any country, elders can be more vulnerable to the impacts of natural disasters as they more frequently have mobility challenges, may receive information less speedily than younger people, and have fewer resources ready to respond to an emergency because they are retired from gainful livelihoods or rely on younger family members for care.

Although the country currently has a low (22 years) median age, it is aging. In the most recent census, just less than 10% of Tonga's total population was 60 years of age or older with 2.5% (2,524 people) over the age of 75 years. An additional 18,000 will be over 60 years of age by 2040.⁵⁸ Given current life expectancies (70 for men and 76 for women), the country is expected to be home to nearly 12,000 people over age 60 by 2050. The proportion of rural to urban elders is 70-30, and more than 20% of elders live below the poverty line. Poverty is already more common in rural areas, and rural elders are no exception. As younger workers continue to flow out of rural Tonga to either urban areas or overseas employment, elders are more frequently left alone in rural areas to rely on remittances, and they are, therefore, more vulnerable to disruptions in that cash flow.

Care for the aged is considered a family obligation, and most of Tonga's elders live with and are cared for by family members in their own or a shared home. There is reportedly only one elder home care program in the country,

delivered by Ma'a Fafine mo e Famili, and it serves 200 people. There are no residential facilities dedicated to elders, and care delivered by hospitals, clinics, and rehabilitation centers is limited by space and skilled professionals available to deliver care. The national psychiatric unit has been forced to admit elders suffering dementia despite not being equipped or staffed to treat such elders. A 2017 government survey of households found that one-third of households was home to one person over the age of 65. However, there are no programs to help train family members to provide care for their elder family members. Moreover, the country has no specific law to protect older people from abuse, and in surveys of elders, many say they no longer have a say in household or community decisions.⁵⁹

Isolation, lack of mobility, or poverty can keep elders out of community efforts to build resilience ahead of disasters if their community leaders are not assiduous in integrating them into preparedness and risk reduction activities. By integrating elders' knowledge and views into planning for disaster response, isolation and lack of information among elders can also be rectified.

People Living in Poverty

People living without access to basic services and who have insufficient (or barely sufficient) means to purchase food, clothing, shelter, etc., may be more vulnerable in times of crisis. Without reserve financial resources, they may be unable to dedicate time, effort, or material toward reducing their risk to hazards, toward preparing for predicted disaster events, or toward rebuilding in the wake of a disaster event. They may need to work more and, therefore, not be able to participate in community planning and preparedness and, therefore, be unaware of what to do in case of emergency.

Although the overall poverty rate in Tonga has, for many years, hovered around 22%, estimates of people living in "extreme poverty" (less than the equivalent of US\$1.90 per day) find some 3% of Tongans in such circumstances.

Tonga's National Statistics Office looks at "multidimensional poverty" that combines data on income and deprivation for a more nuanced picture of poverty in the country. It defines as "poor" those who experience both low income and material and social deprivation. Income is measured at the household level while deprivation – measured at both individual and household levels – is captured through an index of socially perceived necessities – i.e., items and activities that the majority of people in Tonga consider that no one should go without. Based on this definition and measure, the Office finds that 27% of the population are "poor." Child poverty rates are higher than adult rates, affecting 33% of children.

A survey of Tongan households found that the most common forms of deprivation relate to household items. One-third of adults live in a household without their own means of transport, more than 25% do not have cash to repair household furnishings or appliances, and 28% cannot afford to save regularly for a rainy day or for future purchases. An additional issue affecting Tonga's poor people is that only 56% of households defined as "poor" have their own household tank for drinking water whereas 71% of non-poor households have such a tank. More than one-third of poor households report relying on a neighboring house's water tank. Deprivation of all forms is more common outside Tongatapu.⁶⁰

People Living with Disabilities

Persons living with disabilities may experience physical, communication, policy, and attitudinal barriers to accessing DRR programs. When disasters strike, they may be more vulnerable for several reasons – e.g., limited access to warnings and information (due to inappropriate communication media or due to a lack of access to communications devices) or reluctance to evacuate because emergency shelters lack accessible facilities.

In a 2018 survey, the Tonga Red Cross Society and the Disability Advisory Committee identified the prevalence of disability, major

causes of disability, the level of involvement of people with disabilities in the community and the needs of people with disabilities in Tonga. The survey identified 2,782 people living with disabilities, but it is thought that this number is an undercount as people with mild impairments may have been missed or because some people may not have participated because of social stigma attached to having a disability.⁶¹

In a separate 2018 report, the Tonga Statistics Department found that 7.6% of Tongans live with one or more impairments; however, only 2.3% reported an inability to function in key ways in society while others had some lower level of difficulty in completing tasks. The key finding of the report was that disability in Tonga is largely correlated with illness and age as the prevalence of people with at least one disability factor skyrockets from approximately 8% in the 30-49 years of age group to more than 23% in the 50+ years of age group. However, all age groups are impacted in some way, and access to schooling and other services is somewhat less common among persons living with disabilities. Among those people whose disabilities manifested early in life, more than 8% never attended school and 61% had dropped out of school. The drop-out rate of persons living with disabilities is double that of persons without disabilities. More than 78% of those who never attended school stated their "illness or disability" was the reason. A high number of survey respondents (66%) indicated that they thought that persons with disabilities should attend special schools. While slight differences were noted in participation in various types of work between people living with or without disability, the starkest disparities showed in participation in community activities. More than 75% of persons living with a disability reported "a lot of difficulties" participating in community activities (versus 17% of persons without a disability). Conversely, a higher proportion of persons without disabilities faced difficulty participating in government decision making than those with disabilities (94% versus 68%), which is an indicator of some progress in initiatives to foster inclusive decision making.⁶²

More recently, in the 2021 census, 6.4% of the total population over the age of 5 years self-reported as living with a disability. Women live with disabilities at a somewhat higher rate than men (7% versus 5.7%), and ‘Eua residents report higher rates of disability than other islands with 12.6% of island residents living with at least one disability. Of persons living with a disability, 35.4% point to a mobility challenge, 18.2% report impaired sight, with the remainder reporting at least one impairment in hearing, memory, self-care, or communications.⁶³

The government has signed but not ratified the UN Convention on the Rights of Persons with a Disability (CRPD) and, in June 2015, the Division of Social Protection and Disability was created within the Ministry of Internal Affairs following the adoption of the Tonga National Policy on Disability Inclusive Development 2014-2018. The policy adopted the CRPD definition of disability and directed programs to build awareness of the rights of people with disabilities in Tonga.⁶⁴

As part of its Inclusive Disaster Resilience in Tonga (IDIT) program, launched in May 2020, the U.S. Agency for International Development (USAID) is supporting Tonga’s efforts to ensure that Tongans living with disabilities are equipped to respond to a variety of hazards. International aid agency, Act for Peace, in partnership with the Tongan National Council for Churches (TNCC) have engaged nearly 9,000 people living with disabilities and related organizations across 27 remote communities. In addition to trainings on First Aid and DRM, IDIT integrated assessments and renovations of evacuation centers to ensure that they are accessible, and it provided training to village emergency management committees on ensuring that their respective disaster plans meet the specific needs of persons living with disabilities. People with disabilities and other vulnerable members of remote communities in Tonga were given spaces to discuss their needs and challenges in times of disasters.⁶⁵

Internal Migrants and Displaced Communities

Due to remoteness and a lack of transport

connections, outer islands are difficult to access, complicating development and technical support projects. These communities rely on subsistence farming, fishing, copra production, and handicrafts.⁶⁶ In addition to their remoteness, these communities are already suffering out-migration as residents depart for education, healthcare, or employment in urban Tongatapu, leaving remote communities ever more vulnerable as many of their working age adults are elsewhere. Not only do the communities from which many working-age adults depart experience increased risk, but the increasing congestion in Nuku‘alofa adds new types of risk to up-rooted residents there.⁶⁷ Those people who do migrate from outer islands to Tongatapu tend to cluster in low-lying, flood-prone areas of the capital and are, therefore, more vulnerable than other capital settlements to sea level rise, storm surge, and cyclones. Already, soil losses are evident in the Kolomotu‘a, Sopu, Popua, and Patangata areas of Nuku‘alofa.⁶⁸

As on the main island of Tongatapu, outer island communities tend to live at sea level because higher ground is not suited for subsistence agriculture and is more removed from key fishing areas. Nonetheless, there are cases where communities have begun relocating inland or to other islands after disaster events or as rising seawater overtakes settlements. While rising seas and more violent storms mean that local infrastructure across all the islands is at risk, outer islands with fewer resources will be left with fewer options to relocate or rebuild in the wake of a disaster.

Volcanic eruptions and earthquakes have led to semi-organized relocations since the mid-20th century, but the results of these efforts have been mixed as they have tended to split communities between those who remain in the areas to which they relocate and those who return to their previous homes after a period of time. There is no law or policy for managing disaster displacement, and Tonga’s remote, rural, and small island communities are having to contend with climate change-influenced hazards in an ad hoc way. Only in 2005 did officials mention

the potential to relocate farms to address the impacts of sea level rise, but the government has yet to spell out how it would relocate whole communities or infrastructure. In the wake of 2014’s Tropical Cyclone Ian, the Ha’apai Housing Recovery and Reconstruction Policy was developed to facilitate reconstruction, and it referred to the need for specific households to relocate because of environmental risks and led to the relocation of public infrastructure – e.g., Niu’ui Hospital – to safer ground. The policy lacked stipulations regarding conditions needed to deem a location suitable for relocations.

In 2017, the Ministry of Infrastructure did publish a Resettlement Policy Framework developed under the Cyclone Reconstruction and Climate Resilience Project. It included operational guidelines for resettlement planning and implementation and emphasized housing replacement on existing sites and allotments, whenever possible. The policy does not refer to displacement or migration. Rather, it suggests investigating alternative sites for possible settlement relocation from low-lying areas at risk from climate change impacts.⁶⁹

Economics

Tonga’s economy is small and constrained by several elements – i.e., a small market, geographic isolation, limited financial resources,

and the high cost of basic services. Moreover, there is a narrow base of production and revenue – agriculture and fisheries on one hand and remittances from workers overseas on the other. Thus, the country is vulnerable to external shocks in global commodities markets and to economic downturns such as that of 2008-2010 that saw remittances from Tongans in New Zealand and the U.S. all but dry up as host economies suffered recessions.⁷⁰ More recently, the country continues to undergo cleanup and recovery from the January 2022 Hunga Tonga-Hunga Ha’apai volcanic eruption and tsunami. Post-disaster reconstruction could account for a large portion of outlay and work in 2022-2023 followed by a stronger recovery of the tourism sector in 2023-2024.⁷¹

Key earning sectors for Tonga’s economy are agriculture, tourism, fish exports, and remittances from overseas workers, the last of which accounts for some one-third of all cashflow in the economy. Second only to remittances, tourism brings in a large amount of revenue.⁷² Overall, services dominate GDP at 59% while the agriculture (23%) and industrial (18%) sectors are significantly smaller in cash value terms.⁷³ Figure 1 shows the contributions of various industries to GDP.⁷⁴ An estimated 64% of households are engaged in some agricultural production.⁷⁵ This type of occupation is most common for the approximately 80% of the

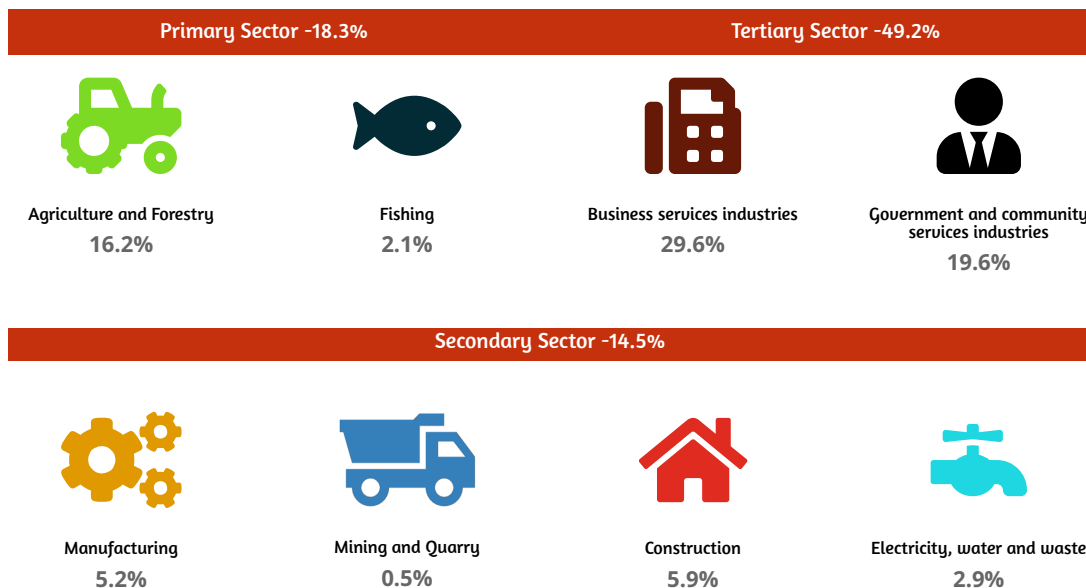


Figure 1: Contribution to GDP by Industry

population that lives in a “rural” area. With 25% of the total population living below the poverty line, poverty is concentrated in Outer Island rural areas among smallholder farmers and fishing families. Economic precarity in these remote areas is exacerbated by the tendency for men to migrate to urban Tongatapu for work, leaving older people and women-headed households to continue to work the land but with minimal opportunity for growth or advancement.⁷⁶

From the end of the global financial crisis onward to 2019, Tonga enjoyed steady GDP growth averaging 2.4% annually. There was a contraction of less than 1% by the end of the fiscal year in July 2020, but travel restrictions and global commodities disruptions during the COVID-19 pandemic led to a massive slowdown that led to a -5.3% GDP growth rate in 2020-2021.⁷⁷ Although the Asian Development Bank (ADB) projects that Tonga’s GDP will grow by 3.7% in 2023, it will be difficult to recover from two successive years of losses.⁷⁸

Only 5% of Tonga’s farmers are commercial-scale producers who participate in formal commodities markets. In addition, the country’s subsistence agricultural structure struggles to produce sufficient food for the population. A combination of traditional methods to improve soil fertility and the country’s complex land ownership and tenure systems mean an estimated 50% of nominally arable land is left fallow in any given year. The difficulties of earning a living from agriculture, producing sufficient food for one’s family, or even accessing land have driven steady migration from the outer islands to Tongatapu and shifted the productive sector away from farming. The upshot is that more Tongans are consumers of imported foodstuffs, which now make up a heavy proportion of total imports. Many of these foodstuffs are processed and contribute to the country’s epidemic of non-communicable diseases linked to nutrition gaps.⁷⁹

The official unemployment rate remains low, below 4% in 2021.⁸⁰ However, the country’s youth unemployment rate is high and may account for half of total unemployment. A significant driver of this unemployment is a mismatch between

education and skills needed for employment in the current economy. Tonga’s schools have strong academic programs and prepare very educated, English-speaking graduates. By and large, the schools do not provide technical and vocational education, and young graduates struggle to acquire the practical skills that can net them jobs even as opportunities for knowledge work remain few.⁸¹

In the pre-pandemic era, Tonga’s tourism sector directly employed approximately 3,000 (9%) Tongan workers and contributed 11% of GDP. Tourism contributed directly or indirectly to the income of an estimated one-third of households. The sector is one of the rare avenues for employment that has local education and training options as the Tonga campus of the University of the South Pacific offers a degree course in tourism and hospitality and additional training institutes offer vocational courses in hospitality and cuisine. However, the sector is highly seasonal with 30-50% of peak season staff laid off in the low season.

In 2019, total visitor arrivals topped 67,000, approximately half of whom arrived from New Zealand while a further one-quarter arrived from Australia and 7,000 from the U.S. with significantly fewer arrivals from Europe or other parts of the Indo-Asia-Pacific region. Leisure travel and family visits accounted for fully 84% of trips. Of the reported 1,300 hotel rooms across 150 accommodation options, two-thirds were in Tongatapu; Vava’u was the site of 22 small operators of 200 rooms, and the other outer islands had fewer than 100 rooms among them. Small operations of 10 rooms or fewer and run by local owners and managers dominated; there was minimal presence – or interest from – major global resort brands. Land ownership and tenure are key constraints on this development as proprietors and managers cannot rely on long-term leases or use the land under their accommodations as collateral for financing.

The tourism sector was thought to have considerable room for growth, and in the post-pandemic period, the re-establishment of the Tonga Tourism Authority was just one sign of

the country's decision to re-commit to tourism as a key economic driver. In its tourism sector strategy (written before the pandemic and slated to run through 2023), the Ministry of Tourism explicitly sought to attract more than 300,000 visitor arrivals annually by using a variety of improved marketing and human resources development. However, the country must confront the challenge of attracting more air- and sea-borne visitors even as the global mood sours on fossil fuel-hungry modes of travel. Moreover, much of the tourism infrastructure is coastal and at high risk of damage by cyclones, storm surges, and sea level rise.⁸² The vulnerability of the tourism sector to various hazards was illustrated by the damage wreaked by the January 2022 Hunga Tonga-Hunga Ha'apai volcanic eruption and tsunami. Post-event surveys found that 35 tourism and hospitality businesses were destroyed; in western Tongatapu – the “resort hub” – the country's most popular resort, Vakaloa, was left with no structures standing.⁸³

Fisheries is a key sector as it contributes 2-5% of GDP and is crucial for food security as an estimated 35% of all fish caught in Tonga's waters are for home consumption. Tuna is among the most important species and historically has accounted for 80% of total catch, much of which is processed and exported. Both local and foreign long-line fishing vessels operate in Tongan waters with local vessels focused on tuna for fresh export to Japan, Australia, and New Zealand, and foreign vessels – mostly from Taiwan and China – paying a licensing fee for their access and take, which is also exported, mostly fresh. The facilities for freezing fish within Tonga are limited. An additional long-term concern is that Tonga's marine environment is at high risk due to loss of coral reefs due to a combination of rising ocean temperatures, ocean acidification, overfishing, exploration for deep sea minerals, and pollution. Over one-third of Tonga's coral reefs are threatened by overfishing. An initial economic assessment and valuation of Tonga's marine and coastal ecosystems suggested that the annual value of these resources could top T\$33 million (US\$14.1 million) in coastal protection,

tourism, fisheries, construction materials, and cultural and recreational benefits if the various stakeholders worked in coordination.⁸⁴

Government

The Kingdom of Tonga is a constitutional hereditary monarchy with its capital at Nuku'alofa. The constitution in its original form came into force in 1875, but it has been substantially amended and revised,⁸⁵ most recently in 2010, when many of the monarch's powers were devolved to the Cabinet. Since then, the Cabinet has answered to the Legislative Assembly rather than to the monarch.⁸⁶ All land in Tonga is the property of the monarch who may grant nobles title to lands as their hereditary estates, but no land may be sold; rather it is leased, and land titles – noble or lease – pass through families via the male line.⁸⁷

The National Government incorporates Executive, Legislative, and Judicial branches while there are regional governments overseeing the administration of the three main island groups: Ha'apai, Tongatapu, and Vava'u.⁸⁸

The Executive includes the monarch, who is head of state, the Prime Minister, who is chief of government, and the Cabinet, which is responsible for administration at the national and local levels. The monarch is assisted by a Privy Council, comprised of various advisors as named by the monarch along with the Governors of Ha'apai and Vava'u.⁸⁹ The current monarch is King Tupou VI who was crowned in July 2015 and who succeeded his brother, King George Tupou V. The King is Commander-in-Chief of His Majesty's Armed Forces.⁹⁰

The Legislature is a unicameral parliament, the Fale Alea, with 26 seats. Seventeen of the seats are filled by direct election from single-seat constituencies; 10 representatives are elected from Tongatapu, one from the Niuas, one from 'Eua, two from Ha'apai, and three from Vava'u.⁹¹ The remaining nine seats are filled by nobles elected by and from among the 33 titled nobles to represent the five island groups of the Kingdom.⁹² The monarch may appoint up to four additional ex officio members on advice of the Prime

Minister,⁹³ who is elected by Fale Alea members from among their number. The Prime Minister recommends cabinet ministers from among other Fale Alea members, including the four ex officio members.⁹⁴ The most recent general election, in November 2021, eventually saw Fale Alea members elect Siaosi Sovaleni as the new Prime Minister.⁹⁵

The Judiciary includes judges appointed by the monarch. The Privy Council may hear appeals in certain types of land cases related to hereditary estates and titles.⁹⁶ Other cases are heard in the regular court system, in which the Court of Appeals is the supreme body, hearing appeals from the Supreme Court.⁹⁷

Districts and towns select their own leaders in elections every three years. These district and town officers are under the oversight of the Ministry of Internal Affairs (MIA), to which officers submit reports on village and district activities and issues. There are 23 district officers and 156 town officers throughout the country. District officers are responsible for public health, agriculture, policing, and reporting to MIA or, in the cases of Ha'apai and Vava'u, to the Governor. The town officers support their respective district officers and announce and oversee the key instrument for town decision-making, the fono, a meeting that calls all adult residents together. Both district and town officers tend to be the chairs or at least members of village committees and, therefore, have the ability to mobilize resources to improve infrastructure, health systems, transport, or food security.⁹⁸

Environment

The 170 islands of Tonga are found in an approximately 800-km (500-mile)⁹⁹ north-south archipelago that stretches between latitudes 15° and 23° S and longitudes 173° and 177° W¹⁰⁰ and is located next to the subduction zone of the Indian-Australian and Pacific tectonic plates and within the Ring of Fire.¹⁰¹ The islands are primarily of volcanic origin, and some volcanoes remain active. Having formed from various types of rock, the islands show a variety of soils, plant

life, and erosion patterns. Many are capped with coral or surrounded by fringing reefs.

Geography

Although Tonga's ocean territory covers 700,000 km² (270,271 square miles),¹⁰² only 750 km² (290 square miles) is dry land. The country's 170 islands are arranged in two roughly parallel chains, eastern and western. They can be divided into three main island groups: Tongatapu in the south, Ha'apai in the center, and Vava'u in the north. The fourth group, the Niua (sometimes called Niuaatoputapu) are isolated in the far north while 'Ata is in the far south.¹⁰³ Figure 2 shows the arrangement of the three main islands groups.¹⁰⁴

While some lower-lying areas of Tonga are threatened by sea level rise, much of the country has actually continued to experience uplift by the tectonics of the Pacific plate pushing into the Tonga Trench. The oldest islands consist of ancient limestone and reefs that are now on land, and they form near-vertical sea cliffs that peak up to 70 m (230 feet) above the ocean. However, this tectonic activity also means the country deals with regular volcanic activity. In the last 100 years, as many as 15 large eruptions have shaken the islands, and far more eruptions have occurred underwater.¹⁰⁵

The country's major volcanoes include Tafahi, Late, and Tofua. Lateiki Island, also known as Metis Shoal, is a large undersea volcano complex of which the highest volcano is the island of Kao.¹⁰⁶ Repeated volcanic activity has raised most of the western chain islands well above sea level. The highest point in the country is in the Ha'apai Group on Kao, which rises to 1,033 m (3,389 feet). Late, in the Vava'u Group rises to 518 m (1,700 feet).

The low islands of the eastern chain are capped by coral polyps and shelled marine organisms, which build coral rock and limestone reefs that counteract erosion. For example, Tongatapu, the largest of the islands, is a raised atoll with an area of 260.5 km² (100.6 square miles); it is surrounded by a protective reef. The effects of erosion are particularly vivid in Vava'u

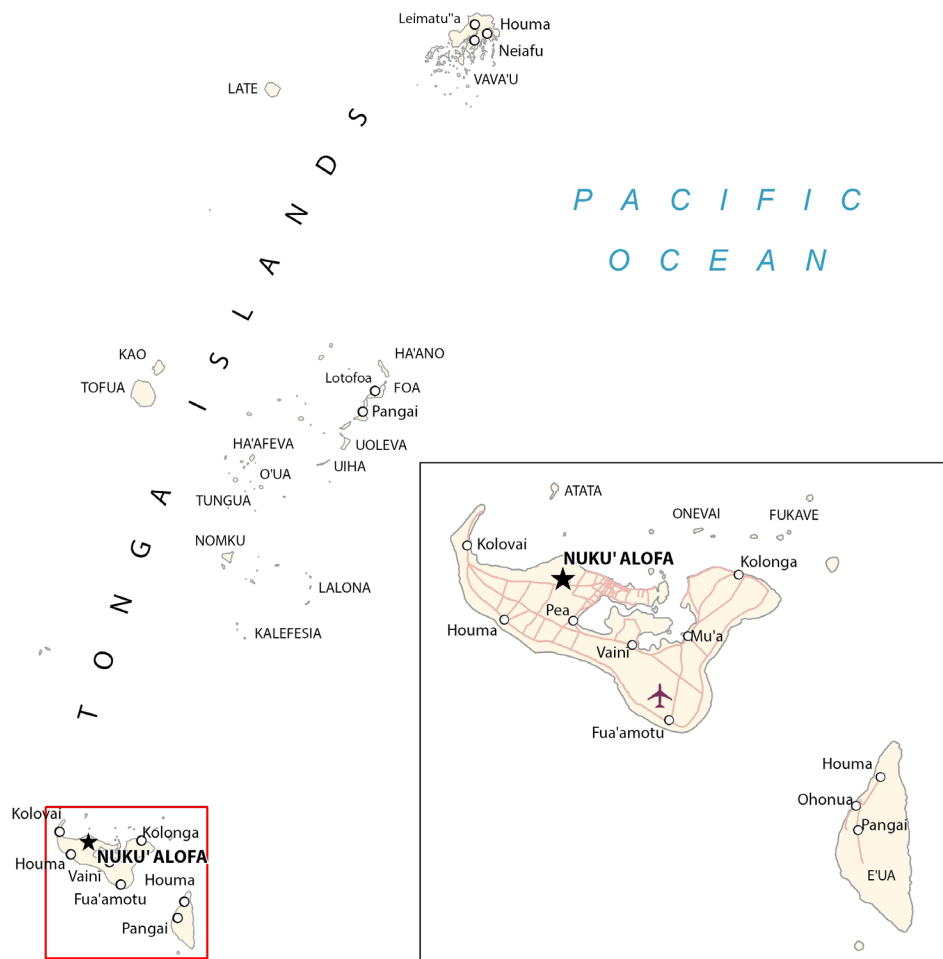


Figure 2: The Islands of Tonga with Inset of Tongatapu and 'Eua (GISGeography.com)

Climate

Tonga’s climate is defined by a wet season from November to April with moderate and variable rainfall, and a dry season from May to October. The wettest months are January, February, and March.¹¹⁰ On average, temperatures range between 16° and 21°C (60° and 70°F) in June and July and reach 27°C (80°F) in December and January. The mean annual humidity is 77%, and the mean annual precipitation varies from 1,620 millimeters (mm; 64 inches) in the Ha’apai Group to 2,450 mm (97 inches) on Niuafou’ou. The northern islands, closest to the Equator, are particularly vulnerable to typhoons,

where rainwater reacting with carbon dioxide dissolves coral and limestone and forms caves, which are further eroded by waves that create sheer cliffs and sandspits.

There are no rivers in Tonga, although ‘Eua and Niuatoputapu have creeks.¹⁰⁷

Borders

As an archipelagic state, Tonga shares no land boundaries with other countries. It does have 419 km (260 miles) of coastline.¹⁰⁸ The country’s maritime boundaries abut those of Fiji to the west, the French Pacific territory of Wallis and Futuna to the northwest, Samoa and American Samoa to the northeast, and Niue to the east.¹⁰⁹

which generally occur between December and April.¹¹¹

The climate of the country – and the region more generally – is governed by trade winds and the movement of the South Pacific Convergence Zone, a zone of high-pressure rainfall that migrates across the Pacific south of the equator. Year-to-year variability is also strongly influenced by the El Niño Southern Oscillation (ENSO) and tropical cyclones during the wet season.¹¹² In an El Niño year, the weather will tend to be cooler (during the dry season), and precipitation will be less plentiful (during the wet season). In the other phase of ENSO, a La Niña year, the country will generally receive more rainfall than in an average (neutral) year.¹¹³

DISASTER OVERVIEW

Tonga is among the countries most exposed to the impacts of climate change and to natural disasters. Its losses from natural disasters as a percentage of GDP are among the top five in the world over the last decade. Climate change is expected to exacerbate these losses as cyclones become more intense and rising sea levels cause more flooding, coastal erosion, and contamination of fresh water. As daily high temperatures become more extreme, drought will become more common. In addition to its exposure, Tonga is very vulnerable as its economy relies on agriculture, tourism, and fisheries, and its communities, infrastructure, and public services are largely not climate resilient.

Climate Change

The National Climate Change Coordinating Committee (NCCCC) under the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change, and Communications (MEIDECC) provides high-level oversight, policy guidance, and direction, and coordinates climate change related activities.¹¹⁴ MEIDECC's Department of Climate Change has worked with local and international stakeholders to develop the country's long-term low emissions development strategy and an enhanced Nationally Determined Contributions (NDC) document that Tongan representatives took to the 26th UN Conference of the Parties in Glasgow, Scotland, in 2021 and that they used to demonstrate how culturally sensitive and inclusive consultations can produce actionable plans.¹¹⁵ In November 2021, the Department submitted Tonga's Low Emission Development Strategy 2021-2050 (LEDS) to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat. The Tonga LEDS presents a vision for 2050 of:

A low emissions Tonga, where all sectors work together to create resilience, autonomy, and self-reliance.

The LEDS and Tonga's Second NDC underscore the country's willingness to reduce domestic greenhouse gas (GHG) emissions, supporting the long-term temperature goal of the Paris Agreement despite its own very small baseline contribution to total global emissions.¹¹⁶ Tonga is a net GHG "sink" as its contribution to global GHG emissions is miniscule and its GHG absorption capacity is an estimated five times larger than its emissions. The country emits 310 Gigagrams (0.001% of global GHG emissions), and the bulk of these emissions are from land use change (60%; harvesting and clearing of forest cover for agriculture) and transportation (23%) followed by electricity generation (13%). Once tree cover is accounted for, Tonga is a carbon sink that absorbs approximately 1,568 Gigagrams of GHG. Tonga's NDC under the UNFCCC does not specify a target level of emissions reduction. Instead, targets are set for renewable resources' contribution to total energy generation – i.e., 50% in 2020 and 70% in 2030.¹¹⁷

Over the course of the 21st century, Tonga's surface air temperature and sea surface temperature are projected to continue to increase; wet season rainfall is projected to increase; the intensity and frequency of days of extreme heat are projected to increase; the intensity and frequency of days of extreme rainfall are projected to increase; and mean sea level rise is projected to continue its upward trend.¹¹⁸ Daily temperatures have already been increasing at a rate of 0.1°C (0.18°F) per decade since 1950. Future projections indicate that annual average air and sea surface temperatures are most likely to increase 0.3-1.1°C (0.54-1.98°F) by 2030, 1.0-1.8°C (1.8-3.24°F) by 2055, and 1.9-3.3°C (3.42-5.9°F) by 2090.¹¹⁹

The Representative Concentration Pathways (RCP) try to capture future trends in temperature, sea level, and extreme weather, and they make predictions of how GHG concentrations in the atmosphere will change because of human activities. The four most

commonly used RCPs range from very high concentrations of GHG (RCP8.5) to low concentrations (RCP2.6), and each of the RCPs (2.6, 4.5, 6.0, and 8.5) plots a different emissions trajectory (pathway) and signifies the cumulative GHG concentrations in the atmosphere in the year 2100.¹²⁰ Under very high emissions scenarios (RCP 8.5), some estimates of sea level based on the upper bounds assessed by the Intergovernmental Panel on Climate Change (IPCC) suggest that the mean level in Tonga could be almost 0.9 m (3 feet) higher by 2100. Nuku'alofa is mainly 1-2 m (3.3-6.6 feet) above sea level.¹²¹

In 2020, the International Monetary Fund (IMF) assessed the expected climate developments and their consequences for Tonga in the following way:

- Extreme Weather Events - Projections show that tropical cyclones will be more intense by the late 21st century, and as the general Southwest Pacific cyclone track shifts eastward, the number of tropical cyclones that affect Tonga will continue to increase. Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) estimates that Tonga will incur, on average, US\$16 million in losses per year due to earthquakes and tropical cyclones.
- Precipitation – Rainfall predominantly occurs from November to April with an overall increasing trend in volume of precipitation in recent years. During El Niño summers, rainfall is likely to be significantly reduced, and severe drought can occur. During La Niña summers, rainfall can increase up to three times the monthly average and create severe flooding.
- Temperatures – Mean annual temperatures show a general increase of 0.2-0.4°C (0.35-0.72°F) annually over the period 1980-2020, and annual mean temperature and extreme daily high temperatures are expected to continue to rise.
- Sea Level Rise and Ocean Acidification – The sea level has risen near Tonga by about 6 mm (0.24 inches) per year since 1993,

and projections from Tonga Meteorological Service (TMS) suggest that under high emissions scenarios, the further rise by 2030 could be in the range of 30-170 mm (1.2-6.7 inches). A 2019 IPCC prediction suggested that the median and upper bounds of global sea level rise are likely to be greater than previously expected, and calculations for Tonga suggest that the mean rise for the second half of the 21st century under RCP8.5 is 410-880 mm (16-34.6 inches). Meanwhile, ocean acidification is expected to continue, with a higher risk of coral bleaching, which will have adverse effects on fisheries and coastal community livelihoods.¹²²

Hazards

Tonga most frequently confronts the following hazards: earthquakes, tropical cyclones, and tsunami. However, exposure to drought, epidemic, and other hazards is not absent. The PCRAFI estimates that annual losses from hazards are equivalent to 4.3% of GDP. With the exception of the January 2022 Hunga Tonga-Hunga Ha'apai eruption and tsunami, the country's most costly disaster experiences over the past 40 years have been cyclones and droughts. In addition to economic losses, the country suffers from disruptions to water and electric power supplies, to transportation, and to health services when storms and other events damage infrastructure or send people into evacuation centers.¹²³ Two complicating factors for planning to address hazards are: 1) urban Tongatapu's "Greater Nukualofa" has expended in recent years to include informal settlements in peri-urban areas that are more exposed to sea level rise or flooding and have fewer regulations regarding how and where to build; and 2) an estimated 84% of the entire population lives within 1 km (0.62 miles) of the coast.¹²⁴

Drought

The source of fresh water for Tongan communities is either rainwater harvesting or extraction from a thin freshwater lens within the highly porous limestone substrate. Groundwater

is used domestically for cooking, bathing, food preparation, gardens, animals, sewerage, and general cleaning and is also boiled and used for drinking if rainwater is unavailable.¹²⁵ Tonga is prone to drought conditions when below normal levels of rain fall in the dry season and temperatures increase. Major droughts occurred in 1983, 1998, and 2006; they were linked to El Niño events running May 1982–June 1983, May 1997–April 1998, and September 2006–January 2007.¹²⁶ Under a low emissions RCP model, the frequency of drought is expected to increase slightly. However, under a high emissions RCP model, drought is expected to decrease from 8-9 times every 20 years to 6-7 times every 20 years by 2090.¹²⁷

Earthquake

Tonga is along a major subduction fault between two large tectonic plates. More than 65% of the world's deepest earthquakes are experienced in Tonga. Since 1986, more than 10 major earthquakes with magnitude 7.0 and several minor earthquakes have occurred in this region. The 1977 Tonga earthquake is considered one of the most destructive earthquakes in history; it was measured at magnitude 8.0.¹²⁸ The earthquake was located well to the southwest of Tongatapu, but it was also felt in the northern island groups of Ha'apai and Vava'u. The tremor damaged houses, churches, and public infrastructure, including substantial damage to the Vuna Wharf in Nuku'alofa.¹²⁹ Assessments of the risk Tonga confronts from earthquakes emphasize that it is highly exposed to the hazard but has relatively low capital stocks – houses, industrial assets, public transport, and utilities – that are actually threatened due to low concentrations of these assets and lower asset values.¹³⁰

Epidemic / Pandemic

Despite advances in building the health workforce and developing health care delivery and surveillance systems at the community level, Tonga remains vulnerable to disease outbreaks

and to the health consequences of natural disasters, both of which can lead to community spread.¹³¹ A combination of increasingly unpredictable rainfall, saltwater intrusion into underground drinking water, and growing human habitation in swampy areas of the capital have facilitated the spread of various illnesses. The country has seen outbreaks of Zika virus, chikungunya virus, and dengue fever in recent years, and contamination of Tongatapu's drinking water has exacerbated the spread of disease as hygiene suffers and more people use poorer quality water sources.¹³²

Flooding

Both sea level rise and heavy rainfall have the potential to cause flooding in Tonga. Since 1993, there has been a 6 mm (0.24 inches) increase per year in sea level in Tonga, more than twice the global average. The sea level is forecast to rise by 9-12 centimeters (cm; 3.5-4.7 inches) by 2030, 19-27 cm (7.5-10.6 inches) by 2050, and 44-100 cm (17.3-39.4 inches) by 2100 in Tonga under all emission scenarios. Flooding from heavy rainfall occurs every 4-5 years. Although historical rainfall data show a decreasing trend in annual and wet season rainfall, there is ambiguity around rainfall projections due to inconsistencies in models. Even with the uncertainties, a majority of projections suggest a decline in dry season rainfall and an increase in wet season rainfall by 2090.

The coastal nature of settlement exposes Tongan communities and infrastructure to significant impacts from sea level rise, storm surges, and coastal flooding, because these communities and assets are located within 100 m (300 feet) of the coast and are fewer than 5 m (16 feet) above sea level in some places. Tongatapu's highest point is only 65 m (213 feet) above sea level, and Nuku'alofa is only 1–2 m (3-6.5 feet) above sea level. The major port facilities in Nuku'alofa are likely to be under serious threat if sea levels rise as predicted. For example, a 0.5 m (1.5 foot) rise of sea level would inundate approximately 16% of the existing port area.¹³³

Tropical Cyclone

On average, Tonga experiences 17 tropical cyclones each decade. Most storms occur between November and April, and they strike more frequently during El Niño years. From February 1970 to January 2020, 72 tropical storms passed within 300 km (186 miles) of Nuku‘alofa. In the last 40 years, Tonga has felt severe impacts of storms nine times, roughly once every 4-5 years. PCRAFI estimates that Tonga is likely to sustain US\$9.5 million in damages due to cyclones annually.¹³⁴ The impact of cyclones on Tonga is related to high winds and heavy rainfall that can cause loss of life, damage to property, infrastructure, crops, and the environment and, ultimately, adversely affect livelihoods. In addition, cyclones can bring storm surges capable of devastating homes and infrastructure in low-lying areas, and the combination of storm surge and sea level rise increases the risk to which coastal communities, including in Nuku‘alofa, are exposed.¹³⁵

Tsunami

During a tsunami, waves push a large amount of water above sea level onto the shore, what is known as the “run-up,” the maximum vertical height above sea level reached by a tsunami onshore. In Tonga, the run-up is estimated to be 5-8 m (16.5-26.24 feet) for most of the coastal areas. The highest estimated risk is in the Ha‘apai island group where waves could run up to more than 10 m (32.8 feet). While coral reefs do offer the archipelago some protection as they can dissipate wave energy, the islands can suffer considerable damage from smaller waves, and the effect can be greatly enhanced by high or king tides.¹³⁶ Earthquakes that are relatively shallow in the earth’s crust are more likely to cause a tsunami than those that are very deep. The greatest single risk would be an earthquake with magnitude 8.8 or greater in the Tonga Trench, 100 km (62 miles) east of Tonga. Such an earthquake could cause a tsunami of the same size as the 2004 Indian Ocean “Boxing Day” Tsunami.

Two separate hazards have the potential to

send a tsunami toward Tonga: 1) the subduction fault line between two tectonic plates, which lies just east of the Tonga archipelago and causes frequent earthquakes and undersea landslides; and 2) volcanic eruptions. Historically, around 20 tsunamis have affected a large number of islands in Tonga with the majority being produced by small (less than magnitude 1.0) quakes with little recorded damage. In 2009, an offshore magnitude 8.1 earthquake generated a tsunami that killed nine people and destroyed half of the houses on Tonga’s island of Niuatoputapu. The 2011 Japan (Tohoku) earthquake (magnitude 9.0) generated waves reaching a height of 17.8 cm (7 inches) in Tonga.¹³⁷ More recently, the Hunga Tonga-Hunga Ha‘apai volcanic eruption generated an atmospheric pressure wave that drove a tsunami wave that reached as high as 20 m (65 feet) above sea level as it struck the islands of Tonga.¹³⁸

Volcanic Eruption

Four islands in Tonga are active volcanoes with a history of eruptions that deliver heavy ash fallout. Most of the country’s volcanoes, including Tofua, Fonualei, Late, and Hunga, are found in an arc just west of and roughly paralleling the chain of low coral limestone islands that run from Tongatapu in the south to Lifuka and Vava‘u in the north. The volcanic islands are only about 50 km (31 miles) from the main islands. The Hunga Tonga–Hunga Ha‘apai volcanic eruption, tsunami, and ashfall in 2022 affected 85,000 people; more than 600 buildings were either completely destroyed or partially damaged, and crops, livestock, and fisheries were substantially impacted.¹³⁹

History of Natural Disasters

The following is a list of natural disasters in Tonga in the last ten years (2013-2023).

COVID-19 – March 2020-September 2022

From 3 January 2020 through 16 March 2023, Tonga reported 16,812 confirmed cases of

COVID-19 to the WHO. It reported 12 deaths from the disease. The deaths all occurred in association with the country's first wave of infections in March–April 2022; a second, smaller wave in August 2022 did not lead to additional deaths. By 31 January 2023, the country had administered 203,806 doses of vaccine against the disease.¹⁴⁰ Figure 3 charts the country's experience with confirmed cases of the disease from 4 November 2021 through 28 February 2023.¹⁴¹ In September 2022, upon advice of the Ministry of Health, the government ended most COVID-19 health restrictions, including that for international travel and the national curfew; wearing masks, social distancing, and hand washing would all be encouraged but would not be mandatory. As of 27 September 2022, the border was fully open although the country maintained a requirement for foreign adults to provide proof of vaccination before arrival.¹⁴²

Tonga's government had declared a state of emergency on 20 March 2020. All flights were grounded from 23 March, and repatriations from New Zealand did not start until 4 August and were conditional on a negative COVID-19 test and a 14-day quarantine on arrival. To address the economic impacts of the border closure, the country received significant international aid, including US\$6 million from the ADB in April 2020, and a further US\$12.2 million in June 2020. By December 2020, the government had provided financial assistance to more than 2,100 formal and informal businesses at a cost of around US\$7.1 million. Of these funds, 60% went to businesses in the services sector. In December 2020, the World Bank approved a US\$30 million operation to support Tonga's recovery. In March 2021, the Government

announced an additional US\$3 million to support businesses to the end of June.¹⁴³

With the state of emergency still in force, the country began its vaccine rollout on 15 April 2021.¹⁴⁴ Tonga had hoped to have 70% of its eligible population vaccinated by the end of that year, and the government had signed a US\$5.5 million grant agreement with the ADB to support the rollout of vaccines.¹⁴⁵ As of 25 October that year, just over 31% of the population had been vaccinated. However, just days later, the country reported its first confirmed case of COVID-19, in a traveler who was returning from New Zealand. In response, the government ordered a 1-week lockdown for Tongatapu. Public transport was halted, and restaurants, bars, and clubs closed; schools and churches shut their doors. Following the news of the positive case, thousands of people rushed to vaccination centers to get shots.¹⁴⁶ The government confirmed that the number of residents who were fully vaccinated had jumped to 62% on 1 November, as people who had received their first dose but not returned for their second finally did. At that point, 88% of people had had their first dose.¹⁴⁷

The additional precautions taken after the discovery of the first case paid dividends, and the country was able to return to a more normal footing over the winter. Nonetheless, given the

Daily new confirmed COVID-19 cases

7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.

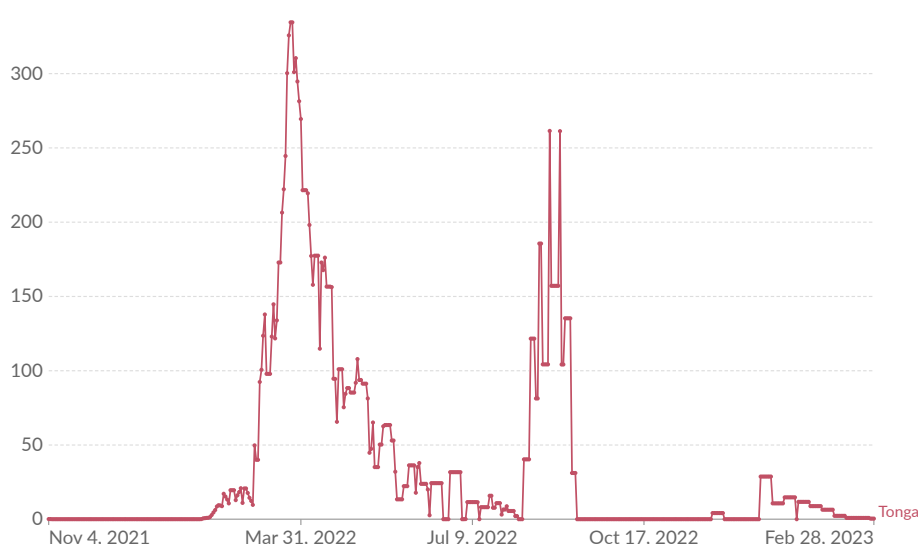


Figure 3: Tonga's Daily New Confirmed Cases of COVID-19

need to bring in relief items in the wake of the Hunga Tonga-Hunga Ha'apai volcanic eruption and tsunami, the country could not keep the virus at bay.¹⁴⁸ On 2 February 2022, the country's first outbreak began with two positive cases confirmed in dock workers.¹⁴⁹ The government announced movement restrictions in the midst of the disaster response;¹⁵⁰ these included school and business closures, restrictions on travel between islands, strict border controls, quarantine requirements, and a daily curfew. By July, there had been more than 12,539 reported cases and 12 deaths associated with the virus.¹⁵¹ After another period of vaccine complacency, Tongans did respond to this spread by even greater vaccine uptake with 90% of the population over 12 years old fully vaccinated and 100% of people over 80 having received at least one dose by mid-February,¹⁵² a factor that likely contributed to the low death toll.¹⁵³

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

Having been relatively quiet since 2015, the Hunga Tonga-Hunga Ha'apai (HTHH) volcano, located approximately 70 km (43 miles) northwest of Nuku'alofa, entered a new explosive phase on 20 December 2021.¹⁵⁴ On 14 January 2022, the volcano began to erupt; this activity culminated in an 11-hour long violent eruption on 15 January. During the first 45 minutes of this eruption a massive atmospheric pressure wave and a series of tsunamis were generated and observed around the world.¹⁵⁵ The hitherto joined islands of Hunga Tonga and Hunga Ha'apai, covering an area of just over 1 km² (0.39 square miles), were blown apart, with only very small fragments remaining at the western and eastern edges. The eruption plume dispersed ash of 5-50 mm (0.2-2.0 inches) thickness across the Ha'apai, Tongatapu, and 'Eua islands.

The National Emergency Operations Centre and the outer island Emergency Operations Centers in Ha'apai and Vava'u had been activated on 14 January.¹⁵⁶ On 16 January, Tonga's government declared a state of emergency for the entire country, and the U.S. Chargé

d'Affaires also declared a disaster, triggering the USAID Bureau for Humanitarian Assistance (BHA) to allocate US\$100,000 to support emergency response activities. 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, and on 24 January, USAID/BHA announced an additional US\$2.5 million in assistance to support the response and recovery.¹⁵⁷

The eruption and tsunami had damaged undersea communications cables linking Tonga to the rest of the world. Due to the lack of information available, aerial surveys were required. New Zealand Defence Force and Australian Defence Forces surveillance flights on 17 January showed significant damage to houses, roads, water tanks, and other infrastructure on the west coast of Tongatapu, the Ha'apai island group, and the west coast of 'Eua.¹⁵⁸ The first successful science or tsunami warning center communications with the TMS was not until 25 January, 10 days after the eruption. when the International Tsunami Information Centre finally connected to TMS by satellite phone.¹⁵⁹ It would not be until 22 February that repairs to severed sections of the Fiji-Tonga undersea communications cable were concluded and largely restored telecommunications services to Tongatapu. However, communications between Tongatapu and outlying islands remained challenging due to persisting damage to domestic undersea communications cables. Repairs were estimated to require 6-9 months, according to the World Food Programme (WFP) as lead of the Emergency Telecommunications Cluster (ETC). The U.S. National Oceanic and Atmospheric Administration (NOAA), in partnership with USAID/BHA, deployed seven satellite terminals – “chatty beetles” – to the government; these terminals enable text messaging in areas with limited connectivity in order to disseminate hydrometeorological and other sudden-onset disaster information to remote locations. NOAA also deployed related communications equipment, such as mobile and

fixed antennas and batteries to patch up some of the communication gaps until all undersea cables were repaired.

On 2 February, the country reported its first community transmission of COVID-19, and the government announced movement restrictions in the midst of the disaster response. The restrictions included school closures, designated shopping hours, and a curfew, among other measures, including in areas where no cases had been recorded. Certain COVID-19 mitigation measures – i.e., the suspension of all inter-island shipping and a mandatory 72-hour quarantine for all imported relief supplies upon arrival in Tongan ports – resulted in some challenges coordinating assistance and addressing urgent humanitarian needs. However, the Tonga NEMO continued to coordinate with international relief actors to deliver assistance through a modified, contact-free distribution system.

The combined eruption, ashfall, and tsunami affected at least 85,000 people, displaced 2,400, and killed four people. In addition, the eruption and tsunami damaged or destroyed at least 2,900 structures, including 300 houses, and caused an additional estimated US\$90.4 million in damage. The events affected 85% of agricultural households, and the long-term effects of acidic ashfall were thought to potentially include inshore fishing and reef damage, which would undermine fishing-based livelihoods.

CARE, through its local partners, was a key implementing partner in delivering agriculture, shelter, and WASH support for communities affected by the eruption and tsunami. The NGO and its local partners restored community and household rainwater collection systems, provided material and technical support for shelter repairs, supported the re-establishment of household gardens, and disseminated messages regarding ash cleanup, ash-related health hazards, and COVID-19 prevention. Additionally, the UN Food and Agriculture Organization (FAO) worked with government officials to support land clearance efforts, distribute agricultural equipment and tools, provide livestock inputs and supplies, and bolster small-scale fishing.

UN OCHA and WFP provided humanitarian coordination, information management, and assessment support, as well as logistics support for humanitarian and early recovery operations. OCHA worked on strategic coordination through Tonga's government, the Pacific Humanitarian Team (PHT), and the cluster system. Meanwhile, WFP provided warehouse management and supply chain coordination assistance, deploying five mobile storage units to Tonga in mid-February and coordinating the movement of relief commodity stocks prepositioned throughout the region. The Pacific Community delivered more than 1.3 metric tons of maize and vegetable seeds to bolster longer-term food security among agricultural households, and NEMO distributed more than 14,200 food items, including fish, flour, rice, and other commodities, to affected households.

The Tonga Red Cross Society (TRCS) mobilized 100 volunteers to participate in the emergency response. TRCS began distributing prepositioned relief stocks to the west coast of Tongatapu on 16 January; these supplies included shelter toolkits, tarps, kitchen sets, blankets, jerry cans, buckets, hygiene kits, and solar lanterns. Distributions also occurred on Ha'apai and 'Eua. Moreover, once the ash cloud dispersed sufficiently and satellite phones were useful, TRCS commenced Restoring Family Links (RFL) programming, and by 26 January, 163 Tongan households made "safe and well" calls to family overseas using RFL via TRCS satellite phones. During the initial response, through 19 January, TRCS supported the NEMO with water distribution in Tongatapu and Ha'apai. NEMO and TRCS commenced joint initial damage assessments on 17 January on the west coast of Tongatapu. In response to damage assessments, TRCS provided nine portable toilets/latrines for use in two affected communities (Patangata and Kanokupolu).¹⁶⁰

The International Federation of Red Cross and Red Crescent Societies (IFRC), through TRCS, distributed hundreds of dignity kits to women and girls to address hygiene and protection needs. Both the UN Children's Fund (UNICEF)

and TRCS also conducted psychosocial support interventions to help affected populations cope with volcano- and tsunami-related stressors. TRCS also distributed approximately 150 hygiene kits and 6,800 liters (1,800 gallons) of water across Tonga. It also distributed fuel in coordination with NEMO to enable water pumping systems across the island.¹⁶¹

Drought – August–November 2021

On 28 September 2021, TMS issued a drought alert for Niuatoputapu. Rainfall was well below average from the last week of August into September, and authorities called for water rationing measures.¹⁶² From 29 October, the NEMO provided a response to Niuatoputapu and Niuafóu communities affected by the drought. In cooperation with District and Town Officers, NEMO transported two desalination plants that convert water from underground or from village water harvesting systems into safe drinking water and to provide desalinated water to the tanks. In addition, the Ministry of Health led WASH cluster programs in Niuatoputapu and Niuafóu in support of NEMO's drought response with the provision of technical expertise to conduct routine inspection of the converted water. Beyond Niuatoputapu and Niuafóu, a drought warning was in place for Tongatapu and Ha'apai.¹⁶³

Tropical Cyclone (TC) Harold – April 2020

TC Harold, a Category 4 storm, hit Tonga on 9 April 2020 with sustained winds of more than 150 km per hour (93 miles per hour).¹⁶⁴ The storm passed to the south of Tongatapu, where the most damage appeared to have been caused by a 3-m (9-foot) storm surge.¹⁶⁵ It affected the country's east and southeast and brought extensive flooding to Tongatapu and the 'Eua island group.¹⁶⁶

NEMO led and coordinated the Initial Damage Assessment to assess the damage caused by the strong winds and associated storm surge. Participating agencies included HMAF, Tonga Police, Tonga Fire and Emergency Services (TFES), the Ministry of Infrastructure, MIA,

the Ministry of Agriculture, Food, Fisheries, and Forestry, MEIDECC, Tonga National Youth Council (TNYC), and Mainstreaming of Rural Development Innovation (MORDI) Tonga. Assessments confirmed widespread damage to homes, food crops, fruit trees, households, and water supplies from strong winds, storm surge, heavy rain, and flooding. More than 730 family homes suffered minor damage while 210 sustained major damage and 41 were completely destroyed.¹⁶⁷ National assessments found that 8,000 people were severely impacted. Wharves, coastal roads, and power supplies were also badly damaged.¹⁶⁸ The government estimated the cost of damage at more than US\$111 million.¹⁶⁹

NEMO with its local partners MORDI, Caritas, and TNYC, worked together to distribute relief supplies to affected communities in Hihifo, Vaheloto, Vahe Vaini, Vahe Tatakamotonga, Kolomotu'a, and Kolofóu. The teams delivered tents, tarpaulin covers, hygiene kits, shelter kits, jerry cans, solar lights, and kitchen sets. After two shiploads of relief items were sent to 'Eua, NEMO-MEIDECC accompanied by MORDI Tonga and the District Officers of Ohonua delivered shelter kits and other non-food items on the island.¹⁷⁰

Measles Outbreak – October 2019–February 2020

A measles outbreak began in early October 2019 following the return of a national youth rugby team to Tonga from New Zealand. The index case developed measles while in New Zealand, and 12 teammates subsequently developed laboratory-confirmed measles. The outbreak then spread, mostly to other teenagers from associated boarding schools on Tongatapu and Vava'u. The Ministry of Health swiftly stood up an Epidemic Task Force of various experts to meet weekly to advise on management of the outbreak, and a vaccination program also targeted secondary school students and infants between October and December. As of 12 February 2020, when the outbreak was all but halted, 659 confirmed and suspected cases were reported. Of cases, 581 (88%) occurred on

Tongatapu and 66 (10%) occurred on Vava'u. No deaths were reported.¹⁷¹

Tropical Cyclone Gita – February 2018

TC Gita passed over Tongatapu and 'Eua on 12 February 2018. The government preemptively issued a Declaration of a State of Emergency on the morning the storm was expected, and 4,000 people self-evacuated to 120 evacuation centers, of which 108 were in Tongatapu and 'Eua. Upon landfall, TC Gita was the strongest tropical cyclone to impact Tongatapu and 'Eua since 1982. It brought average wind speeds of 130 km per hour (80 miles per hour) and gusts of up to 195 km per hour (120 miles per hour). An accompanying storm surge reached 1 m (3 feet) above normal high-tide levels, and 200 mm (7.8 inches) of rain fell over a 24-hour period and caused localized flooding. The storm impacted approximately 80,000 people. It brought down power lines, damaged and destroyed schools, destroyed crops and fruit trees, and damaged public buildings, including an airport, the Parliament building, and the TMS offices. More than 800 houses were destroyed and 4,000 were damaged¹⁷² with an estimated 5% of Tongatapu's population displaced and 56% of 'Eua's housing stock damaged by the storm.¹⁷³

In the wake of TC Gita, the government led response efforts via the 10 humanitarian clusters, activated for the first time. Humanitarian partners, international and national NGOs, foreign governments, donors, and civil society supported the response. To assess the socioeconomic impact of TC Gita and assist in mobilizing the resources needed for recovery and reconstruction, the government requested that a Post-Disaster Rapid Assessment be conducted. The assessment was supported by the European Union, United Nations, World Bank, and ADB, as well as other regional organizations and bilateral partners, including the Pacific Community.

TRCS liaised closely with NEMO, and Red Cross / Crescent National Societies in the Pacific, along with the IFRC country cluster support team (CCST) in Suva and partner National

Societies, were in regular communication and on high alert once the TC was sighted by the Fiji Meteorological Service. The IFRC Suva CCST organized several teleconferences for concerned partners, and it continued to closely liaise with TRCS, providing support for information management (including preparation of informal updates) and international relations management. CCST Suva coordinated with partner National Societies and deployed technical support under sectors such as shelter, health and psychosocial support, finance, logistics, Information management, communications and media. The operation was supported by the Pacific operations coordinator from the Asia Pacific regional office who arrived in Fiji on 13 February. TRCS volunteers were mobilized at the request of NEMO and supported joint damage assessments. NEMO made radio announcements encouraging communities at risk to cooperate with Red Cross volunteers and NEMO.

On 14 February, the government through the Ministry of Finance and National Planning requested the assistance of the PHT, specifically seeking immediate support for technical and coordination from UN OCHA, and cluster support through the local cluster arrangements. The PHT in Suva Fiji was mobilized and coordinated regular meetings for agencies, providing overall coordination of humanitarian actors remotely. In addition, Cluster Leads met daily with NEMO to ensure good coordination and information flow.¹⁷⁴

TC Gita was estimated to have caused approximately T\$356.1 million (US\$164.1 million) in damage and loss, equivalent to 37.8% of GDP. The sector that sustained the greatest damage was the housing sector, which accounted for 53% of the total damage cost; the tourism sector was also badly hit and accounted for 13% of loss and damage. The scale of loss and disruption, including to the agriculture sector led the government to, for the first time, use existing social protection systems to disburse emergency disaster assistance. Under the government's two core social assistance programs – i.e., the Social Welfare Program for

the Elderly and the Disability Welfare Scheme – existing beneficiaries received a one-time top-up payment, in addition to their regular monthly payment. It is estimated that the disaster assistance reached over 3,500 beneficiaries.¹⁷⁵

Zika Outbreak – 2016

During 2016, Tonga reported a cumulative total of 2,299 cases of Zika, including 41 suspected cases in pregnant women. With the assistance of Australia, New Zealand, the WHO, and the TRCS, the country's health authorities undertook an effort to improve surveillance through the National Response Plan and clean-up campaign, which resulted in the collection of over 55,000 tons of trash as part of an effort to destroy potential breeding sites for the mosquito responsible for the spread of the Zika virus. The Australian High Commissioner delivered a vector control vehicle to Tonga's Minister for Health to support the Ministry's Environmental Health Unit efforts to combat the spread of Zika virus and other vector-borne diseases in Tonga.¹⁷⁶

Drought – 2015

After one of the driest Aprils in history and eight consecutive months of dry conditions, in May 2015, authorities were shipping emergency water supplies to smaller islands,¹⁷⁷ and TRCS was ramping up education campaigns for public water conservation. TMS said that with a declared El Niño, at least six more months of low precipitation could be expected.¹⁷⁸ In September, Tonga issued a declaration of drought in the Niuaus and drought warnings for the rest of the islands¹⁷⁹ after nearly one year of extremely dry weather and as forecasts indicated further low rainfall for the remainder of the year. Emergency water supplies were distributed to the outer islands and water desalination services were mobilized in case of need.¹⁸⁰ TRCS had launched a Water Catchment Project for communities in Niuafou'u where households would receive a water tank.¹⁸¹

Dengue Outbreak – February 2015

The Ministry of Health declared a dengue

fever outbreak on 3 February 2015; at the time, there were 33 confirmed cases across Tonga. The Ministry of Health called on Tongans to be vigilant and control mosquito breeding places.¹⁸² By 12 February, the number of confirmed cases had reached 53 with another 385 suspected cases. The Ministry said it was continuing with preventative measures.¹⁸³ The rise in numbers slowed in mid-February when the country reached 545 suspected or confirmed cases. Despite the slowdown in cases, the Ministry of Health and local authorities were continuing routine chemical spraying of every index case's household and surrounding areas. Additional special public awareness programs were produced by the Health Promotion Unit, funded by the Ministry of Health and WHO as well as TRCS; the programs were published and broadcast through various media. The TRCS, NEMO, MIA, Defence Services, NGOs, and the businesses community continued the clean-up and vector control campaign, "Polokalama Faka'auha Fanau'anga 'oe Namu," to destroy mosquito breeding sites in Kolomotu'a, Kolofou'u, and Ma'ufanga districts.¹⁸⁴

Chikungunya Outbreak – April 2014

Tongan health authorities reported an outbreak of chikungunya virus that affected more than 10,000 people across the country. This outbreak marked the first such spread of the mosquito-borne illness. The Ministry of Health launched an education campaign to encourage clean-up of mosquito breeding areas, spraying around houses, and sleeping with mosquito netting. The outbreak added pressure on the health system, which was dealing with the recovery from Cyclone Ian.¹⁸⁵

Tropical Cyclone Ian – January 2014

On 11 January 2014, TC Ian, a Category 5 storm, passed directly through the Ha'apai island group. Based on early warning of the storm, days before its arrival, the National Emergency Management Committee authorized the Director of NEMO to fully activate the Emergency Operations Centre, which commenced 24-hour-

a-day operations on 9 January.¹⁸⁶ When the storm hit, it was one of the most powerful tropical storms to have struck the country; it brought 289 km per hour (180 miles per hour) winds, which tore apart communities and even destroyed the Holopeka village (Lifuka Island) evacuation center where families were sheltering at the time. Early reports said 70% of homes were destroyed across the six most affected islands.¹⁸⁷

A day after the storm passed, on 12 January, two patrol boats, VOEA Savea and VOEA Pangai, arrived in Ha'apai with immediate relief items and personnel to assess the impact of the cyclone. A Royal New Zealand Air Force P-3 Orion also completed an aerial survey of the Ha'apai group.¹⁸⁸ On 22 January, government sector focal points were confirmed, and it was announced that all agencies and NGOs with TC Ian response activities were required to communicate with relevant focal points across WASH, Health and Nutrition, Immediate Shelter, Food Security, Education, Safety and Protection, Public Works, Electricity / Power, Telecommunications, Logistics, Coordination, and Recovery. Among the key assets delivered by New Zealand were desalination units as well as water tanks and fuel for the desalination plant in Ha'apai.¹⁸⁹ By 5 February, 50 Red Cross volunteers from the most affected villages and the Ha'apai branch's Emergency Response Teams worked closely with government agencies. IFRC and TRCS used pre-positioned stocks to provide temporary shelter material to affected families.¹⁹⁰ UN leaders based in Fiji arrived on 16 February to visit the affected area, and various relief supplies from Tonga's international partners began to arrive.¹⁹¹

A rapid post-disaster assessment was conducted by the Secretariat of the Pacific Community. It found that the storm had killed one person, injured 14 people, displaced more than 4,000 people, and destroyed food crops and infrastructure.¹⁹² In addition, 800 houses were damaged or destroyed, and the government recovery plan expected reconstruction to take 12-18 months.¹⁹³

Country Risks

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:

$$\text{Disaster Risk} = (\text{Hazard} \times \text{Vulnerability}) / \text{Capacity}^{194}$$

Taken from the UN Office for Disaster Risk Reduction (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.¹⁹⁵

In general, the goal of indexing risk is to inform decision makers and DRR and CCA 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 Country Risk

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.

- INFORM Risk is an open-source risk assessment for humanitarian crises and disasters. It can support decisions about prevention, preparedness, and response.
- INFORM Severity is a way to measure and compare the severity of humanitarian crises and disasters globally. It can help develop a shared understanding of crisis severity and ensure all those affected get the help they need.
- INFORM Climate Change is an upgraded INFORM Risk Index that includes climate and socio-economic projections with results intended to inform policy choices across climate mitigation, climate adaptation, disaster risk reduction, sustainable development, and humanitarian assistance.¹⁹⁶

The **INFORM Risk** Index 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.¹⁹⁷

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.¹⁹⁸ The higher the score the more at-risk a country is to disasters. In the 2023 INFORM Risk Index, Tonga had an overall risk score of 3.8/10, which INFORM categorizes as the “Medium” risk class and lands Tonga as the 83rd most at-risk country in the Index. The Hazards and Exposure dimension score takes into account a combination of both natural and human hazards, and Tonga rated 3/10 or ranked 83rd of 191 countries. The Vulnerability dimension score was 4.4/10 or 65th of 191, and the Lack of Coping Capacity dimension score was 4.2/10 or 101st of 191. Physical exposure to tsunami, at 8/10, was the greatest threat in the Hazards & Exposure dimension, with Aid Dependency measuring the highest at a 10/10 for the Vulnerability dimension, and DRR rated the highest at 5.8/10 in the Lack of Coping Capacity dimension. Figure 4 displays the INFORM dashboard for Tonga.¹⁹⁹

Based on 2022 baseline assessments and projections of climate change influences on major hazards, the **INFORM Climate Change** tool suggests that Tonga may escape some of the worst impacts of sea level and weather changes. When the climate change index applies additional indicators to the various Hazards and Exposures categories, Tonga’s resulting risk scores remain the same or even decrease.²⁰⁰ The index examines the country’s potential experience under two Representative Concentration Pathways (RCP) – 4.5 and 8.5 – and it projects out to the years 2050 and 2080. The RCPs are used to describe the amount of greenhouse gases in the atmosphere at a specific point and allow modelers to consider emissions scenarios and their impacts out to the year 2100. The most commonly used RCPs for international



Figure 4: INFORM Risk Index, Tonga (2023)

modelling are RCPs 2.6, 4.5, 6.0, and 8.5. RCP 4.5 is an intermediate pathway where emissions are limited but not stringently and result in a surface temperature rise of 1.1-2.6°C (1.98-4.68°F) by 2100. RCP 8.0 is one of the pathways that considers almost no limitations of greenhouse gas emissions, and most projections expect it to lead to a surface temperature rise of 2.6-4.8°C (4.68-8.64°F) by 2100.²⁰¹

The **INFORM Severity** Index measures the severity of humanitarian crises against a common scale at the global level. The concept is based on three dimensions: impact of the crisis, conditions of people affected, and complexity of the crisis. The model is divided into levels to give insight into each of the dimensions. The primary INFORM Severity score is formulated by asking which of the world's humanitarian crises have the highest severity and what is the level of severity to allow responders and analysts to compare among crises. The answers to these questions are aggregated from many categories and components, each reflecting a different dimension of the phenomenon, and their values

answer which underlying factors determine the severity of a crisis. If data is continuously collected, the time series will show when an event met the criteria of a crisis, how the crisis evolved, and when it phased out.

INFORM Severity adopted the following definitions:

- **Humanitarian crisis** is an event or series of events that causes harm to the physical, mental, social, and economic well-being of a large group of people, exceeds their ability to cope using their own resources, and how complex it is to fill such gaps by the humanitarian responders.

- **Severity of humanitarian crisis** is an extent of outcomes, in terms of distribution of people affected by the severity of conditions they confront within the crisis, generated by the impact of a crisis and worsened by how complex it is to deliver humanitarian response in the operational environment.
- **Measure of crisis severity** summarizes a range of quantitative information about the severity of a humanitarian crisis and presents it in numerical and/or categorical scale to be easily used in decision making.

Therefore, INFORM Severity envisages three dimensions of crisis severity:

- Impact of the crisis: the scope of its geographical and human effects
- Conditions of people affected: information about the distribution of people affected by the severity of condition, and
- Complexity of the crisis: factors that affect its mitigation or resolution.

The Hunga Tonga-Hunga Ha'apai eruption

and subsequent tsunami of January 2022 is an event measured in the INFORM Severity Index. All scores are on a scale of 1-5 wherein 1 is the least severe and 5 is the most severe. As of 29 December 2022, Tonga netted a total Severity Index of 1.2, which means a Severity Category of 2, or “Low,” and the event showed a “Decreasing” trend over the previous three months. The Impact Score was 1.7 with a geographic score of 2.5 and human impact score of 1.3, all of which take into account the affected area (100% of the country), people in the affected area (100% of the population), people affected (81% of the total population), and people affected by categories (0.0% displaced at the time of assessment). The Conditions of People Affected score was 1.0 with a 0.0 for People in Need, and 2.0 for Concentration of Conditions. Finally, the event netted a 1.0 for Complexity of the Crisis, made up of a 0.9 for Society and Safety and a 1.0 for Operating Environment, which are made up of Social Cohesion (1.1), Rule of Law (1.6), Safety and Security (0.0), Diversity of Groups Affected (1.0), and Humanitarian Access (1.0).²⁰² Thus, nearly one year after the eruption and tsunami, the severity of the crisis was receding and it was being managed in comparison with other global crises.

World Risk Report

The WorldRiskReport by Bündnis Entwicklung Hilft strives to raise awareness of disaster risk among the global public and political decision-makers and to provide practitioners with data to promote faster orientation to complex situations – i.e., societies experiencing disasters. This effort stems from the perception that disaster risks are not solely determined by the occurrence, intensity, or duration of extreme events. Social factors, political conditions, and economic structures play an important role in turning these events into crises. Thus, this index is based on the assumption that every society can take precautions – e.g., effective disaster preparedness and management – to reduce the impact of extreme events and lower the risk of disasters.

The WorldRiskReport calculates the level

of risk a country faces based on a formula of exposure to hazards and vulnerability. It provides an assessment of the risk that countries will confront disasters but does not indicate probabilities for the emergence of disasters, nor does it forecast the timing of future disasters. This index uses 100 indicators that include risk, hazard exposure, vulnerability, and coping capacity (as defined above), and adds two others:

- Susceptibility - The disposition to suffer damage in the event of extreme natural events. Susceptibility relates to structural characteristics and frameworks of societies.
- Adaptation - A long-term process that also includes structural changes and comprises measures and strategies that address and try to deal with future negative impacts of natural hazards and climate change. Analogous to “lack of coping capacity,” the lack of adaptive capacities is included in the Index.

In the 2022 WorldRiskReport, Tonga ranked 100th of 192 countries wherein the lower the rank, the greater risk the country faces. Tonga’s total Index score was 3.94 (on a scale of 0-100 wherein the lower the number the less risk a country faces), putting it in the “medium” risk class. The component scores were:

- Exposure: 1.33 (medium)
- Vulnerability: 11.66 (low)
- Susceptibility: 15.46 (medium)
- Lack of Coping Capacity: 11.38 (medium)
- Lack of Adaptive Capacity: 9.01 (very low)

For comparison, Tonga’s score puts it slightly below the regional (Oceania) median of 4.15 but slightly above the sub-regional (Polynesia) median of 3.15. This arises from the fact that several sub-regions of Oceania are home to countries in the highest risk classes in the index while others, particularly Polynesia, are home to countries in the lowest risk class, even lower than Tonga’s own classification. In terms of Exposure, Tonga is above the medians for both Oceania (1.23) and Polynesia (0.81) in a reflection of Tonga’s exposure to earthquakes and tsunamis as well as to extreme weather. In the Vulnerability

dimension, the country is below the medians for both Oceania (13.20) and Polynesia (12.24) in a reflection that, although it is somewhat aid-dependent, it has a relatively lower proportion of inequality or inherently vulnerable groups. Under Susceptibility, Tonga is well above the median for Oceania (9.85) and also above that for Polynesia (15.38) due, in part, to the country's relative difficulty connecting communities to health care and communications. In the Lack of Coping Capacity dimension, Tonga is also above the medians for both Oceania (10.90) and Polynesia (10.54) due to some governance and DRR programming challenges. Finally, on the Lack of Adaptive Capacity score, Tonga sits far below the medians for both Oceania (33.39) and Polynesia (26.43) in a reflection of its previous investments in capacity-building, education, and reduction of deprivation.²⁰³

Global Climate Risk

The Global Climate Risk Index (CRI) developed by Germanwatch analyzes impacts of extreme weather in terms of both fatalities and economic loss. The index is based on the Munich Re (a re-insurance company) NatCatSERVICE databases, among the most complete databases in the world in these categories of loss. The CRI examines disaster impacts in both absolute terms (e.g., number of fatalities) and in comparative, relative terms that allow analysts to set events and their impacts alongside each other to assess how a given country or community used its strengths or struggled due to its weaknesses in the face of an extreme event. The countries ranking highest on the CRI experience either frequent smaller-scale weather events or rare but extraordinary events. In sum, the CRI allows DRR and disaster management practitioners to consider how exposures and vulnerabilities will be impacted by climate change. The two different CRI measures – most impacted countries in a single year and most impacted countries over 20 years – offer analysts an opportunity to tease apart the effects of rare but major events versus frequent, cumulative events.

The major events examined by the CRI

are tropical cyclones (typhoons). The key takeaway is that countries with high exposure to such storms – either frequent small ones or rare massive ones – will be preparing for less predictable, potentially less frequent, but probably more powerful typhoons under climate change scenarios. The CRI cites various DRR and CCA efforts in countries exposed to hydrometeorological hazards, and it points to initiatives like the PCRAFI, a regional risk pool for DRM and financing solutions for Pacific Island countries. PCRAFI provides insurance against typhoons, earthquakes, and tsunamis in parallel to Pacific Resilience Program initiatives to bolster early warning and recovery capacity. Germanwatch also points to the CRI findings as a clear reason to improve global climate change financing programs to ensure that the most affected countries – many of which are also least developed states – do not experience worsening development outcomes because of disaster losses. The CRI cites outcomes from the COVID-19 pandemic as examples of how simultaneous or consecutive disasters can erode resiliency in the absence of international solidarity funding.

In the 2021 CRI, based on single-year (2019) data, Tonga ranks 130th along with various other countries that did not experience major impacts from the storms used to rank countries in this index. It experienced only minimal loss from storms in that year. To the contrary, in the 20-year data table, Tonga ranks 77th of 180 countries; while it has experienced relatively few losses – human and material – in absolute terms over the period, earning it ranks of 163 and 129 in the average fatalities per year and average losses (in terms of GDP) per year respectively, its average fatalities per 100,000 inhabitants and average losses per unit GDP over the period earn in ranks of 76 and 5, respectively. Thus, for its size, the country has experienced extreme weather that caused significant damage occasionally during the 20-year window used for this assessment. Although it may not see a major storm in any given year, it can expect more frequent and more extreme storms under climate change scenarios.²⁰⁴

ORGANIZATIONAL STRUCTURE FOR DISASTER MANAGEMENT

With the passage in 2021 of the new National Disaster Risk Management (DRM) Act, the names of top national committees and offices are expected to change. Most of the changes replace “Emergency” with “Disaster” or “Disaster Risk.”²⁰⁵ The formalization of these names may not have been completed, or people may still use the old names out of habit.

The National Disaster Council of the Cabinet is the supreme governing body under which there are three committees that oversee the national level of governance, policy, and operations. They are the National Emergency Management Committee (NEMC), the National Emergency Operation Committee (NEOC), and the National Emergency Recovery Committee (NERC).²⁰⁶ While the National Disaster Council and its committees have overall responsibility and authority for DRM, the National Emergency Management Office (NEMO) coordinates DRM activities through the development of Standard Operating Procedures, the National Emergency Coordination Centre (NECC), and the National Emergency Management Plan (NEMP).²⁰⁷

Based on the 2021 Act, NEMO would become the National DRM Office, NEMC would be the National DRM Management Committee, NEOC would be the National DRM Operations sub-committee, and NERC the National DRM Recovery sub-committee. District Emergency Management Committees (DEMC) would become Island DRM Committees, and Village Emergency Committees (VEC) would be Village DRM Committees.²⁰⁸

Many functions of DRM, DRR, and CCA are consolidated under the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change, and Communications (MEIDECC), which includes several institutions responsible for forecasting, early warning, coordinating, and implementing emergency response, promoting climate risk

preparedness, and adaptation. The Ministry’s institutional structures include NEMO, TMS, and the National Resources Division, which also work alongside the Geological Service, which is under the Ministry of Lands and Natural Resources. All of these offices and agencies play a role in pre-disaster monitoring, planning, and mobilization, as well as evacuation, sheltering, and immediate post-disaster relief operations and assessments.²⁰⁹

Lead Government Agencies in Disaster Response

The NEMC (or National DRM Management Committee) is responsible for policy, coordinating emergency management activities, approving and reviewing the NEMP, and supporting DEMCs (or Island DRM Committees). The NEOC (or National DRM Operations sub-committee) is responsible for activating ministries and organizations during the response phase, coordinating with relevant ministries, NGOs, and community groups, conducting initial damage assessments, and managing disaster relief requirements including collecting, prioritizing, and distributing relief items. The NERC (or National DRM Recovery sub-committee) is responsible for coordinating recovery and rehabilitation activities, conducting detailed damage assessments, and coordinating emergency relief operations. Figure 5 shows the flow of authority for disaster management and risk reduction in Tonga; note: all names reflect the pre-2021 conventions.²¹⁰

MEIDECC is responsible for managing disaster risks and improving climate resilience. The Ministry’s NEMO (or National DRM Office) is responsible for managing emergencies and coordinating DRR activities and serves as a secretariat for the national committees and sub-

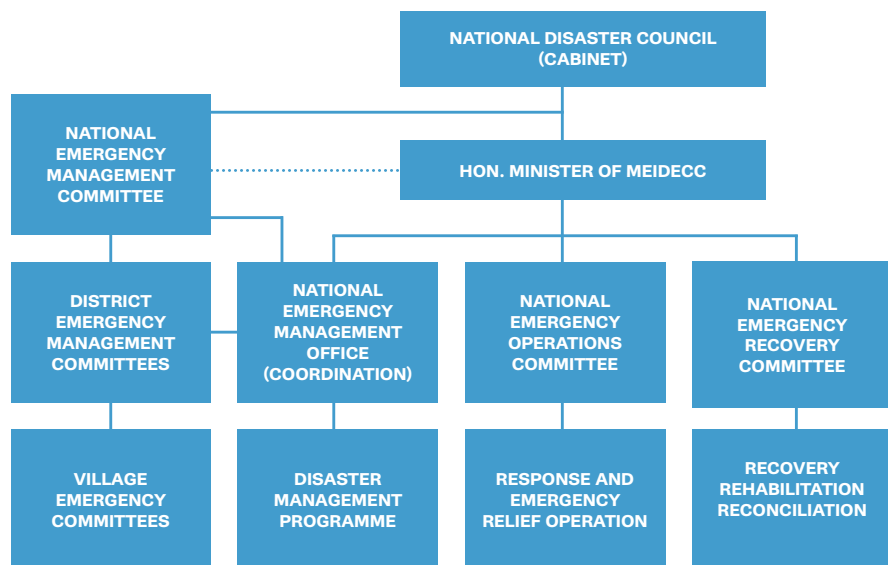


Figure 5: National Disaster Management Structure

committees. Additional stakeholders in various aspects of the disaster management cycle include other offices in MEIDECC and the country’s fire and emergency services, TFES, which falls under its own Ministry structure and is responsible for providing fire, rescue, and emergency services. The TFES Emergency Response Division provides rescue, relief, and recovery services during disasters.²¹¹ In cases where the disaster event is an explosion, a fire, a gas leak, or a chemical, fuel, or oil spill, TFES is the lead agency. In case of an epidemic/pandemic, the Ministry of Health has the lead. In a terror attack, HMAF and Police are the lead agencies.²¹²

Disaster Relief and Emergency Response

The National Emergency Control Centre (NECC) is the nexus of coordination in times of disaster response. It is managed by NEMO, in the Ministry of Works building, in Vaololoa, Nuku’alofa, and is equipped with various telecommunications systems and standby power. NECC facilitates NEOC coordination once the disaster management system is activated. In addition to other activities, NECC will issue official information regarding the event and the response to it. NECC takes reports from District Emergency Control Centres, which coordinate all disaster operations in their respective districts

under the Governor as District Disaster Controller.

The NEOC has central control during national disaster operations and is briefed daily by NEMO on implementation before reporting upwards to the Cabinet. NEOC will activate the emergency management system in response to an event, meet on a regular basis during the emergency operation, liaise with ministries, NGOs, and community groups who are

executing emergency management roles, carry out initial damage assessments, collate and prioritize immediate disaster relief requirements, manage the distribution of immediate relief supplies, coordinate the humanitarian response activities of any government or non-government partner, allocate resources of the government as necessary, and provide any other support and assistance required by the Prime Minister or Cabinet.²¹³

A cross-government Emergency Management Committee and ten clusters mobilize to meet disaster needs and benefit from the support of Tonga’s military and UN bodies such as the WHO and OCHA.²¹⁴ Since 2015, NEMO has overseen the cluster system. The national clusters are Coordination and Logistics; Essential Services; Emergency Shelter and Non-Food Items; Safety and Protection; Health, Nutrition, and WASH; Economic and Social Recovery; Education; Reconstruction; Food Security and Livelihoods; and Communications. Each cluster is led by the relevant Tongan government ministry with the assistance from international and regional organizations.²¹⁵ Figure 6 shows the coordination structure.²¹⁶

DEMCs and VECs are established to develop and implement emergency management at the district and village levels.²¹⁷ Churches and town halls often serve as emergency shelters during disaster events. Often churches also support

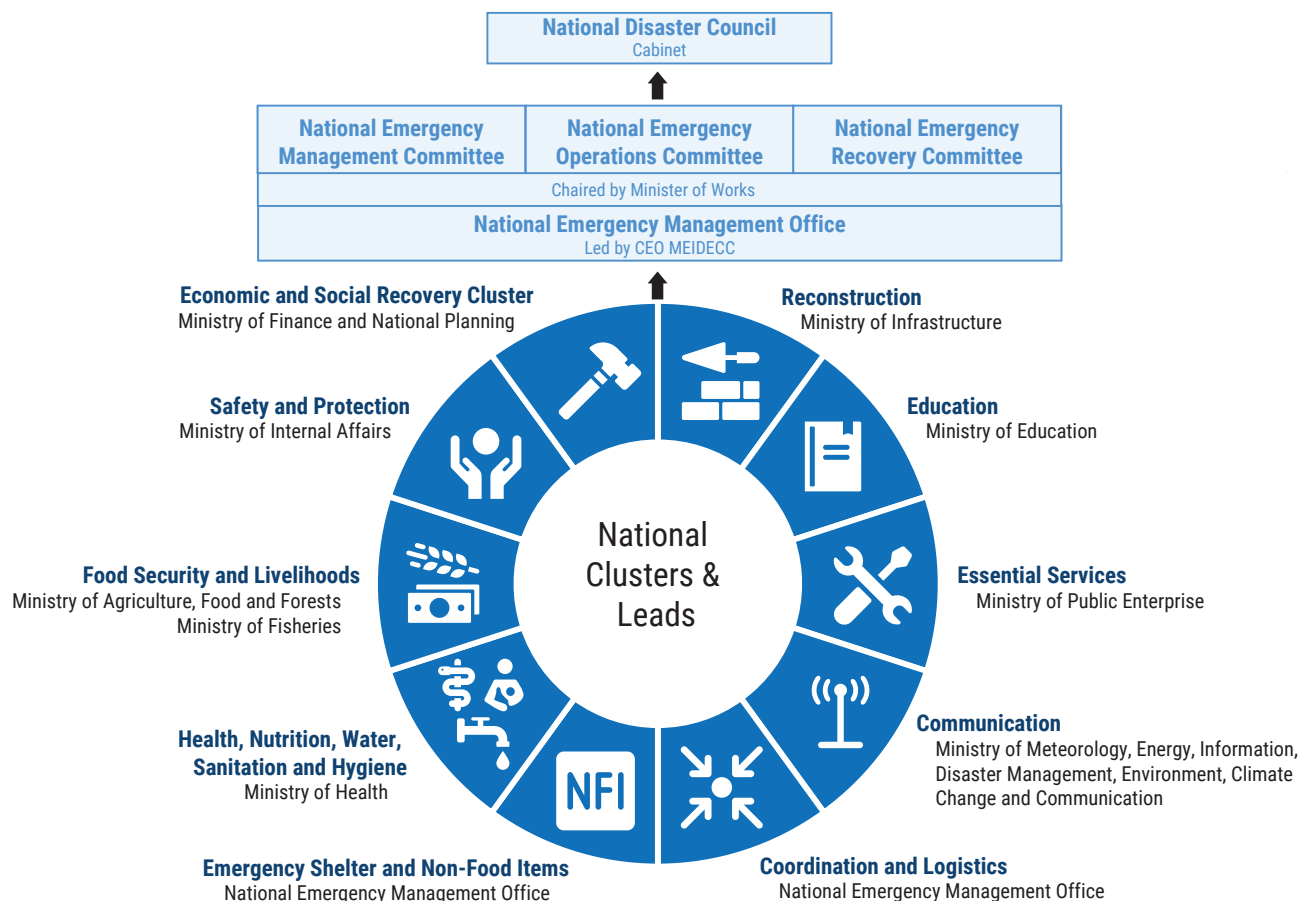


Figure 6: Tonga’s National Humanitarian Coordination Structure

disaster management by undertaking needs and damage assessments because they already have close relationships with community members.²¹⁸ Most humanitarian branches of established churches may directly activate regional or global humanitarian assistance, and these churches also are strong links in mobilizing the Tongan diaspora with appeals for assistance.²¹⁹

The decision on whether international assistance is to be requested rests with the NEMC, which will submit through its Chair to the Cabinet a recommendation that a formal request for international assistance be initiated. The Minister of Foreign Affairs (MFA) is responsible for requesting international assistance upon direction of the Cabinet, and various plans assign to MFA the role of focal point for overseas emergency relief assistance and external relations. The Secretary for Foreign Affairs is a member of the NERC and NEOC and is, therefore, in a position to administer the formal channels of request for and acceptance of

offers of assistance from international agencies. Once a formal request has been made, ongoing liaison is handed over to the National Controller.

Despite this process, there have been instances of less formal means of offering and delivering international relief. The initial response from Tonga’s resident foreign diplomatic missions following TC Ian (2014) was initiated based on informal discussions with the Tonga government. Moreover, there is an acknowledged secondary means to request assistance in exceptional circumstances. For example, the Minister for Health is the national focal point for the WHO, and all requests for assistance from that body must be endorsed and submitted by that Minister directly to WHO, which has a national office managed by a Country Liaison Official in Tonga. Regional bodies such as the Pacific Community (SPC) also have in-country focal points for contact either through the Prime Minister’s Office, MFA, or in some cases, with other Ministries.

The TRCS may make direct contact with the IFRC Pacific Office in Suva, Fiji, to request international assistance from IFRC or other Red Cross or Red Crescent National Societies. Such assistance is facilitated directly through the TRCS Secretary-General in Nuku'alofa in consultation with the government.²²⁰

In 2008, Tonga established a National Emergency Fund with an annual appropriation up to T\$5 million (US\$2 million). The Fund is a core source of funding for all disaster management and response operations through NEMO. Along with international donor support, the Fund is also the core funding source for weather-related events that do not trigger the thresholds for contingent financing. It has been used for the purchase of food rations and electrical supplies after cyclones, and the National Emergency Management Committee has pre-emptively tapped the Fund for fast release to meet immediate needs.²²¹

Armed Forces Role in Disaster Relief

The Tonga armed forces, His Majesty's Armed Forces (HMAF), include HMAF Headquarters, Tonga Royal Guards, Tonga Navy, Land Force, Support, Training Unit, and Air Wing. HMAF has an approved personnel strength of 750 but generally stands at 600 personnel with plans to slowly build up numbers. The HMAF Act 1992 enshrines aid to civil authorities as a duty of the military force. Among HMAF's key responsibilities is maintaining the ability to respond to Ministry of Health requests for support in transportation – e.g., of medical equipment to outer islands or of patients to Tongatapu. The Tonga Navy is generally tasked with medical evacuations, search and rescue, and humanitarian assistance and disaster relief (HADR) missions. The Land Force may be called upon for regional HADR operations, and the Support Unit may also be required to assist.²²²

HMAF regularly supports responses to disasters within the country. It also practices HADR operations with regional partners. Exercise Tafakula is a biennial, multi-national

military exercise hosted by HMAF and that brings in personnel from the French Army of New Caledonia and New Zealand Defense Force, as well as U.S. personnel from the Marine Rotational Force – Darwin (Australia) and the Nevada National Guard. Among the Tafakula activities are civic actions such as school clean-ups and medical trainings to allow HMAF to gain greater facility with basic lifesaving and First Aid techniques.²²³ In July 2016, the Force hosted personnel from China, France, New Zealand, the United Kingdom, and the U.S. in Ha'apai for Exercise Tropic Twilight 16, led by the New Zealand forces. Activities included reconstruction of some infrastructure and structures damaged by TC Ian, particularly a new public toilet block and water tanks at the Taufā'ahau Wharf at Pangai as well as water tanks for Faleloa, Lotofoa, and the Department of Fire Service at Pangai.²²⁴ Every other year, in preparation for cyclone season, HMAF joins other first responders – NEMO, cluster representatives, and NGOs – in Exercise Longreach, co-led by MEIDECC and the Australian Defence Force.²²⁵ As a means for boosting HMAF's ability to participate in HADR missions, Longreach focuses on interoperability of plans used by responding agencies.²²⁶

During the 2022 HTHH eruption and tsunami response, HMAF was active supporting NEMO. Soldiers helped clear volcanic ash from the runway at Fua'amotu airport and cleared various other critical infrastructure assets, including roads and shops. At sea, Tonga's two Guardian class patrol boats evacuated the outlying Ha'apai island group. VOA Late, a landing craft, also helped distribute pre-positioned and newly arrived supplies to remote communities.²²⁷ HMAF personnel participated in distribution of water on Tongatapu. HMAF's Ngahau Kaula sailed the day after the eruption for Ha'apai to reestablish communication with the impacted islands. VOA Ngahau Siliva was already in Vava'u.²²⁸ By 27 January, HMAF forces in Ha'apai had supported clean-up of Ha'afeva Health Centre to return it to operational status. Having completed that task, Ngahau Kaula and an

additional ship, Late, were on standby for follow-on tasking.²²⁹

Disaster Management Partners

The **Pacific Humanitarian Team (PHT)** is a network of humanitarian organizations that work together to assist small Pacific Island states in disaster preparedness and response. Members include UN agencies and IFRC as well as NGOs although PHT can reach out to a wider network that includes national governments, regional faith-based organizations, donor agencies, the private sector, and academia. Upon government request, the PHT supports Tonga's national cluster system, as it did after TC Gita (2018). At that time, the PHT in Suva mobilized to provide technical assistance and coordination support.²³⁰

The **Emergency Telecommunications Cluster (ETC)** falls under the PHT structure and is tasked with supporting telecommunications preparedness in the Pacific. It is active in Tonga as part of the longer-term recovery from the HTHH event,²³¹ which severed the undersea communications cable linking Tonga with Fiji and severed other undersea cables linking Tonga's islands to each other. Although the international service was restored by 22 February 2022, restoration of the entire domestic network was expected to take until April 2023.²³² Led by the UN WFP, the ETC works on five pillars: emergency response, regional and country preparedness, empowered communities, innovation and sustainable technology, and strategic partner coordination.²³³ As part of the HTHH response, ETC's partners include NEMO, the University of the South Pacific, the International Telecommunication Union, Télécoms Sans Frontières, WFP, Iridium, the Government of Luxembourg, and NORCAP (the standby roster of specialists from the Norwegian Refugee Council who can deploy to support UN agencies). As of January 2023, ETC was still working to reconnect the Niuaus with high frequency (HF) radio communications; it had completed restoration of internet connectivity to the emergency operations centers in Vava'u and Ha'apai but had not yet completed restoration of HF and very high frequency (VHF) radio

service. 'Eua also remained disconnected. On Tongatapu, MEIDECC, as the national ETC lead, was conducting or facilitating training for all islands on new systems and had restored the HF system.²³⁴

The UN presence in Tonga is small, limited to a single-person country coordinator who oversee programs implemented by 16 UN system agencies. They include the FAO, International Labour Organization (ILO), International Organization for Migration (IOM), UN Development Programme (UNDP), UN Capital Development Fund (UNCDF), UN Environment, the UN Economic and Social Commission for Asia and the Pacific (UNESCAP), the UN Educational, Scientific and Cultural Organization (UNESCO), UN Population Fund (UNFPA), UNICEF, UNDRR, UN OCHA, UN Women, WFP, WHO, and the World Meteorological Organization (WMO).²³⁵ Given its small size, the UN presence in the country can swiftly become overwhelmed in case of a major emergency, and most UN personnel who will be involved will be surged in from elsewhere – as close by as Fiji or from much further away.²³⁶

The **International Red Cross and Red Crescent Movement** is a global humanitarian network of 80 million people that helps those confronting disaster, conflict, or health and social problems. It consists of the International Committee of the Red Cross (ICRC), the IFRC, and the 192 National Red Cross and Red Crescent Societies.²³⁷ The ICRC is an independent humanitarian organization, headquartered in Geneva, Switzerland. It bases its activities on the provisions of International Humanitarian Law, and it is neutral in politics, religion, and ideology. The ICRC assists with the protection of civilian victims of armed conflict and internal strife and their direct results. Within these roles, it may take any humanitarian initiative as a neutral and independent intermediary.²³⁸ The ICRC office in Fiji covers activities in Tonga; during the immediate aftermath of the HTHH eruption and tsunami, ICRC in Suva supported the TRCS with the satellite telephone-enabled Restoring Family Links service.²³⁹

The IFRC is a humanitarian organization founded in 1919. It provides assistance and promotes humanitarian activities carried out by 192 National Red Cross and Red Crescent Societies globally with a view to preventing and alleviating human suffering. The IFRC carries out relief operations to assist victims of disasters and combines this with development work to strengthen the capacities of its members, the National Societies.²⁴⁰ The IFRC Pacific country cluster delegation, based in Suva, Fiji, provides support to 11 Pacific Island National Societies, including TRCS. The IFRC provides support in DRM, resilience, disaster response law, community-based climate risk reduction, shelter, health, protection, gender, and inclusion. It also provides support services for National Society development, planning, monitoring, evaluation, reporting, finance, and logistics. As part of the response to the HTHH event, the IFRC supported TRCS in response planning and reporting, communications, coordination with partners, WASH, logistics, media coverage, and communications with the public. IFRC has also met with partners to coordinate provision of funding, relief items, and surge assistance to enable TRCS to implement relief activities, initiate early and long-term recovery, and ensure that it is prepared to respond quickly and effectively to future crises. Three IFRC staff supported the response on the ground in Tonga: a rapid response WASH coordinator; the country cluster delegation preparedness and response manager; and the senior finance officer.²⁴¹ IFRC is a member of the PHT and chairs the Pacific Shelter Cluster.²⁴²

The National Red Cross Society, TRCS is headquartered on Tongatapu and has three branches (Ha'apai, 'Eua, and Vava'u) with 18 staff and more than 80 volunteers.²⁴³ The Tonga Red Cross Society Act 1981 is the legal basis for TRCS programs and activities. The Act recognizes TRCS as a voluntary aid society, auxiliary to public authorities, and whose independent nature is respected. Its stated mission is “to prevent and alleviate human suffering in Tonga focusing on disaster management, persons with disabilities, health promotion and humanitarian laws and

values.” In emergency management plans, TRCS provides a representative to NERC, assists in public awareness and disaster management trainings, may assist in damage assessments and provide relief goods and first aid services to disaster victims in coordination with NEMC, may seek assistance from IFRC as needed, and assists in tracking missing persons. In some districts, TRCS branches have a representative on the DEMC.²⁴⁴ TRCS maintains stocks of pre-positioned relief supplies at the national headquarters and 14 other locations throughout the islands. As of early 2023, TRCS continued to work on recovery from the HTHH event with the support of other National Societies (Australia, Britain, Canada, China, Denmark, France, Japan, Latvia, Monaco, New Zealand, Singapore, South Korea, Tuvalu, and the U.S.), funneled through IFRC.²⁴⁵

The Mainstreaming of Rural Development Innovation (MORDI) Tonga Trust and Tonga National Youth Congress (TNYC) are key implementing partners for various international humanitarian and DRR organizations. Since 2007, MORDI Tonga has worked on programs to address poverty, and they have strong relationships with corporate players to fund and plan programming. The focus is on enabling income generation in more than 100 isolated, rural communities.²⁴⁶ A key program is building climate resilient agriculture, particularly in women-led households or among female community organizations, and during the COVID-19 pandemic, MORDI worked with other local organizations on training and awareness campaigns regarding the virus, vaccines, and contact tracing. MORDI has been a USAID partner in increasing accessibility for persons with mobility challenges.²⁴⁷ For more than 30 years, TNYC has operated in communities on six islands with the backing of church and government leaders. Each TNYC island branch has its own leadership and programs to ensure local community buy-in and ownership of activities. In addition to its partnerships with international, national, and local civil society groups, TNYC has five prongs of work: Social Entrepreneurship, Humanitarian,

Community Leadership, Volunteerism, and School is My Friend/Youth Justice. The TNYC Environment and Disaster Division has worked on conservation and environmental projects with funding from the Global Environment Facility.²⁴⁸

USAID works with Australia's Act for Peace whose local partner, Tonga National Council of Churches, has been an implementing partner in Community-Based Disaster Risk Management. From 2010, Act for Peace and its partners implemented the Tonga Community Disaster Risk Management program (TCDRM), which included community-led disaster management planning and response exercises designed to minimize the impact of natural hazards. The program equipped communities with the knowledge necessary to withstand extreme events, and it paid dividends during 2018's TC Gita when the rapid mobilization of VECs, groups of citizen responders trained to improve disaster preparedness and resilience within their communities, played a role in the response such that there were no fatalities.²⁴⁹

U.S. Government Agencies in Tonga

The U.S. Embassy in Suva, Fiji, is accredited to Tonga. The Embassy's strength is supporting U.S. commercial and trade interests in the Pacific Islands/Oceania region. The U.S. Defense Attaché/Security Assistance Office in Suva coordinates its activities with USINDOPACOM's Theater Engagement Plan for Tonga, and activities consist primarily of ship visits; medical, dental, and engineering humanitarian assistance programs; and military exercises with HMAF. The office also administers Security Assistance programs, which provide funding for professional military development of selected Tongan officers and non-commissioned officers and attendance at U.S.-hosted seminars and conferences. An additional U.S. presence is that of dozens of Peace Corps volunteers who work on education projects and promote English language skills.²⁵⁰

In 2020, USAID began providing nearly US\$1.1 million to boost the capacity of Tongan

communities to prepare for and mitigate the impacts of natural disasters. Implemented by Australia's Act for Peace, USAID's 2-year DRR project works with the Tongan National Council for Churches to support nearly 9,000 people across 27 remote communities. As the implementing partner, Act for Peace has been identifying and rehabilitating remote evacuation centers to ensure they are safe and accessible to all community members, providing training to VECs on ensuring disaster plans meet the specific needs of persons with disabilities, and improving reliable access to safe drinking water. An additional outcome of the project is to increase local communities' coordination with NEMO.²⁵¹

USAID/BHA works in the Pacific Islands via a three-pronged approach: 1) enhance early warning systems, 2) improve disaster preparedness, and 3) strengthen first responder capabilities. The strategy is to help these states strengthen national DRM capacities. A key program in Tonga is implemented by CARE, an NGO partner that works to provide agricultural assistance and disability- and gender-inclusive community-based DRR activities. Tonga is also one of the countries where, since 2009, USAID/BHA has supported NOAA to deploy "chatty beetles," which are satellite terminals that facilitate text messaging in remote areas with limited connectivity. The "chatty beetles" are intended for dissemination of hydro-meteorological alerts and other important information; the system connects emergency response authorities with remote communities. "Chatty beetles" provided Tonga's government with the critical capability to disseminate alerts to outer islands following the HTHH events when the undersea fiber optic cable was severed.

In addition to having laid the groundwork for early warning, following the January 2022 eruption and tsunami, USAID/BHA provided US\$2.6 million to partners throughout Tonga to meet critical humanitarian needs. Among other activities, the funding allowed Act for Peace to provide agriculture, protection, and WASH support, as well as multipurpose cash

assistance to 18 communities. Act for Peace and the Tonga National Council of Churches also worked to promote food production to replace damaged crops, provide psychosocial support services to help affected communities cope with recurring disasters, and support water access for communities in need. Additional USAID/BHA and Catholic Relief Services support went to Caritas Tonga to address the WASH needs of 1,000 households in ‘Eua, Ha‘apai, and Tongatapu, where the program also rehabilitated and installed water tanks to meet water supply needs.²⁵²

USAID’s contact information includes:

USAID/Pacific Islands

Ryan Washburn - Mission Director
U.S. Agency for International Development
158 Princess Road
Suva, Fiji
Phone: 679-331-4466
Email: infopacificislands@usaid.gov

USAID Contact

Sarah Mentrup, Fiji Desk Officer
U.S. Agency for International Development
1300 Pennsylvania Avenue, NW
Washington, DC 20523
Phone: 571-217-0270
Email: smentrup@usaid.gov

U.S. Mission in Fiji (accredited to Tonga)

158 Princes Road
Tamavua, Suva, Fiji
Phone: 679-331-4466
Web: <https://fj.usembassy.gov/embassy/vpp-kingdom-tonga/>

Laws, Policies, and Plans on Disaster Management

Tonga’s disaster management framework is an “all-hazards” or “functional” approach, which focuses on emergency support functions to be performed rather than addressing specific hazards. Thus, there are no specific plans for

earthquakes, cyclones, or droughts, but the country’s emergency response agencies continue to develop skills and capacities that are necessary in responses to all types of events.

Disaster Risk Management Act (2021)

Passed into law in mid-2021,²⁵³ the Act is written with the goal of establishing a legal, institutional, and regulatory framework for planning and management of DRR and preparedness activities before a disaster occurs, coordinating emergency response during a disaster, and facilitating recovery work following a disaster.²⁵⁴ It superseded the Emergency Management Act (2007), which established the NEMC, NEMO, and the DEMCs and VECs and conferred power on the Prime Minister to declare a state of emergency while the Cabinet (as the National Disaster Council) has executive oversight.²⁵⁵

Under the 2021 Act, NEMO is to become the National DRM Office, which will establish and maintain the National DRM Policy. The Office will be the focal point for all requests and donations of relief supplies from partners, private contributors, and international organizations in times of emergency. The Act calls for the founding of Island DRM Committees on Vava‘u, Ha‘apai, Niuatoputapu, Niuafou‘ou, and ‘Eua, and it calls for each village to have a Village DRM Committee, which is to have representation of “women, young people, people with disabilities, and other vulnerable groups.”²⁵⁶

Strategic Roadmap for Emergency and Disaster Risk Management (2021-2023)

The Roadmap is a joint initiative of NEMO and First Responders and was developed with input from NEMO, Tonga Police, TFES, HMAF, and the national clusters. The Pacific Community’s Pacific Islands Emergency Management Alliance (PIEMA) supported development of the Roadmap with the express goal of building safer communities through emergency and disaster risk management. The DRM Framework focuses on strengthening the foundations of trust, leadership, and teamwork

across the sector and is aligned with Outcome F of the Tonga Strategic Development Framework, which targets more inclusive, sustainable, and effective land and environment management, with resilience to climate change. The DRM Roadmap highlights six Outcomes to be met by 2024.

- Outcome 1: Tonga has fully functioning emergency operation centers supported by an established emergency coordination and communications system
- Outcome 2: Tonga's emergency and disaster risk management sector is more inclusive
- Outcome 3: Government policy, planning, budget, and procurement processes actively support mainstreaming DRM
- Outcome 4: The cluster system is fully institutionalized and strengthened
- Outcome 5: Tonga has clear standards and guidelines for evacuation process management with increased safety and security of evacuation centers
- Outcome 6: Tonga practices Participatory Village Emergency and Disaster Risk Management planning and implementation²⁵⁷

National Emergency Management Plan (NEMP, 2020)

The NEMP provides a framework for whole-of-government emergency management. It sets out roles and responsibilities of NEMC, NERC, NEOC, and the DEMCs and VECs.²⁵⁸ The NEMP includes different organizational structures to coordinate DRR versus those responsible for response and recovery. However, observers have assessed that the NEMP can be unclear and lead to ineffective execution of disaster response.²⁵⁹ It superseded the NEMP 2008, which initially identified the risk environment and established arrangements for coordination among government, regional agencies, and non-governmental bodies.²⁶⁰

Joint National Action Plan 2 on Climate Change and Disaster Risk Management (JNAP2, 2018)

Tonga was the first country in the region to develop a Joint National Action Plan on

Climate Change Adaptation and Disaster Risk Management (JNAP) in 2010. In 2018, the government updated the plan, which became JNAP2 and included the latest risk information and CCA and DRR initiatives. There are six policy objectives intended to build a coherent, cooperative, and strategic approach to developing resilience.

Objective 1 of JNAP2 is to “mainstream climate change and disaster risk management approaches into government legislations, policies, and plans at all levels.” JNAP2 is strongly aligned with the Sendai Framework for Disaster Risk Reduction, the Kyoto Protocol, the Paris Agreement, the Tonga Strategic Development Framework 2015-2025 (TSDF), and the Sustainable Development Goals (SDG). The policy is to be implemented by identified ministry agencies and local partners, NGOs, private sector, village and community groups, and donors and development partners looking to identify, assess, reduce, and manage risk by focusing on accountability, sustainability, equity, community focus, and collaboration.

JNAP2 places a strong emphasis on coordination, leadership, and good governance and promotes a shared approach among the JNAP Secretariat, ministries, local partners, the private sector, and other stakeholders. The Plan promotes inclusion and empowerment of women, girls, and LGBTQ+ persons, persons with disabilities, the elderly, youth, children, and other marginalized people. It also contains a detailed action plan that outlines specific activities, means of verification, indicators, and lead coordinating agencies.²⁶¹

Second Nationally Determined Contribution (NDC) 2020

Tonga's first and second NDCs (2015 and 2020) under the Paris Agreement identified climate change as a key threat and explicitly called upon the world's biggest GHG emitters to contribute to financing, capacity, and technology investment in order to allow small island states like Tonga to confront the impacts of climate change. The Second NDC committed the

country to a 13% reduction (over 2006 numbers) in GHG emissions with a large portion of the reduction linked to a goal of converting 70% of electric power generation to renewable sources. At the same time, the country recognizes that it will have to adapt to already rising temperatures and sea levels, and it lays out some adaptation plans, the most important of which is a change to agro-forestry to include planting 1 million trees by 2023.²⁶²

Tonga National Strategic Development Framework II (TSDF, 2015-2025)

Tonga's second national development framework, the current TSDF lays out the outcomes needed to achieve "a more progressive Tonga supporting a higher quality of life for all." It contains seven national outcomes relating to inclusivity and sustainability.²⁶³ The TSDF's main outcomes are aligned to the 17 SDGs and underscore the approach to sustainable and inclusive growth. Climate change and disaster risk are also mainstreamed in the policy.²⁶⁴

The seven TSDF national outcomes are:

- A more inclusive, sustainable, and dynamic knowledge-based economy
- More inclusive, sustainable, and balanced urban and rural development across island groups
- More inclusive, sustainable, and empowering human development with gender equality
- More inclusive, sustainable, and responsive good governance strengthening rule of law
- More inclusive, sustainable, and successful provision and maintenance of infrastructure and technology
- More inclusive, sustainable, and effective land and environment management, with resilience to climate change and risk
- More inclusive, sustainable, and consistent advancement of external interests, security, and sovereignty

Outcome F, related to land and environment management, recognizes the country's vulnerability to severe natural events, likely to

become worse with climate change. The TSDF promotes seeking sustainable resource use and ways to build greater resilience to natural hazards, particularly in isolated communities and among vulnerable groups. Two of the key elements to be developed are an ability to conduct environmental assessments and to manage disaster response.²⁶⁵

Tonga Climate Change Policy (TCCP, 2016-2035)

The development by the Department of Climate Change (under MEIDECC) of the national climate change policy came in recognition of the fact that Tonga's vulnerability to climate change would impact the country's social and economic development. The stated goal of the policy is to build a "Resilient Tonga" by 2035. It aims to integrate climate change adaptation and mitigation as well as DRR in a whole-of-nation, participatory approach to protect citizens and build knowledgeable, proactive communities who can support sustainable development. The policy lays out 20 targets needed for resilience:

1. Every coastal community has a special management area and protected coastal environment
2. Redesigned and resilient roads, coastal areas, buildings, and other infrastructure
3. Resilient homes, schools, and community halls (e.g., incorporating design for Category 5 cyclones, a minimum of 30,000-liter [7,900-gallon] water storage capacity for homes, solar power, and hot water, bio-digesters for biogas production, organic gardens, food preservation, etc.)
4. A transport system that is not reliant on fossil fuels
5. 100% renewable energy
6. Resilient low chemical input or organic farming systems
7. 30% of land in Tonga utilized for agro-forestry or forestry
8. Native biodiversity is fully protected and enhanced
9. The capacity for food self-sufficiency in times

- of crisis, and significantly reduced reliance on imported food
10. Well-managed water resources and sufficient water for all in times of shortage
 11. Development and full implementation of a zero-waste policy
 12. All families and communities understand climate change and the need for disaster preparedness and have taken action to be resilient
 13. Strengthened parliamentary and institutional capacities working towards achieving resilience targets
 14. Resilience measures are mainstreamed into applicable laws and are integral to all public and private sector policies, plans, and development programs and projects
 15. Resilient agriculture with enhanced crop production and food security
 16. Education for resilience is incorporated into curricula at all levels of primary, secondary, and tertiary education
 17. A gender-responsive and equitable society
 18. An innovative and proactive private sector that is a model for resilience
 19. An economy that works harmoniously with the need for a resilient environment and society
 20. Sustainable funding for climate change and resilience building needs²⁶⁶

Disaster Management Communications

Communications during disaster events range from the scientific to the practical and use various media. This makes planning for the use of a variety of technologies and for crafting appropriate messages a crucial element of the disaster management cycle.

There are two main agencies with roles in early warning systems (EWS) in Tonga. TMS is responsible for weather-related information and warnings, and the Geological Service is responsible for seismic and volcanic activity, tsunami-watch, and coastal inundation. The Geological Service has no resources to operate

on a 24-hour shift and relies heavily on TMS. However, the Geological Service reports to the Minister for Lands and Natural Resources, and TMS reports to MEIDECC. Based on the stages of activation of the emergency system, “Stage One – Readiness” comes into effect when information indicates that the provisions of the NEMP may be invoked. Such information may be meteorological information from TMS, geo-hazard information from Geological Service, or notification from other response agencies.²⁶⁷

In addition to the main agencies involved in EWS, NEMO’s standard operating procedures for the NECC underscore the importance of communications during a disaster response. They lay out the requirements for the NECC Media Liaison Officer and Information Management Officer. The Media Liaison Officer will develop press releases for clearance by the NEMO manager, coordinate with media agencies to ensure dissemination of press releases to government agencies, diplomatic missions, development partners, the private sector, and the public, ensure all necessary emergency information is available to the public through various media, and organize NECC media briefings as advised by Manager NEMO. The Information Management Officer collates damage reports from District operations centers, summarizes humanitarian requests from communities, maintains current technical data on the existing emergency, and provides advice for decisions on evacuation and shelter operations.²⁶⁸

Early Warning Systems

Although an EWS will not avert an extreme event caused by hydro-meteorological or geophysical elements, an effective EWS allows people to take action to reduce their exposure when such an event occurs. An EWS is only effective if its messages are received and understood by all communities, including vulnerable ones, and offer those communities an opportunity to act. Thus, there must be substantial data sharing and institutional capacity to study, monitor, and forecast the potential

impacts of any event. Such a system requires close cooperation among national science and disaster management agencies, as well as communities.

Under the DRM Act 2021, the country is to develop a multi-hazard early warning system (MHEWS) that uses various local practices and capabilities to deliver warnings – e.g., radios, sirens, etc. TMS and the Geological Service are the key stakeholders helping to develop, operate, and trigger the MHEWS.²⁶⁹ TMS, under MEIDECC, is the national meteorological service. It provides regional and national services on weather forecasts, climate summaries, and satellite imagery. Aviation weather services provide pilot briefings, METAR (METeorological Aerodrome Report), TAF (Terminal Area Forecast), ARFOR (Area Forecasts), SIGMET (Significant Metrological Information), Coast Watch services, and access to numerical models for meteorological and climatological purposes. TMS' six stations are located at all airports.²⁷⁰

In 2017, the Director of Meteorology signed a Technical Cooperation Agreement with the Regional Integrated Multi-Hazard Early Warning System (RIMES) for Africa, Asia, and the Pacific. The desired outcome of operationalizing the agreement is for Tonga to have access to MHEWS expertise available at the RIMES Centre at the Asian Institute of Technology in Bangkok, Thailand, in order to build the capacity and competency of operational staff to be able to provide accurate and reliable early warning products.²⁷¹

In early 2019, with funding from Japan International Cooperation Agency (JICA), Tonga began the year-long installation of a nationwide EWS for all island groups. The main components of the system were: 1) an Emergency Radio Communications System for organizations; 2) an Early Warning Sound Alert System of 75 sirens and loud speakers; 3) 514 Remote Activated Radios; 4) improvement of Tonga Broadcasting Corporation (TBC) AM Radio broadcasting infrastructure, equipment, and antennae at the Popua site; 5) a new headquarters building and facilities at Fasimoeafi; 6) training for operation

and maintenance of the facilities, equipment, and software; 7) drafting of related standard procedures and manuals; and 7) conducting drills and workshops with NEMO and TMS.²⁷² At the same time, with funding from the ADB, MEIDECC and New Zealand's National Institute of Water and Atmospheric Research upgraded the Tonga Meteorological Observation network through installing new meteorology and coastal automatic weather stations (AWS) to enhance data collection, weather, tsunami and climate data monitoring, and severe weather watch and warning in all of Tonga's coastal waters. The equipment included 22 AWS and two permanent sea level recorders. Some of the AWS were installed at school compounds to promote student awareness of weather research. The AWS and sea level recorders report in real time to assist in tsunami early warning.²⁷³

The Pacific Resilience Program (PREP) Project on Improving MHEWS, led by MEIDECC and funded by the World Bank, Global Environment Facility (GEF), and Global Facility for Disaster Reduction and Recovery (GFDRR) was launched in 2020 to deliver Multi-Hazard Early Warning and Emergency Operation Centres to all three main island groups. The first phase of PREP saw the Ha'apai Multi-Hazard Early Warning and Emergency Operation Centre at Pangai commissioned. The Centre is MEIDECC's main office in the Ha'apai group and is connected directly to the Fua'amotu Weather Forecasting Centre and the NEMO Office in Nuku'alofa through fiberoptic cables and has backup means to share information to offices in Tongatapu in the absence of internet service. Once the offices are established at Vava'u and Tongatapu, the country should have a resilient information network base for responding to natural hazards. PREP will also promote the review of EWS-related laws and the establishment of an MHEWS policy.²⁷⁴ A follow-on session to inform the government's policy-drafting process brought a Technical Team to Ha'apai for workshops with the vulnerable communities of Pangai, Lifuka, and Foa districts. Participants included 40 youth, elderly persons,

people with disabilities, and town officers. The workshops focused on improving information products and services for these audiences, as well as integrating and investigating weather- and climate-related traditional knowledge.²⁷⁵ Similar workshops occurred on Niuaotupapu, which is considered particularly rich with traditional knowledge as residents of the northern islands are said to read weather and other natural signs that can be combined with contemporary forecasts in a way that makes information easier to communicate to an area with weak mobile telephone connectivity.²⁷⁶

Further developments in latter 2022 included the Tonga Mobile Applications Community MHEW and Response System (MACRES) through the Climate Risk and Early Warning Systems (CREWS) initiative Accelerated Support Window (ASW), a WMO financing mechanism dedicated to Least Developed Countries and Small Island Developing States, allocating funds to EWS. MACRES will build on existing platforms to improve capacity to disseminate and share risk information, advisories, and warnings to people regardless of gender, age, or disability status. Moreover, it targets near-real-time delivery for all hydro-meteorological and geological hazards. MACRES will be established so that most smartphones can be used without a need for internet data. Alerts or sirens and warning messages or flashing screens will attract users' attention, and there will be a two-way feature to allow communities to contribute reports to a database to allow the TMS and NEMO to receive both hazard and damage information for quick and targeted response. This latter crowd-sourced element builds on TMS' community Facebook pages (CFBP) for disseminating warnings with the help of TMS-authorized officers in each community and who have direct access to CFBP to disseminate warnings. Although there were successes in use of the CFBP, the HTHH disaster showed limitations in terms of timeliness.²⁷⁷

Indeed, the HTHH event had significant impacts on the entire communication system of the country as the eruption and

subsequent pressure wave ruptured undersea communications cables and, thus, left most of the islands without internet access or other forms of digital communication. Among the first successful communications in the days following the eruption came via "chatty beetle," which TMS staff on outer islands used to notify agencies on Tongatapu that they were safe but that communication networks were down. Moreover, Tonga's chatty beetles were networked with chatty beetles at the Fiji Meteorological Service and the Weather Service Office in Pago Pago, American Samoa, and allowed early communications with the outside world. As the HTHH response wore on and in response to an urgent request from the government of Tonga, NOAA worked with USAID to deploy seven additional chatty beetle units and their repair parts to the country.

The chatty beetle is a portable iridium satellite terminal that permits text-based alerts and messaging in remote locations. Its rugged design can withstand harsh, humid conditions, and it can operate on internal batteries that are protected by a nearly indestructible case. It supports two-way messaging, sending weather hazard alerts out to remote communities and allowing operators to provide status reports and field observations.²⁷⁸

Information Sharing

Understanding how to overcome the information challenges that civilian and military agencies experience during a typical disaster response mission is important. Sharing information is critical since no single responding entity, NGO, international governmental organization, assisting country government, or the host government can be the source of all the required information.²⁷⁹ Collaboration, information sharing, and networking have been the backbone of successful disaster response and preparation. Disseminating information not only to those in-country and threatened by disaster, but also to those responding to assist has been crucial to timely, efficient, and effective disaster response. There are many resources, stakeholders, and components to consider before,

during, and after a natural disaster. This section will discuss country-specific, humanitarian, regional, government, and U.S. DoD information sources.

Tonga Information Sources

National Emergency Management Office / National DRM Office

For more than 15 years, NEMO has been coordinating DRR. It oversees the national cluster system and provides some updates directly to the public (national and global) via its Facebook page. Other messages will come via other agencies and offices.

Alaivaha'amama' o Bypass Road
Vaololoa, Nuku'alofa
Tel: 676 26-340
Email: tonganemo@gmail.com
Facebook: NEMOTONGA

Tonga Met / Tonga Meteorological Services

Headquartered at Fua'amotu International Airport, TMS is the national weather service. On its website, it delivers daily forecasts and publishes all warnings. It also maintains a warnings and advisories delivery service to which stakeholders can subscribe (via the website).

Fua'amotu International Airport
QV44+5JV, Fua'amotu
Toll Free (Digicel or Ucall): 0800 638
Tel: 740 0062
Web: <https://met.gov.to/>
Email: metstaff@met.gov.to
Facebook: tongamet-service
Twitter: @TongaMetService

Tonga Red Cross Society

TRCS can deliver warnings to the public via its branches in each island group or via its social media channels.

Facebook: tongaredcross
Twitter: @TongaRedCross

Humanitarian Information Sources

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

Based in Fiji, OCHA's Office of the Pacific Islands mobilizes and coordinates humanitarian action in partnership with national and international actors. Its key objective is to support national efforts to protect the lives, livelihoods, and dignity of people in need. OCHA Office of the Pacific Islands personnel can provide support in information management, reporting, mapping, media and communications, assessments, humanitarian financing, and inter-cluster coordination. OCHA can deploy teams to assist in the coordination of incoming international relief at the earliest stages of an emergency. This OCHA office has supported humanitarian response in Tonga, generally via the PHT.

Web: <https://www.unocha.org/pacific>

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Pacific Humanitarian Team

The PHT is a network of humanitarian organizations that work together to support Pacific Island countries (Cook Islands, the Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, the Republic of the Marshall Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu) in preparing for and responding to disasters. The PHT operates under the co-leadership of the UN Resident Coordinators in the Pacific, based in Fiji and Samoa, and includes UN agencies, the Red Cross and Red Crescent Movement, regional and bilateral organizations, national and international NGOs, faith-based and community-based organizations, and donor partners. OCHA is the Secretariat.²⁸⁰

Web: <http://pacifichumanitarian.info/>

ReliefWeb

ReliefWeb is a service of UN OCHA. It consolidates information and analysis from organizations, countries, and disasters for the humanitarian community.

A subsection of ReliefWeb is ReliefWeb Response (RW Response), which replaced HumanitarianResponse.info in November 2022. RW Response aggregates operational content from other humanitarian action platforms to provide an authoritative source of information. The goal is to ensure that humanitarians can share, find, and re-use critical information quickly and efficiently.

Website: <https://reliefweb.int/>

RW Response: <https://response.reliefweb.int/>

PreventionWeb

PreventionWeb is provided by UNDRR to consolidate DRR information into an online, easy to understand platform.

Website: <https://www.preventionweb.net/english/>

International Federation of Red Cross and Red Crescent Societies (IFRC)

IFRC is the world's largest humanitarian organization, comprised of its 192 members, the National Societies, including the TRCS, a secretariat in Geneva, Switzerland, and over 60 delegations around the world. The IFRC carries out relief operations to assist victims of disasters and combines this with development work to strengthen the capacities of its member National Societies.²⁸¹ The IFRC's Suva Cluster comprises 11 National Societies in the Pacific, including TRCS.²⁸²

Web: <https://media.ifrc.org/ifrc> and <https://go.ifrc.org/>

International Committee of the Red Cross (ICRC)

ICRC is an impartial, neutral, and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of armed conflict and other situations of violence and to provide them with

assistance. It also works to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles.²⁸³

Website: <https://www.icrc.org/en>

Facebook: @ICRC

Twitter: @ICRC

Global Disaster Alert and Coordination System (GDACS)

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

Website: <https://www.gdacs.org/alerts/>

Virtual OSOCC

The Virtual OSOCC is a real-time online coordination tool for disaster response professionals from urban search and rescue teams, national authorities, as well as regional and international organizations at a global level.

Website: <https://vosocc.unocha.org/>

The latest alerts can be found here: <https://www.gdacs.org/Alerts/default.aspx>

To subscribe: <https://www.gdacs.org/About/contactus.aspx>

ThinkHazard!

ThinkHazard! is a website that provides detailed information on a country. Information is provided on Tonga regarding hazards, country assessments, projects, EWS, and other resources.

Website: <http://thinkhazard.org>

Humanitarian Data Exchange (HDX)

HDX is an open platform for sharing data across crises and organizations. It launched in 2014 with the goal of centralizing humanitarian data for easy access and analysis. HDX is managed by OCHA's Center for Humanitarian Data in The Hague.

Website: <https://data.humdata.org/>

Regional Information Sources

Pacific Disaster Net

Pacific Disaster Net is an online platform for disaster risk management and climate change documents, reports, alerts, data, projects, and professionals for the Pacific region. The platform is an ongoing live service provided by the SPC, UNDP, UNDRR, and IFRC. While climate change is broader than the traditional scope of HADR, many Pacific Island countries and territories approach DRR in tandem with CCA. Web: <http://www.pacificdisaster.net/main>

U.S. Government Sources

U.S. Agency for International Development (USAID)

USAID is committed to responding to crises around the world to help people and places most in need. They aim to:

- Promote Global Health
- Support Global Stability
- Provide Humanitarian Assistance
- Catalyze Innovation and Partnership
- Empower Women and Girls

USAID produces a monthly newsletter, which is available digitally at <https://www.usaid.gov/news-information/newsletter>.

More information and updates from USAID are available via their blog, IMPACT, at <https://blog.usaid.gov/> and on Facebook (USAID), Twitter (@usaid), and YouTube (usaidvideo). Website: <https://www.usaid.gov/>

USAID's Bureau for Humanitarian Assistance (BHA)

USAID/BHA is responsible for leading and coordinating the U.S. Government response to disasters overseas. BHA responds to an average of 75 disasters in 70 countries every year. BHA fulfills its mandate of saving lives, alleviating human suffering, and the reduction of the social and economic impact of disasters worldwide in partnership with USAID functional and regional bureaus and other U.S. government agencies.

BHA works with the international population to help countries prepare for, respond to, and recover from humanitarian crises.²⁸⁴

USAID/BHA products include situation reports and maps, which are available via email mailing lists as well as Reliefweb.int. Information products are also available on USAID.gov (<https://www.usaid.gov/humanitarian-assistance>)

BHA also updates followers via social media on Facebook (USAIDSavesLives) and Twitter (@USAIDSavesLives).

For BHA updates on a disaster response, ask the BHA representative for the respective DoD Geographic Combatant Command to add you to the email list, if you have a U.S. government email address:

- BHA.INDOPACOM@usaid.gov
- BHA.SOUTHCOM@usaid.gov
- BHA.NORTHCOM@usaid.gov
- BHA.AFRICOM@usaid.gov
- BHA.SOCOM@usaid.gov
- BHA.CENTCOM@usaid.gov
- BHA.EUCOM@usaid.gov

Pacific Disaster Center

Pacific Disaster Center (PDC) has trademarked an early warning and decision support system called DisasterAWARE®. DisasterAWARE® is primarily for disaster management practitioners and senior decision makers. It supports DRR and best practices throughout all phases of disaster management from early warning to multi-hazard monitoring. It has a collection of scientifically verified, geospatial, data and modeling tools to assess hazard risks and impacts. A restricted version of DisasterAWARE is the EMOPS (Emergency Operations) system, which is specifically for the disaster management community, including government agencies and humanitarian assistance organizations serving at local, state, federal, and regional levels.²⁸⁵

PDC Global also provides a public version, Disaster Alert, which offers open access to a world map documenting 18 hazard types.²⁸⁶ Disaster Alert also has a free, early-warning app to receive customizable maps based visual

alerts of active hazards. The app offers a global notification system covering natural and man-made hazards. It is available on both iPhone and Android.²⁸⁷

Website: <https://www.pdc.org/> and <https://www.pdc.org/apps/disasteraware/>

Emergency Operations (EMOPS) system (request account): <https://emops.pdc.org/emops/>

All Partners Access Network (APAN)

APAN is the Unclassified Information Sharing Service for the U.S. DoD. APAN provides the DoD and mission partners community space and collaboration tools to leverage information to effectively plan, train, and respond to meet their business requirements and mission objectives. Importantly, APAN's technology team has been supporting HADR operations for over 15 years.²⁸⁸ APAN has played an integral role in the success of disaster responses, such as the 2015 California Wildfire Response and the 2013 Typhoon Haiyan Response in which they provided organizations and militaries a centralized location to share information, increase situational awareness and decrease response time and duplicated efforts for best practices in HADR services.²⁸⁹

Website: <https://www.apan.org/>

National Oceanic and Atmospheric Administration (NOAA)

One of NOAA's service centers is the U.S. Tsunami Warning System, including the Pacific Tsunami Warning Center (PTWC) in Honolulu, Hawaii, which feeds tsunami information and warnings to the U.S.'s Pacific partners, including Tonga.

Tsunami Warning Center: <https://www.tsunami.gov/>

Pacific Tsunami Warning Center

Twitter: NWS_PTWC

Facebook: UsNwsPacificTsunamiWarningCenter

Joint Typhoon Warning Center

The Joint Typhoon Warning Center provides advanced warning for U.S. Government agencies and organizations in relevant areas.

Website: <https://www.metoc.navy.mil/jtwc/jtwc.html>

Daniel K. Inouye Asia-Pacific Center for Security Studies (DKI-APCSS)

DKI-APCSS is a U.S. DoD institute that addresses regional and global security issues, inviting military and civilian representatives of the U.S. and Asia-Pacific nations to its program of executive education and workshops.

Website: <https://apcss.org/>

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM)

The CFE-DM is a U.S. DoD organization that was established by the U.S. Congress in 1994 and is a direct reporting unit to U.S. Indo-Pacific Command. CFE-DM provides training and education to help U.S. and foreign military personnel navigate complex issues in disaster management and humanitarian assistance. They produce country focused disaster management reference handbooks, after action reports, best practices, and lessons learned for advancement in response coordination. CFE-DM also works to improve cross-coordination, reduce duplication of efforts, and promote U.S. involvement in civil-military consultations and dialogues with relevant HADR parties. CFE-DM provides resources and updates at its website, as well as via their Facebook and Twitter accounts (@cfedmha).

Website: <https://www.cfe-dmha.org/>

Disaster Management Reference Handbooks are available for download at: <https://www.cfe-dmha.org/DMHA-Resources/Disaster-Management-Reference-Handbooks>

CFE-DM Disaster Information Reports are available for download at: <https://www.cfe-dmha.org/Publications/Reports>

INFRASTRUCTURE

Tonga’s infrastructure needs are addressed by the National Infrastructure and Investment Plan (NIIP). The Government of Tonga is working to shore up weakened infrastructure through several programs to rehabilitate and upgrade roads in association with development partners. For instance, the National Roads Improvement Project and the Transport Sector Consolidation Project (TSCP) focus on road maintenance and rehabilitation.

Beyond times of large-scale disaster, Tonga’s infrastructure is regularly affected during the wet and cyclone seasons (November – April), and days of torrential rain may flood roads and properties. Coastal areas and roads can grow more dangerous as cyclone season wears on and damage accumulates. Furthermore, there is risk of flash floods throughout low-lying areas of the hilly islands, and movement can be hazardous. As a result of these weather hazards, electric power can also often be affected. Authorities may issue safety warnings to limit access to road networks to only 4-wheel drive vehicles. If access to villages and small towns are cut, access to water and supplies may be cut.²⁹⁰

Transport

Roads provide key links among communities on each island. Cargo links among islands rely on small ships. Although there is an airport on each main island, these serve primarily passenger travel.

With the exception of the Nuku‘alofa seaport, Tonga’s airports and seaports are at risk of

becoming overwhelmed by storm surges, and in case of large-scale humanitarian activity, an influx of relief cargo would run into insufficient capacity limitations at inter-island air and sea points of embarkation and debarkation. Because there are no cranes or reliable material handling equipment for heavy lifting at ports other than Nuku‘alofa, there are limitations on what vessels can deliver sea-borne cargo, and military assets may be best equipped and organized to lend support.

In an outer-island disaster response, it may take up to 12 hours to deliver supplies from the capital. It may require interim staging areas where large cargo is broken down into smaller packets that can be transported by small boats. The expense and minimal capacity of air assets all but rule out that route of delivery.

Airports

Tonga has six airports; there is one airport on each of the main islands. The Fua‘amotu International Airport on Tongatapu has paved runways and two helipads. Vava‘u has one helipad. International flights to Tonga are operated by Fiji Airlines, Air New Zealand, and Virgin Australia, and Real Tonga Airlines provides domestic operations. In a disaster response situation, a storage facility located west of the main airport compound can be utilized. It is currently used by the airport ground handler.²⁹¹ Table 1 provides some details on Tonga’s airports,²⁹² and Figure 7 depicts a map of the six airports.²⁹³

Airport	IATA Code	ICAO Code	Runway Length and Width	Runway Surface
Fua‘amotu Airport	TBU	NFTF	2,681 x 45 m (8,799 x 147 feet [ft])	Asphalt
Vava‘u Airport	VAV	NFTV	1,705 x 30 m (5,593 x 98 ft)	Tar or Asphalt/Mixed
Lifuka (Ha‘apai) Airport	HPA	NFTL	1,200 x 30 m (3,937 x 98 ft)	PCN 9/F/B/. 7/T Bitumen
‘Eua Airport	EUA	NFTE	685 x 30 m (2,247 x 98 ft)	Crushed Coral
Niuaatouputapu Airport	NTT	NFTP	1,219 x 30 m (3,999 x 98 ft)	Unsealed coral / grass
Niuafo‘o (Kuini Lavinia) Airport	NFO	NFTO	853 x 30 m (2,798 x 98 ft)	Unsealed coral / grass

Table 1: Codes and Runway Lengths for Tonga Airports

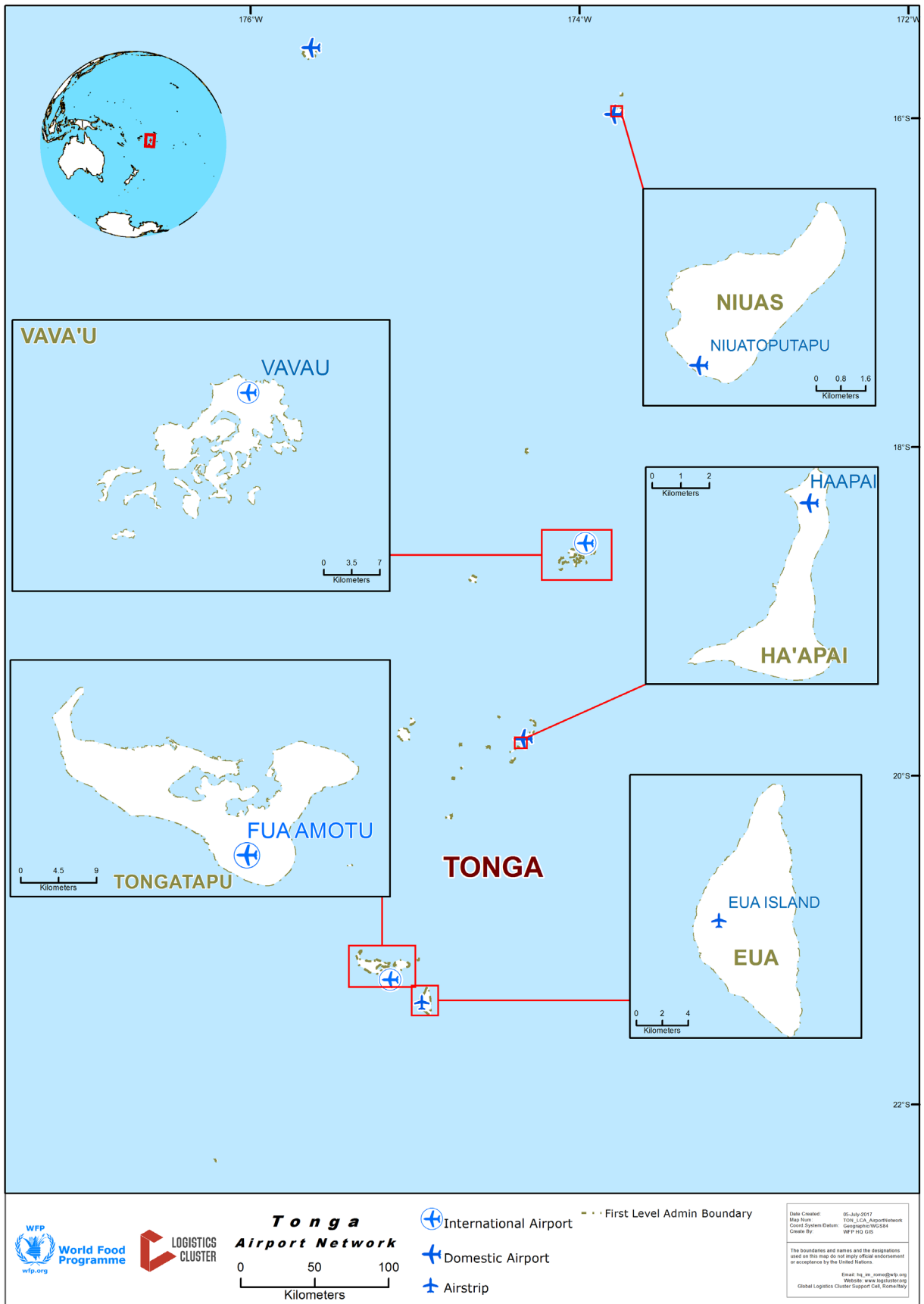


Figure 7: Tonga Airport Map

Seaports

Neiafu, Nuku‘alofa, and Pangai are the three main ports in Tonga. Nuku‘alofa is the central hub for transport; it serves international import and export cargo shipping and is the entry point for international cruise ships. There is priority for humanitarian shipping to use domestic berths; in an emergency or disaster response, relief cargo can use the international berth as priority. Tonga Port Authority (TPA) employs and manages port security and operations. Security personnel are on site 24-hours-a-day, and critical areas are security fenced.

The main ports meet basic capacity needs, although outer-island ports and channels suffer from insufficient maintenance and investment. There are three companies (PF, Nuku‘alofa Stevedoring, and KVL) who provide stevedoring services. Dateline Transam, Royco Shipping, and Kagent Ltd. are clearing and shipping companies. Figure 8 depicts the Tonga Ports.²⁹⁴

Nuku‘alofa Harbor is the central hub for boats to the outer islands; it is also the only deep-water harbor. Regular services include two boats to ‘Eua each day, and two to Ha‘apai and Vava‘u each week. Private boat owners provide less regular services to smaller islands such as Nomuka and ‘Eueiki. Photo 3 depicts the Nuku‘alofa port.²⁹⁵

Key:

1. Queen Salote Domestic Berth #4
2. Queen Salote Domestic Berth #3
3. Queen Salote International Berth #2
4. Queen Salote International Berth #1
5. Touliki Navy Base, breakwater wall
6. Tug Berth



Photo 3: Nuku‘alofa Port

Roads

Tonga has an extensive network of roads; there are 680 km (422 miles) of highways and 184 km (114 miles) of other paved road. There are good road links to communities in most areas of Tonga; however, there is significant deterioration in some areas due to insufficient maintenance. In the case of storm surge and extremely high tides, there have been major bottlenecks as large numbers of people try to evacuate via main roads from Nuku‘alofa’s low-lying Popua district to higher ground. The government is considering options for a new road linking Nuku‘alofa with the southern side of Fanga‘uta Lagoon by bridge or causeway to allow better access to the southern and eastern sides of Tongatapu and the airport. This road will also provide an alternative evacuation or access route in case of natural disaster.

Driving conditions can be hazardous, particularly at night, due to poor visibility and lighting, road quality, heavy pedestrian traffic, and free-roaming animals. There have also been a number of traffic fatalities in recent years due to speeding, alcohol, and driving while under the influence of drugs.²⁹⁶ Traffic in Tonga moves

on the left-hand side of the road, as in Japan and Australia.

Railways

There are no rail services in Tonga.

Waterways

Interisland waterways form a vital part of Tonga's supply chain. Due to the isolated nature and relatively small size and population of the smaller islands, docking capability for larger vessels is not present, and they rely on supply by small boats for commerce and social, educational, and medical needs. Bad weather (windy and rough sea conditions), particularly during the cyclone season, affect transportation, and it may cause boats to be cancelled or delayed.

The government-owned Friendly Islands Shipping Agency (FISA) is the sole domestic shipping service. FISA runs the inter-island shipping services, including the ferry service. In addition, private operators transport small cargo and provide water taxi and charter services.²⁹⁷

Schools

The current education system reflects the history of missionary influence in Tonga. Wesleyan missionaries introduced formal education in 1826, and they were followed by Roman Catholic and other Protestant denominations beginning in 1846. Primary education has been compulsory in Tonga since 1876 for students between the ages of 6 and 14 and is free. Education consists of six years at the primary level, three years at the junior secondary level, and three years at the senior secondary level.²⁹⁸

The Ministry of Education and Training derives its mandate and responsibilities from the 2013 Education Act, 2002 Education (Schools and General Provisions) Regulations, and 2004 Tonga National Qualifications and Accreditation Board Act. The ministry's roles and functions are:

1. To ensure the country is provided with a skilled and competent workforce needed for sustainable development;

2. To provide policy advice to the Government on early childhood education, primary, secondary, and post-secondary education as well as future directions to meet challenges of the 21st Century; and
3. To ensure the effective, efficient, equitable, and sustainable implementation of the Education Act and other Government policies.²⁹⁹

In 2003, Tonga began an educational reform program as developed through the 2003 Education Sector Study, 2003-2013 Strategic Plan for Education in Tonga, and 2004-2019 Tonga Education Policy Framework, the last of which set out three goals:

1. To improve equitable access to and quality of universal basic education for all children in Tonga up to Year 8;
2. To improve the access to and quality of post-basic education and training to cater for the different abilities and needs of students; and
3. To improve the administration of education and training so that the quality of educational performance is enhanced.³⁰⁰

The first tier of educational reforms, Tonga Education Support Program (TESP) I, aimed to improve equitable access to education up to Year 8, improve access and quality of education past primary school, and improve school administration. The second tier, TESP II, aimed to maximize students' outcomes at all levels in primary education, improve teachers' competencies at all levels, and improve teaching and learning environments including resources, equipment, and physical facilities. The government of Tonga received funding from Australia, New Zealand, and the World Bank in support of educational reforms.³⁰¹

Tonga has very high literacy rates, with 95.7% of the population literate in Tongan and 88.5% literate in English, per the 2021 census report.³⁰² Among children aged 5-14 years, 96.2% overall were enrolled in school, including 95.9% of boys and 96.5% of girls.³⁰³ In that age group, 70% of students attend government schools and

30% attend church or other private schools.³⁰⁴ Enrollment in secondary schools drops slightly and was reported at 82.07% in 2015. The enrollment rate in tertiary education was 18.4% in 2020.³⁰⁵

Approximately 90% of primary and 30% of secondary schools are directly funded and controlled by the government.³⁰⁶ There are seven major government high schools -- Tonga High School, Tonga College, Vava‘u High School, Ha‘apai High School, ‘Eua High School, Niuatoputapu District High School, and Niuafu‘ou District High School.³⁰⁷

Since 2015, reconstruction and repairs for 27 schools, including 125 classrooms and 21 WASH facilities, has been implemented under the Pacific Resilience Program (PREP) in Tonga with support from the World Bank. These repairs benefited an estimated 9,000 students, which is approximately 40% of Tonga’s primary and secondary school students. After Cyclone Gita struck Tonga in February 2018, additional funding was made available for reconstructing schools through PREP from the Australian Government and the World Bank’s International Development Association. Cyclone Gita impacted 109 of Tonga’s 150 schools.³⁰⁸

Disaster Risk Reduction in the Education Sector

DRR training is supported by USAID’s Inclusive Disaster Resilience in Tonga (IDIT), which is a two-year, US\$1.1-billion project launched in May 2020 and implemented by Act for Peace in partnership with the Tongan National Council for Churches. The IDIT project works to provide training to VECs on ensuring that their respective disaster plans are adequate and meet the specific needs of persons living with disabilities. Activities include First Aid training, disability inclusion workshops, and simulation exercises that emphasize that no one should be left behind in times of emergencies and disasters. It is seen as the first project of its kind where people living with disabilities and related organizations are among the anchors of the actual project and are actively engaged instead of

simply being recipients of assistance. In addition to training, a key component of the project is the assessment and renovation of evacuation centers in the most remote communities to ensure that they are inclusive and accessible to all.³⁰⁹ Photo 4 shows the launch of the USAID-funded DRR project in Tonga.³¹⁰

Communications

Telephones

Tonga has an estimated 10 fixed-line telephone subscriptions per 100 inhabitants. Among the population aged 10 years and older, 62% own a mobile phone, per 2021 government census data, with an even distribution by gender, as 62% of men and boys and 63% of women and girls own a mobile phone.³¹¹ About 99% of the population is covered by at least a 3G mobile network and 96% is covered by at least a 4G mobile network, per the International Telecommunication Union (ITU).³¹²

Tonga Communications Corporation (TCC) covers 100% of the fixed-line telephone market and has a 70% market share of dial-up and broadband internet customers, over 50% of the market in GSM mobile services (branded UCall mobile), and the mobile network with the greatest geographic coverage in Tonga.³¹³ The alternative mobile phone network is Digicel Tonga, which offers coverage in the main populated areas, including 4G.³¹⁴ It is part of Digicel Group, which is a commercial global communications provider with operations in 31 markets in the Caribbean, Central America, and Asia Pacific.³¹⁵ In 2017, Digicel bought at least 16% of Tonga Cable for US\$4.18 million.³¹⁶

Internet Access

The state-owned telecoms operator is Tonga Cable Limited (TCL), which is the custodian of the Tonga Submarine Cable Network.³¹⁷ TCL is a public enterprise, and its three shareholders are the Government of Tonga (66.6%), TCC (16.7%) and Digicel Tonga Limited (16.7%). Tonga Cable Limited was formed in November 2009 with a vision to provide reliable, safe, and affordable



Photo 4: Launch of USAID-Funded DRR Project in Tonga

high-speed internet as its core service by building and managing the submarine fiber-optic cable that connects Tonga to an international network service. This project was financed by the World Bank, ADB, TCC, and Digicel Tonga Limited.³¹⁸

According to government data, 58% of the population aged 10 years and older uses the internet,³¹⁹ while the ITU estimates a total of 72% of individuals use the Internet.³²⁰ Among those who own a mobile phone, 91% use it for Internet access. As of 2021 data, there were 61 active mobile-broadband subscriptions per 100 inhabitants. There were six fixed broadband subscriptions per 100 inhabitants, and a total of 6,812 fixed broadband subscriptions. On average, there were 93 kilobits per second of international bandwidth available per Internet user.

Tonga’s internet access was disrupted for five weeks when the Hunga Tonga-Hunga Ha’apai volcano erupted on 15 January 2022. The eruption severed the 840-km (520-mile) undersea cable that connects Tonga to Fiji and that had been Tonga’s sole source of reliable internet. On 22 February 2022, internet was confirmed restored to the main islands.³²¹

Mass Media

Tonga’s online media landscape is dominated by the Matangi Tonga portal and the New Zealand-based Kaniva Tonga. The broadcasting landscape is dominated by the state-owned Tonga Broadcasting Commission (TBC), which includes Television Tonga and Radio Tonga, broadcasting under the slogan “Call of the Friendly Islands.”

State radio and TV tend to be pro-government. Privately-owned newspapers carry opposition views, but journalists can face harassment and threats of criminal charges.³²² The Media Association of Tonga (MAT) plays a key role in defending press freedom. The MAT was established at the 5th Pacific Islands Media Summit, which was held in Tonga in May 2018.³²³ The first president of MAT, Lady Luseane Luani, said upon its founding that the association was necessary to help journalists operate in the political and social environment.³²⁴ At the time, tensions had been growing among journalists as two weeks before the November 2017 general election the government sidelined the chief editor and news manager of the TBC.³²⁵

The Constitution guarantees press freedom, but enforcement is not consistent. Since the first democratic elections in 2010, independent media have played an increasingly evident role in holding the government to account. Journalists are generally not worried about physical danger, but they have a tendency to self-censor and confront financial challenges. Tonga is ranked 49 out of 180 countries in the 2022 World Press Freedom Index.³²⁶

Post

Postal services are primarily provided by Tonga Post, which also provides printing services and money transfer services. Tonga Post Limited was registered under the Companies Act in 2006 and corporatized in 2008 as a public enterprise. The government of Tonga is the main shareholder.³²⁷ Tonga Post is the designated operator representing the country in the Universal Postal Union of which Tonga has been a member since 1972,³²⁸ as well as the Asia-Pacific Postal Union of which Tonga has been a member since 2008.³²⁹ There is one post office in every island group in Tonga, which is located in the capital city of each island group.³³⁰

In 2017, Tonga adopted geolocation technology developed by the British company What3Words to give everyone formal postal addresses, though they differ from traditional addresses involving street names and numbers. The company developed an algorithm to provide accurate location anywhere on Earth down to within 9m² (97 square feet). Each 3m-by-3m (10 foot-by-10 foot) square is assigned three random words, based on the idea that it is easier for people to memorize a 3-word GPS location instead of a GPS location identified by a long chain of numerals. Tonga Post CEO Siosifa Pomana said the 3-word approach is much cheaper and simpler to use compared to traditional addressing systems. Tonga was the first Pacific nation to adopt the What3Words system to develop a postal service; it joined Mongolia, Côte d'Ivoire, Djibouti, and the Caribbean Dutch territory Sint Maarten as adopters at the time.³³¹

Utilities

Tonga has ensured universal access to electricity. Water and sewerage access is less formal with fewer than half of households having access to piped water or using flush toilets. Given the country's commitment to mitigating climate change, there is a clear motivation to move away from diesel-fired electricity generation to renewables, particularly solar. At the same time, sea level rise and less reliable rainfall patterns threaten the country's drinking water resources.

Power

All electricity is provided through Tonga Power Limited and regulated by the Tongan Electricity Commission. Electricity is generated using imported diesel. Tonga Power generates, distributes, and sells electricity to more than 25,000 customers throughout the country.

On the main island of Tongatapu, where 95% of households and commercial businesses are connected to the grid,³³² there is 61 gigawatt-hours (GWh) of installed energy generation to meet a peak demand of 10.4 megawatts (MW); of installed capacity, 14.3 MW is diesel-fired and 5.7MW renewable. There is a 199-km (123-mile) distribution network on the island.

On Vava'u, there is 6.5GWh of installed energy generation to meet 1.2MW peak demand; of installed capacity, 1.9MW is diesel-fired and 420 kilowatts (kW) renewable. There is a 67-km (41-mile) distribution network.

On 'Eua, there is 1.5GWh of installed energy generation to meet a peak demand of 374kW; of installed capacity, 792kW is diesel-fired and 200kW renewable. There is a 12.4-km (7.7-mile) distribution network.

On Ha'apai, there is 1.8GWh of installed energy generation to meet 453kW peak demand; of installed capacity, 692kW is diesel-fired and 550kW renewable. There is a 14.5-km (9-mile) distribution network.

The electricity tariff for all islands is T\$0.61 (US\$0.25) per kilowatt-hour (kWh).³³³

Tonga achieved universal access to electricity in 2020, in line with the Tonga Energy Roadmap. However, close to 35% of Tonga's population still

relies on unclean cooking technologies and fuels. Some progress is projected in clean cooking access, although Tonga does not have a specific policy for achieving universal access to clean cooking.

The share of renewable energy in total final energy consumption was 25.2% in 2018 but is projected to decrease to 15.2% by 2030, due mainly to the substitution of liquid propane gas cooking stoves for traditional biomass cooking stoves, a shift recommended in order to increase clean cooking access.

Tonga has abundant renewable energy resource potential. The Pacific Islands Renewable Energy Project assessed the potential of renewable energy resources and found that there is great potential for solar energy. Satellite imagery indicates average insolation of up to 5.8 kWh/m²/day. According to the National Renewable Energy Laboratory (NREL, 2010) the estimated solar energy potential is 767,297 MW-hours per year. While wind energy resource data are limited in Tonga, an assessment on Tongatapu indicates annual mean wind speeds of 6.8 m (22.3 feet) per second.³³⁴ On 2 March 2023, Tonga Power Limited reportedly commissioned a new solar and battery energy storage system in 'Eua with the financial support of Australia and the ADB. Part of the Tonga Renewable Energy Project, the system includes a 350kW solar plant and a 1003kW/1856kWh battery energy storage system, which will enable integration of renewable energy into the electricity grid.³³⁵

Water and Sanitation

The Tonga Water Board supplies water and owns all water-related infrastructure. The

Ministry of Health regulates water supply under the Tongan Water Board Act 2000. There is no centralized sewerage infrastructure in Tonga. Wastewater and sewage are managed by on-site systems, supervised by the Ministry of Health.³³⁶

For water supply, 49% of households have piped water, 34% use their own rainwater catchment tanks, 11% use a community tank, and 5% rely on purchased water. Regarding toilet facilities, 41% of households use flush toilets, 33% use a pit, and 17% use manual toilets. For solid waste disposal, 69% of Tongans rely on public collection, 25% burn their waste, and 4% take it to the dump themselves.³³⁷

Rapid urbanization, population growth, and climate change have all strained Tonga's water and sanitation infrastructure. The Nuku'alofa Urban Development Sector Project (NUDSP), with financial support from the ADB and the governments of Australia and Tonga, helped improve water accessibility and supply in the country, with proper waste management, new sanitation facilities, and continuous water supply.³³⁸ By 2021, rain catchment tanks for 885 households had been installed on 'Eua Island, as part of resident-led community development plans. The tanks were part of the International Fund for Agricultural Development's Tonga Rural Innovation Project.³³⁹

Sources of freshwater include rainwater harvesting and extraction from a thin freshwater lens within the highly porous limestone substrate. Surface water resources are not present on most islands, with the exception of 'Eua where supply originates from springs in caves high above sea level. While some islands have lakes, they are generally salty.³⁴⁰

HEALTH

Tonga is heavily burdened with both communicable diseases and non-communicable diseases (NCD). Under the Ministry of Health, there is a hospital-based primary health care system with administrative and clinical services divided into geographic districts. Community organizations also play a role in health care through advocacy projects to try to reduce the burden of NCDs in the country.

Health Care System Structure

Health care services are decentralized and managed through four health districts: Tongatapu, Vava‘u, Ha‘apai, and ‘Eua. The Ministry of Health and the Tongatapu Health District are responsible for services in the remote Niua islands. Each of the outer island districts is managed by the Chief/Senior Medical Officer who, as the district head, reports to the Director of Health and has responsibility for implementation of strategies in the Corporate Plan. Similarly, each of the six divisions of the Ministry of Health is led by a divisional head including the Chief Medical, Dental, and Nursing Officers, the Medical Superintendent, the Principal Health Administrator, and the Principal Health Planning Officer. Health services are provided by a network of 34 maternal and child health clinics, 14 health centers, three district hospitals, and the tertiary referral hospital, Vaiola Hospital in Nuku‘alofa. The four hospitals also provide primary health care to the populations of their respective island groups through outpatient and emergency departments. Over 90% of health services are delivered from the hospitals.³⁴¹

Tonga spends almost 5% of GDP on health care, and health expenditure per capita was US\$242, per 2019 data.³⁴² Tonga was the first country in the Pacific to launch a National Strategy to Prevent and Control NCDs. It was also the first country in the region to establish an independent body – Tonga Health Promotion

Foundation, or TongaHealth – to work with the government, NGOs, and the community in combatting NCDs.³⁴³ Tonga’s NCD Strategy for 2021-2025 lays out five objectives:

1. Strengthen good governance practice to oversee and guide the implementation of NCD prevention and control actions
2. Strengthen multi-sectoral engagement and partnerships to accelerate and scale up the national response to NCDs
3. Build the capacity of individuals, families, and communities to make healthier choices by creating healthy environments
4. Strengthen the health system to provide accessible, affordable, and good quality care to all people with or at risk of NCDs
5. Establish sustainable monitoring, evaluation, and surveillance systems³⁴⁴

Health Strategies and Surveillance

Tonga’s Ministry of Health outlined the following six focus areas for key results in their National Strategic Plan:

1. Service Delivery
 - a. Maternal and child health services
 - b. Adolescent and adult health services
 - c. Dental health services
 - d. Mental health and disability services
 - e. Public health services
 - f. Clinical support services
 - g. Non-clinical support services
2. Health Workforce
3. Infrastructure, Medical Products, and Technology
4. Leadership and Governance
5. Information, Research, Policy, and Planning
6. Health Care Finance³⁴⁵

Tonga and the WHO have also developed a strategy together; it aims to be complementary with Tongan national strategic health aims. The strategic health priorities outlined in the Tonga-

WHO Country Cooperation Strategy for 2018-2022 are listed in Table 2.³⁴⁶

Communicable Diseases

Tonga is burdened with the communicable diseases detailed below, including COVID-19, tuberculosis (TB), and several mosquito-borne diseases, not including malaria,³⁴⁷ which is not endemic to the country.³⁴⁸ While HIV rates are low, the steady rise over decades warranted its inclusion.

COVID-19

Tonga did not experience an outbreak of COVID-19 until February 2022, more than two years after the start of the global pandemic. However, the Ministry of Health had prepared their COVID-19 Preparedness and Response Plan in 2020, aligning with an earlier Public Health COVID-19 Plan and a subsequent National Action Plan on preparedness and response to COVID-19, endorsed by the NEMC and later approved by Cabinet.³⁴⁹ The SPC made possible the installation of GeneXpert testing

Strategic Priorities	Main Focus Areas for Cooperation with WHO
STRATEGIC PRIORITY 1: To strengthen capacity in planning, implementing, and reviewing the National Health Strategic Plan	<ol style="list-style-type: none"> 1.1. Develop long-term health strategic plan. 1.2. Conduct annual health review and report. 1.3. Develop annual health sector operational plan. 1.4. Develop health workforce profile and projection. 1.5. Produce national health account.
STRATEGIC PRIORITY 2: To strengthen the health system, including the health workforce, essential services delivery, and health information systems to progress towards universal health coverage and the vision of Healthy Islands	<ol style="list-style-type: none"> 2.1. Strengthen health service delivery through reinforcing performance assessments, including a regulatory framework and auditing process for human resources and health care facilities. 2.2. Strengthen health service delivery in rural areas and outlying islands and effective referral and transfer systems to link with tertiary health care at hospitals. 2.3. Strengthen the health workforce by adaptation of foreign trained medical graduates into Tonga's health systems and promotion of online-based continuing professional development, including Pacific Open Learning Health Net (POLHN) operation. 2.4. Review and develop a plan for the use of traditional and complementary medical practice. 2.5. Conduct regular health progress updates through the Healthy Islands Monitoring Framework and SDG indicators. 2.6. Strengthen civil registration and vital statistics including causes of death.
STRATEGIC PRIORITY 3: To strengthen, sustain, and achieve high immunization coverage and to improve the immunization program	<ol style="list-style-type: none"> 3.1. Strengthen strategies that engage communities and other stakeholders and encourage their participation to overcome vaccine hesitancy. 3.2. Ensure vaccine security through effective vaccine management and financial sustainability. 3.3. Improve vaccine/immunization safety surveillance systems.
STRATEGIC PRIORITY 4: To achieve national targets for NCDs in line with global and regional targets	<ol style="list-style-type: none"> 4.1. Align Tonga's tobacco legislation to the WHO Framework Convention on Tobacco Control. 4.2. Utilize evidence-based policies to reduce harmful use of alcohol. 4.3. Improve diets and physical activity. 4.4. Promote mental health by supporting prevention of mental disorders, alcohol harm, and suicide, reduce stigma and discrimination, and promote human rights across the lifespan. 4.5. Monitor the NCD situation in Tonga through targeted surveys and routine data collection.
STRATEGIC PRIORITY 5: To strengthen capacities for preparing and responding to public health events related to common epidemic-prone diseases, environmental hazards, and natural disasters	<ol style="list-style-type: none"> 5.1. Enhance core public health functions needed for early warning, incident management, and risk communication. 5.2. Develop national plans and core capacities for all-hazards health emergency preparedness and disaster risk management. 5.3. Ensure monitoring of anti-microbial resistance and implement containment measures. 5.4. Review and evaluate Tonga's outbreak alert and emergency response systems. 5.5. Establish and evaluate post-disaster early warning, alert, and response systems. 5.6. Adapt/implement Regional Framework for Action for Disaster Risk Management for Health. 5.7. Provide supplies, logistics, and operational support for all graded and protracted health emergencies and build capacity in humanitarian supply chain management within national health authorities.

Table 2: Tonga-WHO Country Cooperation Strategy (2018-2022) Strategic Priorities

equipment for COVID-19 diagnosis at Tonga Laboratory Services in June 2021, with French and European Union financial support.³⁵⁰

As of 20 March 2023, Tonga had reported 16,813 confirmed cases of COVID-19 and 12 deaths. As of 31 January 2023, a total of 203,806 vaccine doses had been administered.³⁵¹ The COVID-19 virus did not directly affect Tonga until October 2021, about a year and a half after most countries had seen their first cases. On 30 October 2021, the first COVID-19 case was reported on a repatriation flight from New Zealand in a fully vaccinated arriving traveler who was quarantined.³⁵²

Tonga's main outbreak of COVID-19 came in the wake of the January 2022 Hunga Tonga-Hunga Ha'apai volcanic eruption and tsunami. On 1 February 2022, Prime Minister Siaosi Sovaleni and Minister of Health Dr. Saia Piukala confirmed that two positive cases had been detected in port workers at the wharf in Nuku'alofa. A nationwide lockdown was instituted the following day.³⁵³ However, local transmission significantly increased, peaking at a 7-day rolling average of 3,527.75 confirmed cases on 30 March 2022.³⁵⁴ Tonga had avoided COVID-19 up to that time through isolation, but the HTHH disaster required outside aid, which provide an entry opportunity for the virus. The resulting lockdown with strict social distancing restrictions that started the evening of 2 February complicated aid efforts in response to the volcano. Strict COVID-19 protocols outlined humanitarian aid delivery in as contactless manner as possible.³⁵⁵ Despite strict precautions unloading ships and planes from Australia, New Zealand, Japan, Britain, and China, two Tongan men who worked at the capital's Queen Salote Wharf handling shipments were the first to test positive on 1 February 2022. By that time, an estimated 61% of Tongans had been fully vaccinated.³⁵⁶

Chikungunya

Tonga first experienced the mosquito-borne disease chikungunya in 2014, when it affected

more than 10,000 people. The outbreak started in Ha'apai after foreign assistance arrived in response to Cyclone Ian, according to the Ministry of Health. Mosquito eradication is complicated by the water and sanitation systems in place including water tanks and septic tanks, which are common breeding places for mosquitoes. An exacerbating factor of chikungunya and dengue is that one of the mosquito vectors, *Aedes albopictus* or the Asian tiger mosquito, is outcompeting other species of mosquitoes on record in Tonga.³⁵⁷ Chikungunya is also transmitted by the *Aedes aegypti* mosquito. The disease is characterized by sudden onset of fever, often accompanied by joint pain. Other symptoms include muscle pain, headache, nausea, fatigue, and rash. The joint pain is often debilitating and usually lasts for a few days but may extend to weeks. There is no cure, and treatment focuses on relieving the symptoms.³⁵⁸

Dengue

Tonga has a frequent risk of dengue, a mosquito-borne disease that is present year-round.³⁵⁹ The country experienced a significant dengue outbreak in 2018. It declared a dengue outbreak following the death of a 12-year-old New Zealand girl in the country in late January that year.³⁶⁰ Efforts to destroy mosquito-breeding areas focused on swampy areas in the central district. By mid-April, the Health Ministry had recorded at least 153 cases of dengue.³⁶¹ By early May, the WHO reported that the weekly number of cases of dengue serotype-2 had decreased significantly.³⁶² Dengue viruses are spread to people through the bite of infected *Aedes aegypti* or *Aedes albopictus* mosquitos, which also spread chikungunya and zika viruses. About one in four people infected with dengue will get sick. The most common symptom is fever, accompanied by any of the following: nausea, vomiting, rash, aches, or pains (eye pain, typically behind the eyes, or muscle, joint, or bone pain). In rare cases (about 1 in 20), people who get dengue will experience severe dengue, which can be fatal.³⁶³

Tuberculosis

TB rates have been slowly declining in Tonga over the past couple decades. While prone to ups and downs, the average incidence of TB has declined from 27 cases per 100,000 people in 2000 to 8 per 100,000 in 2021.³⁶⁴ The Western Pacific region saw an estimated 1.9 million TB cases and 126,900 deaths in 2021.³⁶⁵

TB is the world's top infectious killer, although it is preventable and curable. The bacterial disease is caused by *Mycobacterium tuberculosis*, which most often affects the lungs. TB is spread from person to person through the air through droplets propelled when an infected person coughs, sneezes, or spits. About one-quarter of the world's population has latent TB, meaning they are infected with the bacteria but are not yet ill with the disease and thus cannot transmit the disease. People infected with *Mycobacterium tuberculosis* have a 5–10% lifetime risk of falling ill with TB, though that risk is much higher for persons with compromised immune systems. Without proper treatment, on average 45% of HIV-negative people and nearly all HIV-positive people with TB will die. Standard treatment is a 6-month course of four antibiotics, though patients with drug-resistant TB require longer and more complex treatment.³⁶⁶

HIV/AIDS

The first case in Tonga of human immunodeficiency virus (HIV), which can develop into Acquired Immune Deficiency Syndrome (AIDS), was diagnosed in 1987.³⁶⁷ As in many areas of the Pacific, the number of people living with HIV is relatively low. However, HIV cases in Tonga have been steadily increasing over time. In 1990, there were eight people living with HIV in Tonga; in 2000, there were 16 people; in 2010, there were 28 people; and in 2019, Tonga had 42 people living with HIV.³⁶⁸ This rate far surpasses the slight increase in Tonga's population, from approximately 99,000 in 1990 to 105,000 in 2019, and indicates the HIV incidence rate was also increasing along with absolute case numbers.³⁶⁹

Stigma toward people living with HIV is

relatively high. Per a 2019 survey, 82.1% of adults aged 15–49 responded they would not buy fresh vegetables from a shopkeeper or vendor they knew had HIV. Additionally, 76.3% of adults indicated they do not think that children living with HIV should be able to attend school with children who are HIV negative. One challenge is raising awareness of HIV/AIDS among youth and young adults. Approximately 12.7% of young people aged 15–24 had knowledge of HIV prevention, per 2012 data.³⁷⁰

Non-Communicable Diseases

For decades, Tonga has faced a crisis due to NCDs. Tonga has one of the highest rates of NCDs in the world. NCDs, such as cardiovascular disease, cancers, diabetes, and chronic respiratory diseases, account for approximately 80% of deaths in Tonga. Smoking, alcohol consumption, poor diet, and lack of physical exercise have all contributed to the ever-growing burden of disease. NCDs are the leading causes of mortality, morbidity, and disability in Tonga. NCDs result in increased health care spending and significant economic losses due to the often complex, costly, and chronic nature of treatment, as well as to lost productivity.³⁷¹

An estimated 99.9% of Tongan adults, aged 25–64, are at moderate to high risk of developing an NCD. In response to the rise in NCDs, the Government of Tonga has introduced taxation measures to influence consumption behaviors of the population, complementing existing regulatory and legislative interventions.³⁷² NCDs are estimated to account for 83% of all deaths.³⁷³ Among the top ten causes of deaths in 2019, nine were NCDs and each had increased in the amount of death they caused since 2009. Figure 9 depicts the top 10 causes of total number of deaths in 2019 and percent change 2009–2019 for all ages combined.³⁷⁴

The Tonga National Strategy for the Prevention and Control of NCD, 2021–2025, outlines five key results areas:

1. Effective governance and leadership

2. Multi-sectoral stakeholder engagement and partnerships
3. Health promotion and disease prevention
4. Health system strengthening
5. Monitoring, evaluation, surveillance, research, and learning³⁷⁵

Tonga’s whole-of-society and whole-of-government approach to tackling NCDs is reflected in the strategy’s broad-based areas, each of which correspond with their own outputs and activities.

Tonga Health Promotion Foundation (TongaHealth) was created to promote health by fighting NCDs. Established by the Health Promotion Foundation Act of 2007, TongaHealth is an independent body that acts as a link among the community, NGOs, and the government. TongaHealth acts as secretariat to the National Non-Communicable Diseases Committee and serves as a grant-making body dedicated to the prevention and control of NCDs. Its four priority areas are: healthy eating, physical activity, tobacco control, and reduction of harm from alcohol misuse. TongaHealth’s operations include funding activities through competitive grants open to NGOs, government institutions, churches, and community organizations; advocating for the development of health promotion policies, programs, and environments, based on sound evidence; designing and conducting social marketing campaigns in partnership with other organizations to communicate healthy messages for behavior change to the whole population; and giving focus to population groups, remote areas, and key settings where inequalities exist.³⁷⁶

What causes the most deaths?

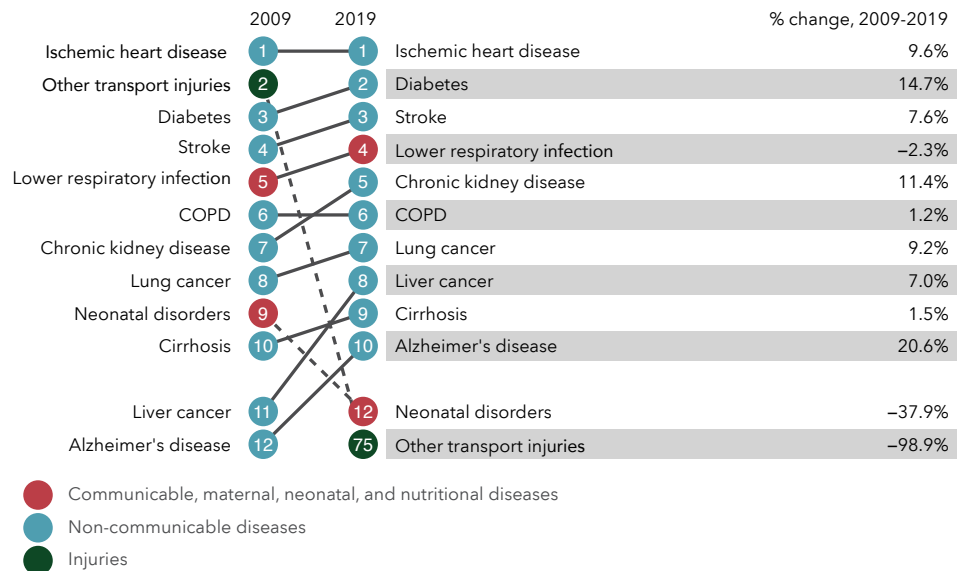


Figure 9: Top 10 Causes of Deaths in 2019 and Percent Change 2009–2019

Training for Health Professionals

Tonga had 107 medical doctors, or 10.09 per 10,000 population in 2021, with none further defined as specialists. Tongan medical graduates are trained overseas, especially in China, Cuba, and Fiji. There are few specialists at the national referral hospital. Overseas referral programs and visits of specialized medical teams from abroad aim to meet the growing need for specialized care, particularly as driven by the increasing NCD burden. Health care costs associated with these specialized services are a concern.³⁷⁷

Tonga University’s Queen Salote School of Nursing and Midwifery has health workforce training capacity.³⁷⁸ Training primary health care nurses as NCD nurses has contributed to control of NCDs. Per 2021 data, Tonga had 443 nursing personnel, or 41.79 per 10,000 population. The country had 15 dentists, or 1.43 per 10,000 population, and 31 dental assistants and therapists, per 2020 data. The island nation had 8 pharmacists, or 0.76 per 10,000 population, per 2021 data.³⁷⁹

WOMEN, PEACE, AND SECURITY

The Women, Peace, and Security (WPS) agenda encompasses efforts to increase women's meaningful participation in the promotion of peace and security through conflict prevention and resolution, peace negotiation, peacebuilding, peacekeeping, humanitarian response, relief aid, and economic recovery and development. The WPS agenda gained global visibility with United Nations Security Council Resolution (UNSCR) 1325, which was adopted in October 2000 and affirmed the important role women play in many aspects of promoting and maintaining peace and security. The WPS agenda has since expanded with the adoption of additional related UNSCRs: 1820 (2009); 1888 (2009); 1889 (2010); 1960 (2011); 2106 (2013); 2122 (2013); 2242 (2015), 2467 (2019), and 2493 (2019). These resolutions together address various issues of gender and security, including the need to stop gender-based violence and to promote women's roles in conflict resolution, recovery, and peacebuilding. The WPS agenda has also broadened to include applying a gendered perspective to humanitarian assistance, disaster management, DRR, and climate security for more equitable participation to address humanitarian needs and benefit the entirety of a society over the longer term.

Tonga is not among the 105 countries that have adopted a National Action Plan on WPS as of February 2023.³⁸⁰ However, efforts have been underway to work on developing one. Tonga hosted a WPS National Conference in 2018. In 2019, an international exchange of experts hosted by the Nevada National Guard State Partnership Program (SPP) built upon the momentum focusing on the inclusion of women in peace and security efforts and resulted in significant progress on a draft National Action Plan for Tonga.³⁸¹ Tonga is also covered by the Pacific Regional Action Plan on WPS (2012-2015). The Regional Action Plan provided a framework for all Pacific Islands Forum (PIF) members

to enhance women's leadership in conflict prevention and peacebuilding, mainstream gender in security policymaking, and ensure the human rights of women and girls are protected in humanitarian crises, transitional contexts, and post-conflict situations.³⁸²

Small Pacific Island Countries are not always consistently included in global data reports, depending on data availability. While Tonga is not included in the World Economic Forum's Global Gender Gap Report,³⁸³ it is included in the Georgetown Institute for Women, Peace, and Security's most recent WPS Index. The WPS Index is a summary measure capturing achievements in women's status across three dimensions — inclusion, justice, and security. In the 2021 WPS Index, Tonga ranks 93 out of 170 countries with an index score of .719 on a scale of 0 to 1, with 0 denoting the worst performance and 1 denoting the best.³⁸⁴

Tonga is among the bottom dozen countries in female parliamentary representation. Only two of the 28 elected seats of parliament are currently held by women,³⁸⁵ Losaline Ma'asi and 'Akosita Lavulavu. Another woman is a non-elected member of parliament, the Health Minister Professor 'Amelia Tu'ipulotu, who was appointed by the Prime Minister.³⁸⁶

Domestic violence became one of the most common law infringements in Tonga between 2015 and 2020.³⁸⁷ According to a 2018 global study of violence against women, 17% of women in Tonga had experienced intimate partner violence in the preceding 12 months.³⁸⁸ Two out of three women have experienced physical violence by someone other than their partner since they were 15 years old.³⁸⁹ There are also legal restrictions, which include women not having rights to land ownership. Land remains vested in the Tongan monarchy and can only be passed down through male heirs, and for those without a hereditary land grant, only

men can be granted leases. This restriction is a significant barrier to women's economic empowerment. The law does not prohibit gender-based discrimination in employment, nor is their legislation on sexual harassment in employment.³⁹⁰ Tonga has not ratified the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).³⁹¹

Princess Latufuipeka Tuku'aho has advocated for greater women's participation in politics. She officially opened the Tonga Women's Parliament 2021, stating, "Women play leading roles in the family, in the workplace, churches and in the community. But there are few women in Parliament, the first female MP having been HRH Princess Mele Siu'ilikutapu Kalaniuvalu Fotofili. Women were given the right to vote in 1951, yet only ten females so far have become parliamentarians." She urged, "More women participation in politics is crucial for better representation of our people's voices and interests."³⁹²

Tonga has several civil society organizations that work to empower and assist women and girls. Many Tongan NGOs working on these issues have received support from Pacific Women, a program of the Australian Department of Foreign Affairs and Trade, which also coordinates with the Government of Tonga.³⁹³

The Talitha Project is an NGO aimed at empowering young women and girls aged 10–25 years to educate them on their fundamental human rights and work toward ending violence against women and girls.³⁹⁴ Established in 2009, it is run by a team of 10 staff who work alongside volunteers and mentors. It is a founding member of the Shifting the Power Coalition, an alliance established by ActionAid and that brings together 12 women-led organizations. The Talitha Project runs programs focused on sexual and reproductive health, gender-based violence, financial education, climate change, and disaster preparedness, and is also involved in getting women and girls to play rugby. Since the eruption of the Hunga Tonga-Hunga Ha'apai volcano, the Talitha Project, supported by ActionAid, has focused its efforts on supporting

young people affected by the disaster.³⁹⁵

The Women and Children Crisis Centre (WCCC) Tonga was founded in 2009 to deal with cases of domestic violence, rape, incest, and other forms of sexual and physical abuse involving women and children.³⁹⁶ When Cyclone Gita hit Tonga in 2018, it destroyed over 800 homes and damaged 4,000 more. The WCCC Tonga rolled out a long-term recovery Psychosocial Support and Resilience project. The center increased its mobile counselling staff from three to five and conducted site visits and assessments and provided psychological first aid for women and children whose homes had been affected. The WCCC runs the Male Advocacy Talatalanoa program with support under UN Women's Pacific Partnership to End Violence Against Women and Girls. Through trainings it has built 29 male advocates' skills and capacity to lead violence prevention activities in their communities and to open up conversations for men to address their own power, control, and privileges to see the impacts these have on their wives, partners, and families.³⁹⁷ The WCCC Tonga works to inform various policy issues, including sexual harassment in the workplace and gender stereotypes in career pathways. It made a submission to the Parliamentary Standing Committee on the Employment Relations Bill 2020 to address sexual harassment in the workplace, establishing 15 years as the minimum age for employment and ensuring workers aged 15–18 years are not exposed to hazardous conditions. The WCCC Tonga provided input on the proposed sexual harassment policy for public service and produced a full translation from English to Tongan of the draft policy. The center was successful in lobbying to introduce the "Yes I Can" campaign, aimed at changing student gender stereotypes and career pathways. The campaign was approved by the Ministry of Education and resulted in the center being allowed to engage with secondary schools, whereas it had previously only been allowed to engage with primary schools. The WCCC Tonga also works closely with the Fiji Women's Crisis Centre and the Vanuatu Women's Crisis Centre.

Established in 2000, the Tonga National Centre for Women and Children (TNCWC) is a crisis center based in Nuku‘alofa. TNCWC provides support, counselling, information, advocacy, and referrals for women and children experiencing violence. TNCWC also runs a Community Awareness Program working with men, women, and children on gender-based violence and its causes and consequences. The work of TNCWC is informed by the principles of human rights, with a particular focus on the Universal Declaration of Human Rights (UDHR), Convention on the Rights of the Child (CRC), and CEDAW.³⁹⁸

The Tonga Family Health Association (TFHA) supplies family planning, maternal and child health support, and fertility and counselling assistance through 20 service points, which include two permanent clinics. The TFHA deployed an emergency response team following Tropical Cyclone Gita (2018) and other disasters, providing vital sexual and reproductive health care and raising awareness of gender-based violence.³⁹⁹

FI-E-FI-A ‘a Fafine Tonga is a women’s network and platform for women and girls to promote and advocate for equal contributions and access to equal opportunities and results. Formerly known as the Women in Leadership Coalition, FI-E-FI-A ‘a Fafine Tonga was instrumental in supporting and representing 564 women from the informal employment sector and who were affected by the COVID-19 lockdown, to receive government grants.

Various Tongan government ministries and agencies work on issues of gender equity and domestic violence. They include the Women’s Affairs and Gender Equality Division of the Ministry of Internal Affairs, the Family

Protection Legal Aid Centre of the Ministry of Justice, and the Domestic Violence Unit of the Tonga Police.⁴⁰⁰

The Tonga Statistics Department held its first survey on gender and environment from 31 October through 24 December 2022.⁴⁰¹ In January 2023, the Tonga Statistics Department hosted a training workshop on producing and using gender statistics to monitor the SDGs and implement the Pacific Roadmap for Sustainable Development. The workshop educated participants on quality gender data sources, use of gender data for SDG monitoring and policymaking, and communicating gender data. The training was organized by the SPC, the Statistical Institute for Asia and the Pacific, UN Women, and the International Women’s Development Agency, with support from the Government of Australia.⁴⁰²

Tonga is trying to increase the representation of women in its military up to 9–10%. In 2014, rules were changed to allow women in the Tongan military to marry, and the military is starting to open trades to women. Women in the Tongan armed forces served in the Regional Assistance Mission to Solomon Islands (RAMSI), as well as in Afghanistan and Bougainville. However, women primarily served in support roles, engaging with locals. After RAMSI, there was an appreciation of the role of women in the military, particularly in peacekeeping, and Tonga started sending women to train in Australia and New Zealand. Women’s representation in the police stands at approximately 20%, and two of the three deputy commissioners are women. There is a 50/50 policy in place for recruitment, and women made up 60% of police applicants in 2020.⁴⁰³

CONCLUSION

Tonga is frequently exposed to tropical cyclones, earthquakes, and tsunami, in addition to other hazards. Tonga views climate change adaptation and mitigation as integral parts of its approaches to disaster management as well as development. Climate change exacerbates some of the natural climate hazards with which Tonga deals regularly, including more intense tropical cyclones causing flooding, erosion, and contamination of fresh water, and more extreme heat causing droughts. Tonga is affected not only by sea level rise but also by ocean acidification that risks coral bleaching and negatively affects fisheries and coastal livelihoods. As more than 80% of the population lives within 1 km (0.62 miles) of the coast, homes, businesses, and infrastructure are all highly exposed to climate change-influenced hazards, and Tonga was the first country in the region to develop a Joint National Action Plan (JNAP) on Climate Change Adaptation and Disaster Risk Management.

Tonga has recently revised its disaster management approach to strengthen legal, institutional, and regulatory frameworks and centralize all requests and donations of emergency relief supplies through the focal point of NEMO (or the National DRM Office). The 2021 Disaster Risk Management Act also addressed DRM committees at the village level as being expected to have representation of women, young people, people living with disabilities, and other socially vulnerable groups. Tonga's cluster approach adapts the international humanitarian cluster system, with its 10 clusters tailored to its national situation and complementary with

Pacific regional humanitarian approaches.

A significant impact of disasters upon Tonga is the repeated economic setback. Annual losses from hazards are estimated at 4.3% of GDP. The January 2022 Hunga Tonga-Hunga Ha'apai volcanic eruption and tsunami was particularly challenging, covering almost the entire country in ashfall and severing the undersea fiber optic cable that provided most of Tonga's communications. The disaster caused an estimated US\$90.4 million (T\$208 million) in damages, or approximately 18.5% of Tonga's GDP.⁴⁰⁴ Aside from that event, tropical cyclones and droughts have been the costliest disasters over the past few decades. The economic cost of rebuilding brings added concern to Tonga's significant amount of debt, which has remained elevated at more than 40% of its GDP.⁴⁰⁵ The majority of external debt is owed to China, with high debt repayments due to start 2023-2024, unless debt relief is further extended.

The impact of the HTHH volcanic explosion and tsunami prompted the Tongan government to accept external aid relief. Despite strict protocols to deliver aid with as little contact as possible, the COVID-19 virus entered the country and resulted in local outbreaks for the first time after the global pandemic had started two years prior. Lockdown measures to mitigate COVID-19 transmission were a complicating challenge for the delivery of volcano and tsunami relief. Furthermore, the economic hit and damage to livelihoods from the COVID-19 response added to the economic strain the country confronted.

APPENDICES

DoD DMHA Engagements in the Past Five Years (FY 2018-2023)

The list below describes the DMHA engagements that the U.S. has had with Tonga in the last five years.

Rim of the Pacific 2022 – July-August 2022

The world's largest international maritime exercise concluded on 4 August 2022 following more than a month of combined operations training conducted in and around the Hawaiian Islands and Southern California. Twenty-six nations, including Tonga, 38 surface ships, three submarines, nine national land forces, more than 30 unmanned systems, approximately 170 aircraft, and over 25,000 personnel participated in the 28th edition of the biennial Rim of the Pacific (RIMPAC). Japan Maritime Self-Defense Force Rear Admiral Toshiyuki Hirata filled the role of Vice Commander of the RIMPAC 2022 Combined Task Force and commanded the HADR portion of the exercise that operated with local hospital personnel. Tonga was among the nine nations that participated in the RIMPAC Amphibious Assault alongside Australia, Chile, Indonesia, Malaysia, Mexico, Republic of Korea, Sri Lanka, and the U.S.⁴⁰⁶

USS Sampson Delivers Volcano/Tsunami Aid – January 2022

The Arleigh Burke-class guided-missile destroyer USS Sampson (DDG 102) departed her homeport Naval Station Everett, Washington on 30 December 2021 to support maritime security and enhance regional stability in the Indo-Pacific.⁴⁰⁷ She was underway when the 15 January explosion of the Hunga Tonga-Hunga Ha'apai volcano killed several people, sent tsunami waves rolling across the Tonga archipelago, damaged villages, resorts, and many buildings, and knocked out communications. Sampson, along with embarked MH-60R

Seahawk helicopters assigned to the "Scorpions" of Helicopter Maritime Strike Squadron (HSM) 49, were positioned to conduct lifesaving actions in support of disaster relief efforts in Tonga. Helicopters operating from Sampson conducted aerial damage assessment and dropped supplies to support the people of Tonga. "Team Sampson was poised and ready to join in this effort at a moment's notice and we're proud to work with our like-minded partners to assist our friends in their time of need," said Commander Adam Soukup, Sampson's commanding officer. The U.S. response was coordinated with those of other responding countries, including Australia, France, and New Zealand under the FRANZ partnership, as well as Fiji, Japan, and the United Kingdom.⁴⁰⁸ Sampson returned home on 11 August.⁴⁰⁹

WPS Expert Exchange – January 2019

The Nevada National Guard State Partnership Program (SPP) hosted an international exchange of experts that focused on the inclusion of women in peace and security efforts and resulted in significant progress on a draft national action plan for the Kingdom of Tonga. Participants in the exchange came from the Nevada Guard, HMAF, alumni of the U.S. State Department, the DKI-APCSS, and the Oregon National Guard. The engagement followed the May 2018 WPS National Conference in Tonga and continued to emphasize inclusion and appreciation of diversity as well as peace and security. Captain Siulolo Tapueluelu, HMAF, said she has experienced positive changes since the SPP introduced WPS initiatives, which "have raised the educated awareness that women are essential in peace and security resolution and sustainment." HMAF are one of the lead Tongan agencies drafting the country's national action plan. The next step in the national action plan process was set for the comprehensive crisis management course in February 2019 at the DKI-APCSS in Honolulu, Hawaii, when all parties would confer once again on the objectives and goals of the plan.⁴¹⁰

Disaster Management Workshop – September 2018

Members from the Nevada National Guard visited Nuku'alofa to hold discussions with their partners on how to improve Tonga's preparation for natural disasters. The workshop ran 18-21 September and was hosted by Tonga's NEMO in partnership with HMAF. The Nevada National Guard's Brigadier General Zachary Doser said the consultation would help Tonga prepare to respond immediately to a natural disaster and to strengthen regional partnerships for natural disaster response. The consultation would culminate in a national plan for Tonga to use for response.⁴¹¹

Rim of the Pacific 2018 – July-August 2018

RIMPAC 2018 concluded on 2 August following more than a month of training events conducted in and around the Hawaiian Islands and Southern California. Twenty-five nations, including Tonga, 46 surface ships, five submarines, 17 land forces, more than 200 aircraft, and 25,000 personnel participated in RIMPAC 2018, the 26th iteration in the series that began in 1971. The 2018 exercise saw U.S. 3rd Fleet's Command Center relocated from San Diego, California, to Pearl Harbor to support command and control of all 3rd Fleet forces in 3rd Fleet's area of responsibility, to include forces operating forward in the Western Pacific. The Fleet Command Center established at a deployable joint command and control on Hospital Point, Pearl Harbor, for the first part of the exercise and then transitioned to amphibious transport dock ship USS Portland (LPD 27) for the remainder of the exercise. Participating nations and forces exercised a wide range of capabilities and demonstrated the inherent flexibility of maritime forces. These capabilities ranged from disaster relief and maritime security operations to sea control and complex warfighting.⁴¹²

Humanitarian Assistance and Disaster Response Seminar – May 2018

The Idaho National Guard hosted the United

States Pacific Command's SPP Humanitarian Assistance and Disaster Response Seminar in Boise, Idaho, 7-11 May 2018. The seminar brought together members from seven National Guards, 11 foreign countries, including Tonga, and multiple civilian response agencies. The seminar provided the opportunity for countries located in Pacific Command's geographic theater to build relationships with their National Guard SPP partners as well as each other. Captain Jace Thayer, SPP director for the Idaho Army National Guard, said, "We want to build interoperability and partnerships with the international community. So that when a disaster happens, countries can work together for assistance." The seminar focused on planning for and preparing to respond to disasters and included training from the Boise Fire Department, the Idaho Office of Emergency Management's hazardous material and special teams, and the PDC. The seminar's theme was national resiliency through humanitarian assistance and disaster response. Presenters covered the incident command system and how to plan and prepare for a disaster before it occurs. Representatives of Bangladesh, Indonesia, Malaysia, Mongolia, Nepal, the Philippines, Thailand, and Vietnam also participated alongside National Guard partners from Alaska, Guam, Hawaii, Idaho, Nevada, Oregon, and Washington.⁴¹³

International/Foreign Relations

Tonga has been responsible for its own external affairs since it regained full independence in 1970.

The country is multilaterally engaged in numerous regional and global fora. Tonga joined the Pacific Islands Forum (PIF) in 1971.⁴¹⁴ Tonga is one of 11 PIF members who has signed the Pacific Agreement on Closer Economic Relations (PACER) Plus, an umbrella agreement providing a framework for the step-by-step development of trade cooperation.⁴¹⁵ Tonga joined the Pacific Community (SPC) in 1983.⁴¹⁶ Recent SPC

contributions to Tonga include support for human rights advocacy including policy change, commitments to improving domestic violence laws and women accessing legal services, aquatic biosecurity, and national meteorological and hydrological services.⁴¹⁷ The island nation joined the United Nations in 1999.⁴¹⁸ Tonga also joined the World Trade Organization (WTO) in July 2007, following a negotiation schedule that lasted more than a decade.⁴¹⁹ Tonga was one of the eight founding members of the Polynesian Leaders Group (PLG), which was established in 2011, partly in response to the Melanesian Spearhead Group. The PLG formed to “seek a future for our Polynesian people and countries where cultures, traditions and values are honored and protected... sustainable economic prosperity is achieved, where democratic values are observed, human rights promoted and protected as well as upholding the rule of law [and endeavor to cooperate in] education, culture and language, transport, environmental conservation and climate change mitigation and adaptation, health, agriculture and fisheries, tourism, trade and investment.”⁴²⁰

Tonga is one of the few countries in the Pacific that maintains a military. His Majesty’s Armed Forces have approximately 450 personnel, while the Tonga Police Service has around 473 personnel. Tonga has taken part in coalition deployments to Iraq and Afghanistan. The U.S. provided support to enable Tongan military personnel to deploy to Iraq and the United Kingdom (UK) provided support enabling Tongan military deployment to Afghanistan. From 2004 to 2008, Tonga deployed four contingents of soldiers to Iraq for 6-month deployments. In 2010, Tonga deployed the first contingent of 55 soldiers to Afghanistan in support of the British Armed Forces’ efforts as part of the International Security Assistance Force. Tonga deployed 330 soldiers to support UK forces in Afghanistan between 2010 and 2014.⁴²¹ While Tonga does not deploy police or military personnel to UN peacekeeping missions, it did contribute troops to the Australian-led Regional Assistance Mission to Solomon

Islands (RAMSI). U.S. and Tongan military forces hold annual joint training exercises, and Tonga signed onto the Nevada National Guard SPP in 2014, with a cooperative focus on WPS and food security. The U.S. also has a ship-rider agreement with Tonga to provide security and support ship-rider missions, which allow Tongan law enforcement officials to ride aboard U.S. Coast Guard vessels. Tonga hosts Exercise Takafula with Australia, New Zealand, New Caledonia, the Nevada National Guard, and the U.S. Marine Corps. Many Tongans have links to the Australian Defence College, and Australia has provided pre-deployment training in support of missions such as RAMSI.⁴²²

Tonga launched its “Look East Policy” and formalized its diplomatic relationship with China on 2 November 1998, three days after Tonga was reported to be switching recognition from Taiwan to the People’s Republic of China.⁴²³ A bilateral trade agreement was signed in Beijing in October 1999. While the agreement aimed to facilitate two-way investment, more Chinese companies have invested in Tonga than the other way around. The primary Tongan company with a branch in China is TongaSat, co-owned by the daughter of King Tupou IV.⁴²⁴ Thousands of Chinese nationals became Tongan citizens through a passport sales program. Tonga had been one of the first countries to sell its passports to thousands of purchasers starting in the early 1980s. However, the haphazard program was beset by scandals, mishandling of public funds, and criticism from pro-democracy activists.⁴²⁵ Tongan citizenship enabled Chinese immigrants to dominate the business of “Fale Koloa,” tiny stores selling basic goods at cheap prices and found in almost every village. In November 2006, a mixed crowd including democracy advocates rioted in Nuku‘alofa and targeted Chinese businesses in the central business district with widespread attacks, looting, and arson. Security forces from Australia and New Zealand helped Tongan authorities restore order. In the wake of the attacks, China sent workers and loaned US\$108 million to rebuild.⁴²⁶ That amount is a substantial debt, equivalent to about 25% of

GDP, which Tonga owes to China's Export-Import Bank.⁴²⁷ Repayments were due to start in 2018, but debt relief was granted for another five years.⁴²⁸ Concerns remain about debt repayments due to spike in 2024.⁴²⁹ Tonga also joined China's Belt and Road Initiative. Other Chinese inroads have been made through aid and gifts. China gifted Tonga a US\$11 million government building complex built in 2016. By 2019, China annually funded all-expenses-paid training trips to Beijing for dozens of Tongan government workers and spent millions to bring 107 Tongan athletes and coaches to train at top facilities in Sichuan Province.⁴³⁰ While China is not the largest aid donor to Tonga or the Pacific region, "China has stood out so much because they focus on really select, high status infrastructure projects," said Jonathan Pryke, Director of the Lowy Institute's Pacific Islands Program.⁴³¹

Tonga has strong people-to-people relations with Australia, New Zealand, and the U.S. through the Tongan diaspora. Tonga's economy is characterized by a large non-monetary sector and a heavy dependence on remittances from the more than half of the country's population that lives abroad, chiefly in Australia, New Zealand, and the United States, particularly in Utah, California, and Hawaii. The U.S. has a trade surplus with Tonga, with two-way goods trade of approximately US\$17 million in 2020. Exports from Tonga to the U.S. are led by frozen fish and seafood and cultural handicrafts for the Tongan diaspora. The U.S. commended Tonga for its move toward fuller democracy through the 2010 election of its first popular majority parliament and elections in 2014 and 2017, which international observers deemed free and fair, as well as its ongoing development of an active and vibrant civil society.⁴³²

Australia contributed an estimated AUS\$42.7 million (US\$28.6 million) in official development assistance to Tonga in 2022-2023. Australia's strategic direction aims to continue supporting Tonga's management of the triple challenges of the Hunga Tonga-Hunga Ha'apai volcanic eruption and tsunami, COVID-19, and global economic disruptions. Australia's development partnership supports

Tonga's priorities in economic growth, energy, security, infrastructure, social inclusion, health, education, climate change resilience, disaster preparedness and response, and agriculture.⁴³³ Australian aid to Oceania over the past decade far surpassed contributions from China, the U.S., New Zealand, or Japan.⁴³⁴ Although Australian aid had slightly declined over the years, in 2022 Australian Foreign Minister Penny Wong announced it would increase its overseas development assistance to the Pacific region by some AUS\$900 million (US\$565 million), with a focus on addressing the "existential threat" of climate change.⁴³⁵

New Zealand is Tonga's main source of imports, with both countries working on growing the trade relationship. New Zealand development cooperation with Tonga focuses on support for governance institutions such as the judiciary, encouraging trade and economic growth, and providing support to the health and education systems.⁴³⁶ New Zealand has the largest community of Tongans living outside of Tonga. According to New Zealand's 2013 census, 60,336 residents are ethnically Tongan, including 22,413 residents who were born in Tonga.⁴³⁷ Tonga is New Zealand's key defense partner in Polynesia. Ties date back to World War I, when Tongan citizens served in the Māori and Regular Battalions in the New Zealand Army.⁴³⁸

Participation in International Organizations

Tonga is a member of, participates in, or cooperates with the following international organizations and agreement frameworks either as a government or via a national NGO or other entity:

African, Caribbean and Pacific Group of States (OACPS), Alliance of Small Island States (AOSIS), Asian Development Bank (ADB), Commonwealth, Food and Agriculture Organization of the United Nations (FAO), Group of 77 (G-77), Inter-Parliamentary Union (IPU), International Bank for Reconstruction and Development (IBRD), International Civil

Aviation Organization (ICAO), International Criminal Police Organisation (INTERPOL), International Development Association (IDA), International Federation of Red Cross and Red Crescent Societies (IFRC), International Finance Corporation (IFC), International Fund for Agricultural Development (IFAD), International Hydrographic Organization (IHO), International Maritime Organization (IMO), International Mobile Satellite Organization (IMSO), International Monetary Fund (IMF), International Olympic Committee (IOC), International Telecommunications Union (ITU), International Trade Union Confederation (ITUC-NGOs), Institute of Catastrophe Risk Management (ICRM), Organisation for the Prohibition of Chemical Weapons (OPCW), Pacific Community (SPC), Pacific Islands Forum (PIF), South Pacific Regional Trade and Economic Co-operation Agreement (Sparteca), United Nations (UN), United Nations Conference on Trade and Development (UNCTAD), United Nations Educational, Scientific, and Cultural Organization (UNESCO), United Nations Industrial Development Organization (UNIDO), Universal Postal Union (UPU), World Customs Organization (WCO), World Health Organization (WHO), World Intellectual Property Organization (WIPO), World Meteorological Organization (WMO), World Trade Organization (WTO).

Force Protection/Pre-Deployment Information

The following information is provided for pre-deployment planning and preparations. Visit www.travel.state.gov prior to deployments for further up-to-date information. DoD personnel must review the Foreign Clearance Guide (FCG) for travel to Tonga (www.fcg.pentagon.mil). All official travel and personal travel for active duty personnel must be submitted through an APACS request. Contact information for the Defense Attaché Office can be found in the FCG if you have additional questions.

Passport/Visa

To enter Tonga, travelers need a passport with at least six months' validity, and an onward/return ticket. Visas are required for stays longer than 31 days.

For further information about entry requirements, particularly for travelers planning to enter by sea, contact the Permanent Mission of the Kingdom of Tonga to the United Nations (250 East 51st Street, New York, NY 10022; Tel: 1-917-369-1024 and 1-917-369-1025). Tonga also has a Consulate General in California (1350 Bayshore Highway Suite 610, Burlingame, CA 94014; Tel: +1-650-685-1001; Fax: 1-650-685-1003).

Safety and Security

Although Tonga has a low crime rate, house break-ins and property theft do occur. Though rare, sexual assaults against foreigners have occurred, including on public beaches. Avoid going out alone at night or to isolated locations. Do not be complacent regarding personal safety or the protection of valuables.

Victims of Crime: U.S. citizen victims of sexual assault are encouraged to contact the U.S. Embassy for assistance.

Report crimes to the local police at 911 and contact the U.S. Embassy at 679-331-4466, or after hours at 679-772-8049.

Local authorities are responsible for investigating and prosecuting crime. However, the U.S. Embassy can:

- Help find appropriate medical care
- Assist in reporting a crime to the police
- Contact relatives or friends with written consent
- Provide general information regarding the victim's role during the local investigation and following its conclusion
- Provide a list of local attorneys
- Provide our information on victim's compensation programs in the U.S.
- Provide an emergency loan for repatriation to the United States and/or limited medical support in cases of destitution
- Help find accommodation and arrange flights home

- Replace a stolen or lost passport

Tonga Police work with various NGOs such as the Women and Children Crisis Centre (WCCC) Tonga (Tel: 0800444) to provide shelter and counseling for abused women, girls, and boys who are under the age of 14. The WCCC also has partner organizations, including the Tonga Life Line (operated by the Free Wesleyan Church), the Salvation Army, the Police Domestic Violence Unit, Ministry of Health, Tonga National Youth Congress, Ma‘a Fafine mo e Famili, and Tonga Leiti Association. All offer counseling and rehabilitation programs.

Domestic Violence: U.S. citizen victims of domestic violence are encouraged to contact the Embassy for assistance.

Enroll in the Smart Traveler Enrollment Program (STEP) to receive Alerts and make it easier to be located in an emergency.

Tourism: The tourism industry is unevenly regulated, and safety inspections for equipment and facilities do not commonly occur. Hazardous areas and activities are not always identified with appropriate signage, and staff may not be trained or certified either by the local government or by recognized authorities in the field. In the event of an injury, appropriate medical treatment is typically available only in or near major cities. First responders are generally unable to access areas outside of major cities or to provide urgent medical treatment. U.S. citizens are encouraged to purchase medical evacuation insurance.⁴³⁹

Emergency Contact Information

U.S. Embassy Suva, Fiji, Kiribati, Nauru, Tonga, Tuvalu

158 Princes Rd, Tamavua

Suva, Fiji Islands

Tel: 679-331-4466

Emergency Tel: 679-772-8049

Fax: 679-330-2267

Email: SuvaACS@state.gov

Web: <https://fj.usembassy.gov/embassy/suva/>

Currency Information

Tongan Pa‘anga (TOP, PT, or T\$)

TOP 1.00 = US\$0.43 or TOP 2.31 = US\$1.00 (as of 26 January 2023)

Travel Health Information

The U.S. Centers for Disease Control and Prevention (CDC) provides guidance that all travelers to Tonga should be up to date on routine vaccinations. The following are additional recommendations for travel to Tonga. The information in Tables 3 and 4 is taken directly from the CDC website under the Travelers Health Section (<https://wwwnc.cdc.gov/travel/destinations/list/>).⁴⁴⁰

Health Alerts for Tonga: At the time of writing this handbook (January 2022), there are no health risk alerts.

The following actions you can take to stay healthy and safe on your trip include:

Eat and Drink Safely

Unclean food and water can cause travelers' diarrhea and other diseases. Reduce your risk by sticking to safe food and water habits.

Eat

- Food that is cooked and served hot
- Hard-cooked eggs
- Fruits and vegetables, you have washed in clean water or peeled yourself
- Pasteurized dairy products

Don't Eat

- Food served at room temperature
- Food from street vendors
- Raw or soft-cooked (runny) eggs
- Raw or undercooked (rare) meat or fish
- Unwashed or unpeeled raw fruits and vegetables
- Unpasteurized dairy products
- "Bushmeat" (monkeys, bats, or other wild game)

Routine Vaccines	All travelers should be up to date on all routine vaccines before every trip. Some of these vaccines include: <ul style="list-style-type: none"> • Chickenpox (Varicella) • Diphtheria-Tetanus-Pertussis • Flu (influenza) • Measles-Mumps-Rubella (MMR) • Polio • Shingles
COVID-19	All eligible travelers should be up to date with COVID-19 vaccines.
Hepatitis A	Recommended for unvaccinated travelers one year old or older going to Tonga. Infants 6-11 months old should also be vaccinated. The dose does not count toward the routine 2-dose series. Travelers allergic to a vaccine component or who are younger than 6 months should receive a single dose of immunoglobulin, which provides effective protection for up to 2 months depending on dosage given. Unvaccinated travelers who are over 40 years old, immunocompromised, or have chronic medical conditions planning to depart to a risk area in less than 2 weeks should get the initial dose of vaccine and at the same appointment receive immunoglobulin.
Hepatitis B	Recommended for unvaccinated travelers of all ages traveling to Tonga.
Measles	Infants 6-11 months old traveling internationally should get one dose of MMR vaccine before travel. This dose does not count as part of the routine childhood vaccination series.
Typhoid	Recommended for most travelers, especially those staying with friends or relatives or visiting smaller cities or rural areas.

Table 3: CDC Advice for Vaccine Preventable Diseases in Tonga

Hantavirus	Hanta is spread by breathing in air or accidentally eating food contaminated with the urine, droppings, or saliva of infected rodents, by the bite of an infected rodent, or, less commonly, by being around someone sick with hantavirus. To avoid being exposed, avoid rodents and areas where they live, and avoid sick people.
Leptospirosis	Leptospirosis can be contracted by touching urine or other body fluids from an animal infected with leptospirosis, by swimming or wading in urine-contaminated fresh water, by contact with urine-contaminated mud, or by drinking water or eating food contaminated with animal urine. To avoid exposure, avoid contaminated water and soil.
Tuberculosis	TB is spread by breathing in TB bacteria that is in the air from an infected and contagious person coughing, speaking, or singing. To avoid exposure, avoid sick people.
Zika	Zika is spread by mosquito bites. Infected pregnant women may spread it to their unborn babies. To avoid contracting Zika, avoid bug bites.

Table 4: CDC Advice for Non-Vaccine Preventable Diseases in Tonga

Drink

- Bottled water that is sealed
- Water that has been disinfected
- Ice made with bottled or disinfected water
- Carbonated drinks
- Hot coffee or tea
- Pasteurized milk

Don't Drink

- Tap or well water
- Ice made with tap or well water
- Drinks made with tap or well water (such as reconstituted juice)
- Unpasteurized milk

Take Medicine

Talk with your doctor about taking prescription or over-the-counter drugs with you on your trip in case you get sick.

Prevent Bug Bites

Bugs (like mosquitoes, ticks, and fleas) can spread a number of diseases in Tonga. Many of these diseases cannot be prevented with a vaccine or medicine. You can reduce your risk by taking steps to prevent bug bites.

To prevent bug bites:

- Cover exposed skin by wearing long-sleeved shirts, long pants, and hats.

- Use an appropriate insect repellent (see below).
- Use permethrin-treated clothing and gear (such as boots, pants, socks, and tents). Do not use permethrin directly on skin.
- Stay and sleep in air-conditioned or screened rooms.
- Use a bed net if the area where you are sleeping is exposed to the outdoors.

For protection against ticks and mosquitoes:

Use a repellent that contains 20 percent or more DEET for protection that lasts up to several hours.

For protection against mosquitoes only:

Products with one of the following active ingredients can also help prevent mosquito bites. Higher percentages of active ingredient provide longer protection.

- DEET
- Picaridin (also known as KBR 3023, Bayrepel, and Icaridin)
- Oil of lemon eucalyptus (OLE) or para-Menthane-3,8-diol (PMD)
- IR3535
- 2-undecanone

If you are bitten by bugs:

- Avoid scratching bug bites and apply hydrocortisone cream or calamine lotion to reduce the itching.
- Check your entire body for ticks after outdoor activity. Be sure to remove ticks properly.

Safety and Security

Note that conditions can change rapidly in a country at any time. To receive updated Travel Advisories and Alerts for the countries you choose, sign up at step.state.gov.

Sendai Framework

The Sendai Framework for Disaster Risk Reduction 2015-2030 is the global blueprint and 15-year plan to build the world's resilience to natural disasters.⁴⁴¹ The Sendai Framework is the successor instrument to the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters.⁴⁴² Adopted at the Third United Nations World Conference on Disaster Risk Reduction in Sendai, Japan, in 2015, the Framework aims to achieve the substantial reduction of disaster risk and losses in lives, livelihoods, and health and in the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries over the next 15 years.⁴⁴³

The Framework outlines seven targets and four priorities for action to prevent new and reduce existing disaster risks.

The Seven Global Targets include:

- Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality rates in the decade 2020-2030 compared to the period 2005-2015.
- Substantially reduce the number of affected people globally by 2030, aiming to lower average global figure per 100,000 in the decade 2020 -2030 compared to the period 2005-2015.
- Reduce direct disaster economic loss in relation to global GDP by 2030.
- Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
- Substantially increase the number of countries with national and local DRR strategies by 2020.
- Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this Framework by 2030.

- Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.⁴⁴⁴

The Four Priorities of Action include:

- Understanding disaster risk
- Strengthening disaster risk governance to manage disaster risk
- Investing in disaster reduction for resilience; and
- Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation, and reconstruction.

Figure 10 shows the Sendai DRR Framework.⁴⁴⁵

Tonga has taken the following actions on DRR in line with the four priorities of the Sendai Framework:

Priority 1. Understanding disaster risk. The Government of Tonga, in collaboration with international NGOs, development partners, and other agencies, conducted and published assessments of the county's vulnerabilities and available strategies to prevent or minimize the impacts of disasters. In 2020 and 2021, a multi-hazard climate and disaster risk assessment was conducted by the ADB and Government of Tonga, and they identified risk areas and communities in Tongatapu island. Around 28,000 buildings, 26,000 assets of the power infrastructure, 500 water assets, and 1,200 km of road were assessed against the impacts of natural hazards and climate change. The assessment was expected to lead to the development of safer areas and investments away from the high-risk area.

The SPC's report on “Adaptation options and community strategies” assessed Lifuka Island's shoreline change, groundwater resources, oceanography, shallow-water marine habitat, beach sediment composition, and transport to understand the impacts of climate change. Sea level projections until the end of the century were presented to show the houses and infrastructure most likely to be affected on the island. Hazard zones were determined, and potential adaptation

Chart of the Sendai Framework for Disaster Risk Reduction 2015-2030

Scope and Purpose						
The present framework will apply to the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters, caused by natural or manmade hazards as well as related environmental, technological, and biological hazards and risks. It aims to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors						
Expected Outcome						
The substantial reduction of disaster risk and losses in lives, livelihoods, and health and in the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries						
Goal						
Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political, and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience						
Targets						
Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality during 2020-2030 compared to 2005-2015	Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 during 2020-2030 compared to 2005-2015	Reduce direct disaster economic loss in relation to global GDP by 2030	Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030	Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020	Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030	Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030
Priorities for Action						
There is a need for focused action within and across sectors by States at local, national, regional, and global levels in the following four priority areas.						
Priority 1	Priority 2	Priority 3	Priority 4			
Understanding disaster risk	Strengthening disaster risk governance to manage disaster risk	Investing in disaster risk reduction for resilience	Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation, and reconstruction			
Disaster risk management needs to be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics, and the environment	Disaster risk governance at the national, regional, and global levels is vital to the management of disaster risk reduction in all sectors and ensuring the coherence of national and local frameworks of laws, regulations, and public policies that, by defining roles and responsibilities, guide, encourage, and incentivize the public and private sectors to take action and address disaster risk	Public and private investment in disaster risk prevention and reduction through structural is non-structural measures are essential to enhance the economic, social, health, and cultural resilience of persons, communities, countries, and their assets, as well as the environment. These can be drivers of innovation, growth, and job creation. Such measures are cost-effective and instrumental to save lives, prevent and reduce losses, and ensure effective recovery and rehabilitation	Experience indicates that disaster preparedness needs to be strengthened for more effective response and to ensure capacities are in place for effective recovery. Disasters have also demonstrated that the recovery, rehabilitation, and reconstruction phase, which needs to be prepared ahead of the disaster, is an opportunity to “Build Back Better” through integrating disaster risk reduction measures. Women and persons with disabilities should publicly lead and promote gender-equitable and universally accessible approaches during the response and reconstruction phases			

Figure 10: UN Sendai Framework for Disaster Risk Reduction 2015-2030

strategies were developed based on consultations with the community.

The Pacific Islands Meteorological Strategy (PIMS) 2017-2026 provides the development priorities of the Pacific Island National Meteorological and Hydrological Services (NMHS). PIMS sets out the strategic context and direction for strengthening NMHSs. The Government of Tonga is also planning to build resilience and upgrade systems including regional early warning systems, computer systems, data-basing, and other initiatives for improving risk modelling capacity in the country.

Priority 2. Strengthening disaster risk governance to manage disaster risk. In 1997, Tonga established the National Disaster Management Plan and Emergency Procedures, which establishes the roles and responsibilities of NEMO and NEMC. Tonga was the first country in the South Pacific region to develop a Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management (JNAP). In 2018, the JNAP 2 (2018–2028) was published on the foundation of the first JNAP. It highlights the importance of leadership, involvement of government agencies, and the role of the private sector and civil societies for building resilience in Tonga.

Priority 3. Investing in disaster risk reduction for resilience. The Government of Tonga has been investing in DRR by allocating funding to MEIDECC for implementing resilience building projects in the country. In fiscal year 2021/22, MEIDECC was allocated US\$74.02 million for implementing development projects. The major projects under MEIDECC are the GCF (Green Climate Fund)-ADB Tonga Renewable Energy Project, GCF Tonga Coastal Resilience Project, Japan Nationwide Early Warning System, and the World Bank PREP.

In 2020, the ADB announced its support to upgrade the Queen Salote International Wharf in Nuku'alofa by contributing US\$45 million to improve its resilience towards disaster risks and climate change. In 2022, New Zealand Government announced US\$4 million as financial assistance to improve the water supply

and sanitation for the vulnerable households in Tonga following the volcanic eruption and tsunami impacts. ADB offered US\$1 million in grants to assist the country as a response to community transmission of COVID-19. GCF assisted Tonga in implementing renewable energy under the Pacific Islands Renewable Energy Investment Program by contributing US\$29.9 million to assist the country to move away from fossil fuel toward renewable energy.

The United States government, through USAID, is providing US\$1.1 million to boost the capacity of Tongan communities – and particularly the most marginalized members of the community – to prepare for and mitigate the impacts of disasters caused by natural hazards. This two-year project will incorporate the Tongan National Council for Churches to support nearly 9,000 people across 27 of the most remote communities of the country.

Priority 4. Enhancing disaster preparedness for effective response to “build back better” in recovery, rehabilitation, and reconstruction. Many disasters have impacted the people living in Tonga and caused damage to infrastructure. For example, 2014’s TC Ian significantly damaged houses and critical infrastructure. The Government of Tonga, the World Bank, and the GFDRR, with additional funding from the Africa Caribbean Pacific-European Union Natural Disaster Risk Reduction Program, worked together to assess the extent of damages caused by Ian and to implement a recovery program to strengthen the housing and transport infrastructure in the country. A post-disaster needs assessment and socio-economic assessment of the affected households was conducted as a part of this work. The assessment led to new best practices on housing recovery and reconstruction, public grievance systems, and capacity building on safe home construction. In total, 1,000 households received support on housing reconstruction, repairs, and retrofitting through the Tonga Cyclone Reconstruction and Climate Resilient Project and infrastructure, such as roads, airports, and ports in Ha’apai received rehabilitation.

Through its Pacific Disaster Resilience Program, ADB supports several countries in the Pacific region, including Tonga, with US\$10 million as a contingent disaster financing grant for early recovery and reconstruction activities following disasters triggered by natural hazards.

JICA is installing disaster communication systems through nationwide early warning systems throughout the country including the two Niuas. The project includes radio communications for disaster management agencies, early warning sirens, loudspeakers, and remote activated radios. In April 2021, additional assistance was announced by the Japanese Government for this project, which is in progress with original Grant Aid Assistance from the Government of Japan worth US\$25 million and additional assistance of US\$1.9million.

UNDRR launched a four-year project: Strengthening Hydro-Meteorological and Early Warning Systems in the Pacific (CREWS Pacific SIDS), partnering with WMO and World Bank. The project has five outcomes: improved governance, enhanced product development and accessibility, enhanced service delivery, enhanced communication and awareness programs on early warning services, and improved integration of gender and people living with disabilities. CREWS Pacific SIDS targets small islands developing states including Tonga.

Following the volcanic eruption and tsunami in 2022, Tonga's Prime Minister confirmed that a total of US\$240 would be required to fund the Hunga Tonga–Hunga Ha'apai Recovery and Resilience Building Plan 2022-2025. Housing Recovery, Food Security and Livelihood, Tourism Industry, and Public Infrastructure are the four key priorities in the recovery plan.⁴⁴⁶

Country Profile

The information in this Country Profile is sourced directly from the CIA World Factbook entry for Tonga. Additional numbers on country comparison to the world can be found by going directly to the website (<https://www.cia.gov/the-world-factbook/>). It discusses topics including geography, people and society, government, economy, energy, communications, military and security, transportation, terrorism, and transnational issues.⁴⁴⁷

Background

The first humans arrived in Tonga around 1000 B.C. The islands' politics were probably highly centralized under the Tu'i Tonga, or Tongan king, by A.D. 950, and by 1200, the Tu'i Tonga had expanded his influence throughout Polynesia and into Melanesia and Micronesia. The Tongan Empire began to decline in the 1300s, descending into civil wars, a military defeat to Samoa, and internal political strife that saw successive leaders assassinated. By the mid-1500s, some Tu'i Tongans were ethnic Samoan and day-to-day administration of Tonga was transferred to a new position occupied by ethnic Tongans.

Dutch sailors explored the islands in the 1600s and British Captain James COOK visited Tonga three times in the 1770s, naming them the Friendly Islands for the positive reception he thought he received, even though the Tongans he encountered were plotting ways to kill him. In 1799, Tonga fell into a new round of civil wars over succession. Wesleyan missionaries arrived in 1822, quickly converting the population. In the 1830s, a low-ranking chief from Ha'apai began to consolidate control over the islands and won the support of the missionaries by declaring that he would dedicate Tonga to God. The chief soon made alliances with leaders on most of the other islands and was crowned King George TUPOU I in 1845, establishing the only still-extant Polynesian monarchy. TUPOU I declared Tonga a constitutional monarchy in 1875 and his successor, King George TUPOU II, agreed to

enter a protectorate agreement with the UK in 1900 after rival Tongan chiefs tried to overthrow him. As a protectorate, Tonga never completely lost its indigenous governance, but it did become more isolated and the social hierarchy became more stratified between a group of nobles and a large class of commoners. Today, about one third of parliamentary seats are reserved for nobles.

Queen Salote TUPOU III negotiated the end of the protectorate in 1965, which was achieved under King TUPOU IV, who in 1970 withdrew from the protectorate and joined the Commonwealth of Nations. A prodemocracy movement gained steam in the early 2000s, led by future Prime Minister 'Akilisi POHIVA, and in 2006, riots broke out in Nuku'alofa to protest the lack of progress on prodemocracy legislation. To appease the activists, in 2008, King George TUPOU V announced he was relinquishing most of his powers leading up to parliamentary elections in 2010; he died in 2012 and was succeeded by his brother 'Aho'eitu TUPOU VI. Tropical Cyclone Gita, the strongest-ever recorded storm to impact Tonga, hit the islands in February 2018 causing extensive damage.

Geography

Location

Oceania, archipelago in the South Pacific Ocean, about two-thirds of the way from Hawaii to New Zealand

Geographic coordinates

20 00 S, 175 00 W

Area

total: 747 sq km

land: 717 sq km

water: 30 sq km

country comparison to the world: 189

Area - comparative

four times the size of Washington, DC

Land boundaries

total: 0 km

Coastline

419 km

Maritime claims

territorial sea: 12 nm

exclusive economic zone: 200 nm

continental shelf: 200-m depth or to the depth of exploitation

Climate

tropical; modified by trade winds; warm season (December to May), cool season (May to December)

Terrain

mostly flat islands with limestone bedrock formed from uplifted coral formation; others have limestone overlying volcanic rock

Elevation

highest point: Kao Volcano on Kao Island 1,046 m

lowest point: Pacific Ocean 0 m

Natural resources

arable land, fish

Land use

agricultural land: 43.1% (2018 est.)

arable land: 22.2% (2018 est.)

permanent crops: 15.3% (2018 est.)

permanent pasture: 5.6% (2018 est.)

forest: 12.5% (2018 est.)

other: 44.4% (2018 est.)

Irrigated land

0 sq km (2022)

Population distribution

over two-thirds of the population lives on the island of Tongatapu; only 45 of the nation's 171 islands are occupied

Natural hazards

cyclones (October to April); earthquakes and volcanic activity on Fonuafo'ou

volcanism: moderate volcanic activity; Fonualei (180 m) has shown frequent activity in recent years, while Niuafu'ou (260 m), which last erupted in 1985, has forced evacuations; other historically active volcanoes include Late and Tofua

Geography - note

the western islands (making up the Tongan Volcanic Arch) are all of volcanic origin; the eastern islands are nonvolcanic and are composed of coral limestone and sand

People and Society

Population

105,517 (2022 est.)

country comparison to the world: 191

Nationality

noun: Tongan(s)

adjective: Tongan

Ethnic groups

Tongan 97%, part-Tongan 0.8%, other 2.2%, unspecified <0.1% (2016 est.)

Languages

Tongan and English 76.8%, Tongan, English, and other language 10.6%, Tongan only (official) 8.7%, English only (official) 0.7%, other 1.7%, none 2.2% (2016 est.)

Religions

Protestant 64.1% (includes Free Wesleyan Church 35%, Free Church of Tonga 11.9%, Church of Tonga 6.8%, Assembly of God 2.3%, Seventh Day Adventist 2.2%, Tokaikolo Christian Church 1.6%, other 4.3%), Church of Jesus Christ 18.6%, Roman Catholic 14.2%, other 2.4%, none 0.5%, unspecified 0.1% (2016 est.)

Age structure

0-14 years: 32% (male 17,250/female 16,698)
 15-24 years: 19.66% (male 10,679/female 10,175)
 25-54 years: 35.35% (male 18,701/female 18,802)
 55-64 years: 6.17% (male 3,345/female 3,202)
 65 years and over: 6.83% (male 3,249/female 3,994) (2020 est.)

Figure 11 shows the population pyramid for Tonga for 2022.⁴⁴⁸

Dependency ratios

total dependency ratio: 68.6
 youth dependency ratio: 58.5
 elderly dependency ratio: 10.5
 potential support ratio: 9.5 (2021 est.)

Median age

total: 24.1 years
 male: 23.6 years
 female: 24.5 years (2020 est.)
 country comparison to the world: 169

Population growth rate

-0.26% (2022 est.)
 country comparison to the world: 215

Birth rate

20.31 births/1,000 population (2022 est.)
 country comparison to the world: 69

Death rate

4.95 deaths/1,000 population (2022 est.)
 country comparison to the world: 197

Net migration rate

-18.01 migrant(s)/1,000 population (2022 est.)
 country comparison to the world: 228

Population distribution

over two-thirds of the population lives on the island of Tongatapu; only 45 of the nation's 171 islands are occupied

Urbanization

urban population: 23.2% of total population (2023)
 rate of urbanization: 0.99% annual rate of change (2020-25 est.)
 total population growth rate v. urban population growth rate, 2000-2030

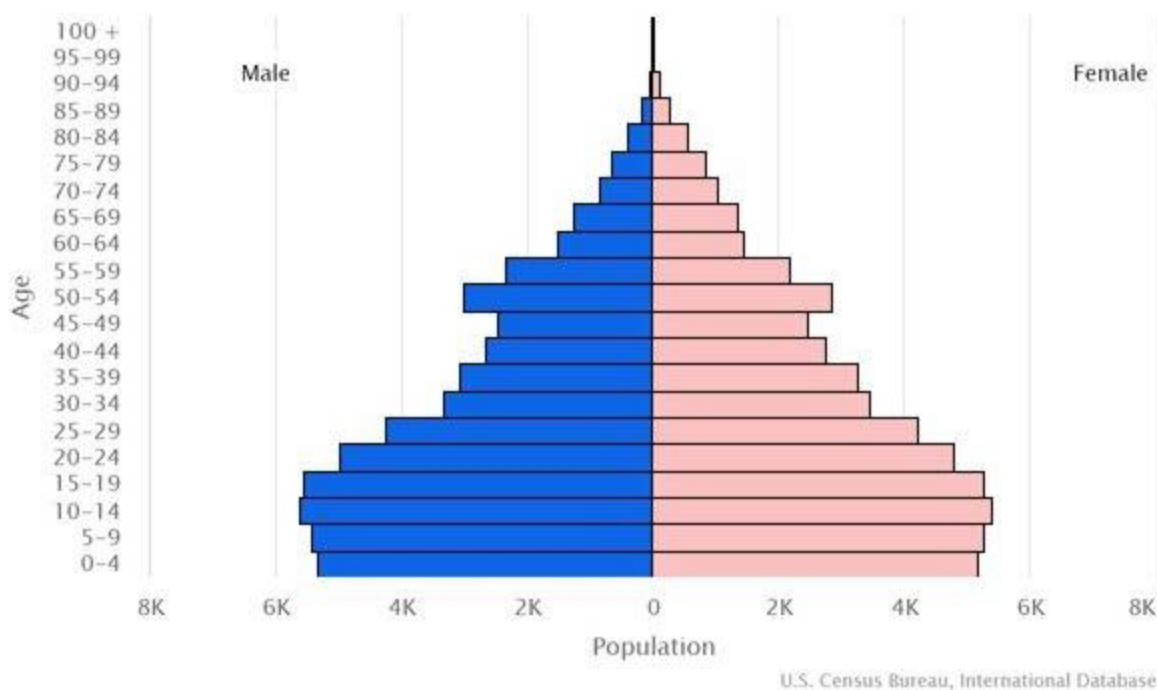


Figure 11: Population Pyramid, Tonga (2022)

Major urban areas - population

23,000 NUKU'ALOFA (2018)

Sex ratio

at birth: 1.03 male(s)/female

0-14 years: 1.03 male(s)/female

15-24 years: 1.05 male(s)/female

25-54 years: 0.99 male(s)/female

55-64 years: 1.06 male(s)/female

65 years and over: 0.7 male(s)/female

total population: 1.01 male(s)/female (2022 est.)

Mother's mean age at first birth

24.9 years (2012 est.)

note: data represents median age at first birth among women 25-49

Maternal mortality ratio

52 deaths/100,000 live births (2017 est.)

country comparison to the world: 94

Infant mortality rate

total: 12.41 deaths/1,000 live births

male: 13.43 deaths/1,000 live births

female: 11.37 deaths/1,000 live births (2022 est.)

country comparison to the world: 113

Life expectancy at birth

total population: 77.53 years

male: 75.89 years

female: 79.23 years (2022 est.)

country comparison to the world: 88

Total fertility rate

2.76 children born/woman (2022 est.)

country comparison to the world: 60

Gross reproduction rate

1.33 (2023 est.)

Contraceptive prevalence rate

29.3% (2019)

Drinking water source

improved: urban: 99.8% of population

rural: 99.6% of population

total: 99.6% of population

unimproved: urban: 0.2% of population

rural: 0.4% of population

total: 0.4% of population (2020 est.)

Current health expenditure

5% of GDP (2019)

Physicians density

0.95 physicians/1,000 population (2020)

Sanitation facility access

improved: urban: 99.4% of population

rural: 98.8% of population

total: 98.9% of population

unimproved: urban: 0.6% of population

rural: 1.2% of population

total: 1.1% of population (2020 est.)

HIV/AIDS - adult prevalence rate

NA

Major infectious diseases

degree of risk: high (2020)

food or waterborne diseases: bacterial diarrhea

vectorborne diseases: malaria

Obesity - adult prevalence rate

48.2% (2016)

country comparison to the world: 7

Alcohol consumption per capita

total: 0.31 liters of pure alcohol (2019 est.)

beer: 0.03 liters of pure alcohol (2019 est.)

wine: 0.17 liters of pure alcohol (2019 est.)

spirits: 0.11 liters of pure alcohol (2019 est.)

other alcohols: 0 liters of pure alcohol (2019 est.)

country comparison to the world: 169

Tobacco use

total: 31% (2020 est.)

male: 46.7% (2020 est.)

female: 15.3% (2020 est.)

country comparison to the world: 27

Children under the age of 5 years underweight

0.8% (2019)

country comparison to the world: 124

Currently married women (ages 15-49)

54.9% (2023 est.)

Child marriage

women married by age 15: 0.4%

women married by age 18: 10.1%

men married by age 18: 2.8% (2019 est.)

Education expenditures

6.6% of GDP (2021 est.)

country comparison to the world: 30

Literacy

definition: can read and write Tongan and/or English

total population: 99.4%

male: 99.4%

female: 99.5% (2018)

School life expectancy (primary to tertiary education)

total: 16 years

male: 15 years

female: 17 years (2020)

Youth unemployment rate (ages 15-24)

total: 11.1%

male: 7.5%

female: 16.3% (2021 est.)

EnvironmentEnvironment - current issues

deforestation from land being cleared for agriculture and settlement; soil exhaustion; water pollution due to salinization, sewage, and toxic chemicals from farming activities; coral reefs and marine populations threatened

Environment - international agreements

party to: Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Climate Change-Paris Agreement, Desertification, Endangered

Species, Hazardous Wastes, Law of the Sea, Marine Dumping-London Convention, Marine Dumping-London Protocol, Marine Life Conservation, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution
signed, but not ratified: none of the selected agreements

Air pollutants

particulate matter emissions: 10.08 micrograms per cubic meter (2016 est.)

carbon dioxide emissions: 0.13 megatons (2016 est.)

methane emissions: 0.12 megatons (2020 est.)

Climate

tropical; modified by trade winds; warm season (December to May), cool season (May to December)

Land use

agricultural land: 43.1% (2018 est.)

arable land: 22.2% (2018 est.)

permanent crops: 15.3% (2018 est.)

permanent pasture: 5.6% (2018 est.)

forest: 12.5% (2018 est.)

other: 44.4% (2018 est.)

Urbanization

urban population: 23.2% of total population (2023)

rate of urbanization: 0.99% annual rate of change (2020-25 est.)

total population growth rate v. urban population growth rate, 2000-2030

Revenue from forest resources

forest revenues: 0.03% of GDP (2018 est.)

country comparison to the world: 137

Revenue from coal

coal revenues: 0% of GDP (2018 est.)

country comparison to the world: 176

Major infectious diseases

degree of risk: high (2020)

food or waterborne diseases: bacterial diarrhea
vectorborne diseases: malaria

Waste and recycling

municipal solid waste generated annually: 17,238 tons (2012 est.)

Total renewable water resources

0 cubic meters (2017 est.)

Government

Country name

conventional long form: Kingdom of Tonga

conventional short form: Tonga

local long form: Pule'anga Fakatu'i 'o Tonga

local short form: Tonga

former: Friendly Islands

etymology: "tonga" means "south" in the Tongan language and refers to the country's geographic position in relation to central Polynesia

Government type

constitutional monarchy

Capital

name: Nuku'alofa

geographic coordinates: 21 08 S, 175 12 W

time difference: UTC+13 (18 hours ahead of Washington, DC, during Standard Time)

daylight saving time: +1hr, begins first Sunday in November; ends second Sunday in January

etymology: composed of the words nuku, meaning "residence or abode," and alofa, meaning "love," to signify "abode of love"

Administrative divisions

5 island divisions; 'Eua, Ha'apai, Ongo Niua, Tongatapu, Vava'u

Independence

4 June 1970 (from UK protectorate status)

National holiday

Official Birthday of King TUPOU VI, 4 July (1959); note - actual birthday of the monarch is 12 July 1959, 4 July (2015) is the day the king was crowned; Constitution Day (National Day), 4 November (1875)

Constitution

history: adopted 4 November 1875, revised 1988, 2016

amendments: proposed by the Legislative Assembly; passage requires approval by the Assembly in each of three readings, the unanimous approval of the Privy Council (a high-level advisory body to the monarch), the Cabinet, and assent to by the monarch; revised 1988; amended many times, last in 2013

Legal system

English common law

International law organization participation

has not submitted an ICJ jurisdiction declaration; non-party state to the ICCT

Citizenship

citizenship by birth: no

citizenship by descent only: the father must be a citizen of Tonga; if a child is born out of wedlock, the mother must be a citizen of Tonga

dual citizenship recognized: yes

residency requirement for naturalization: 5 years

Suffrage

21 years of age; universal

Executive branch

chief of state: King TUPOU VI (since 18 March 2012); Heir Apparent Crown Prince Siaosi Manumataogo 'Alaivahamama'o 'Ahoaitu Konstantin Tuku'aho, son of the king (born 17 September 1985); note - on 18 March 2012, King George TUPOU V died and his brother, Crown Prince TUPOUTO'A Lavaka, assumed the throne as TUPOU VI

head of government: Prime Minister Siaosi SOVALENI (since 27 December 2021)

cabinet: Cabinet nominated by the prime minister and appointed by the monarch

elections/appointments: the monarchy is hereditary; prime minister and deputy prime minister indirectly elected by the Legislative Assembly and appointed by the monarch; election last held on 18 November 2021 (next to

be held in November 2025)
 election results: Siaosi SOVALENI elected prime minister by the Legislative Assembly; Siaosi SOVALENI 16 votes, Aisake EKE 10
 note: a Privy Council advises the monarch

Legislative branch

description: unicameral Legislative Assembly or Fale Alea (30 seats statutory, 27 current); 17 people's representatives directly elected in single-seat constituencies by simple majority vote, and 9 indirectly elected by hereditary leaders; members serve 4-year terms)
 elections: last held on 18 November 2021 (next to be held in November 2025)
 election results: percent of vote - NA; seats by party (elected members) - independents 11, nobles' representatives 9, Democratic Party 3, Peoples Party 3; composition - men 26, women 1, percent of women 3.7%

Judicial branch

highest court(s): Court of Appeal (consists of the court president and a number of judges determined by the monarch); note - appeals beyond the Court of Appeal are brought before the King in Privy Council, the monarch's advisory organ that has both judicial and legislative powers
 judge selection and term of office: judge appointments and tenures made by the King in Privy Council and subject to consent of the Legislative Assembly
 subordinate courts: Supreme Court; Magistrates' Courts; Land Courts

Political parties and leaders

Democratic Party of the Friendly Islands or DPFI or PTOA [Semisi SIKA]
 People's Democratic Party or PDP [Tesina FUKO]
 Tonga Democratic Labor Party [vacant]
 Tonga Human Rights and Democracy Movement or HRDM ['Uli UATA]
 Tonga People's Party or PAK or TPPI (Paati 'a e Kakai 'o Tonga) [Pohiva TU'YONETOA] (split from Democratic Party of the Friendly Islands)

International organization participation

ACP, ADB, AOSIS, C, FAO, G-77, IBRD, ICAO, ICRM, IDA, IFAD, IFC, IFRCs, IHO, IMF, IMO, IMSO, Interpol, IOC, IPU, ITU, ITUC (NGOs), OPCW, PIF, Sparteca, SPC, UN, UNCTAD, UNESCO, UNIDO, UPU, WCO, WHO, WIPO, WMO, WTO

Diplomatic representation in the US

chief of mission: Ambassador Viliami Va'inga TONE (since 20 April 2021)
 chancery: 250 East 51st Street, New York, NY 10022
 Tel: [1] (917) 369-1025
 Fax: [1] (917) 369-1024
 email: tongaunmission@aol.com
 consulate(s) general: San Francisco

Diplomatic representation from the US

embassy: the US does not have an embassy in Tonga; the US Ambassador to Fiji is accredited to Tonga

Flag description

red with a bold red cross on a white rectangle in the upper hoist-side corner; the cross reflects the deep-rooted Christianity in Tonga, red represents the blood of Christ and his sacrifice, and white signifies purity

National symbol(s)

red cross on white field, arms equal length;
 national colors: red, white

National anthem

name: "Ko e fasi 'o e tu'i 'o e 'Otu Tonga" (Song of the King of the Tonga Islands)
 lyrics/music: Uelingatoni Ngu TUPOUMALOHI/ Karl Gustavus SCHMITT
 note: in use since 1875; more commonly known as "Fasi Fakafonua" (National Song)

Economy

Tonga has a small, open island economy and is the last constitutional monarchy among the Pacific Island countries. It has a narrow export base in agricultural goods. Squash, vanilla beans, and yams are the main crops. Agricultural exports, including fish, make up two-thirds of total exports. Tourism is the second-largest source of hard currency earnings following remittances. Tonga had 53,800 visitors in 2015. The country must import a high proportion of its food, mainly from New Zealand.

The country remains dependent on external aid and remittances from overseas Tongans to offset its trade deficit. The government is emphasizing the development of the private sector, encouraging investment, and is committing increased funds for health care and education. Tonga's English-speaking and educated workforce offers a viable labor market, and the tropical climate provides fertile soil. Renewable energy and deep-sea mining also offer opportunities for investment.

Tonga has a reasonably sound basic infrastructure and well developed social services. But the government faces high unemployment among the young, moderate inflation, pressures for democratic reform, and rising civil service expenditures.

Real GDP (purchasing power parity)

\$651.247 million (2021 est.)

\$669.095 million (2020 est.)

\$665.842 million (2019 est.)

note: data are in 2017 dollars

country comparison to the world: 212

Real GDP growth rate

-2.67% (2021 est.)

0.49% (2020 est.)

0.71% (2019 est.)

country comparison to the world: 207

Real GDP per capita

\$6,100 (2021 est.)

\$6,400 (2020 est.)

\$6,300 (2019 est.)

note: data are in 2017 dollars

country comparison to the world: 161

GDP (official exchange rate)

\$455 million (2017 est.)

Inflation rate (consumer prices)

5.64% (2021 est.)

-0.35% (2020 est.)

1.18% (2019 est.)

country comparison to the world: 170

GDP - composition, by sector of origin

agriculture: 19.9% (2017 est.)

industry: 20.3% (2017 est.)

services: 59.8% (2017 est.)

GDP - composition, by end use

household consumption: 99.4% (2017 est.)

government consumption: 21.9% (2017 est.)

investment in fixed capital: 24.1% (2017 est.)

investment in inventories: 0% (2017 est.)

exports of goods and services: 22.8% (2017 est.)

imports of goods and services: -68.5% (2017 est.)

Agricultural products

coconuts, gourds, cassava, sweet potatoes, vegetables, yams, taro, roots/tubers, plantains, lemons/limes

Industries

tourism, construction, fishing

Industrial production growth rate

1.23% (2021 est.)

country comparison to the world: 146

Labor force

32,000 (2021 est.)

country comparison to the world: 203

Labor force - by occupation

agriculture: 2,006% (2006 est.)

industry: 27.5% (2006 est.)

services: 2,006% (2006 est.)

Unemployment rate

3.97% (2021 est.)

3.63% (2020 est.)

3.06% (2019 est.)

country comparison to the world: 52

Youth unemployment rate (ages 15-24)

total: 11.1%

male: 7.5%

female: 16.3% (2021 est.)

country comparison to the world: 145

Population below poverty line

22.5% (2010 est.)

Gini Index coefficient - distribution of family income

37.6 (2015 est.)

country comparison to the world: 77

Household income or consumption by percentage share

lowest 10%: NA

highest 10%: NA

Budget

revenues: \$181.2 million (2017 est.)

expenditures: \$181.2 million (2017 est.)

Budget surplus (+) or deficit (-)

0% (of GDP) (2017 est.)

country comparison to the world: 47

Public debt

49.41% of GDP (2016 est.)

51.8% of GDP (FY2016 est.)

country comparison to the world: 107

Taxes and other revenues

39.8% (of GDP) (2017 est.)

country comparison to the world: 12

Fiscal year

1 July - 30 June

Current account balance

-\$19.188 million (2021 est.)

-\$25.78 million (2020 est.)

-\$4.214 million (2019 est.)

country comparison to the world: 82

Exports

\$58.745 million (2021 est.)

\$99.78 million (2020 est.)

\$112.482 million (2019 est.)

note: data are in current year dollars

country comparison to the world: 212

Exports - partners

United States 38%, South Korea 18%, Australia

14%, New Zealand 14%, Japan 6% (2019)

Exports - commodities

squash, fish, various fruits and nuts, antiques,

coral, and shells (2019)

Imports

\$285.675 million (2021 est.)

\$309.685 million (2020 est.)

\$327.395 million (2019 est.)

note: data are in current year dollars

country comparison to the world: 209

Imports - partners

Fiji 29%, New Zealand 23%, China 14%, United

States 8%, Australia 6%, Japan 6% (2019)

Imports - commodities

refined petroleum, poultry meats, audio equipment, mutton, goat meat, broadcasting equipment (2019)

Reserves of foreign exchange and gold

\$361.812 million (31 December 2021 est.)

\$298.948 million (31 December 2020 est.)

\$218.448 million (31 December 2019 est.)

country comparison to the world: 172

Debt - external

\$189.9 million (31 December 2017 est.)

\$198.2 million (31 December 2016 est.)

country comparison to the world: 190

Exchange rates

pa'anga (TOP) per US dollar -
2.265 (2021 est.)
2.3 (2020 est.)
2.289 (2019 est.)
2.237 (2018 est.)
2.206 (2017 est.)

Energy

Electricity access

electrification - total population: 98.9% (2018)
electrification - urban areas: 98.9% (2018)
electrification - rural areas: 98.9% (2018)

Electricity

installed generating capacity: 26,000 kW (2020 est.)
consumption: 54.448 million kWh (2019 est.)
exports: 0 kWh (2019 est.)
imports: 0 kWh (2019 est.)
transmission/distribution losses: 5.9 million kWh (2019 est.)

Electricity generation sources

fossil fuels: 100% of total installed capacity (2020 est.)
nuclear: 0% of total installed capacity (2020 est.)
solar: 0% of total installed capacity (2020 est.)
wind: 0% of total installed capacity (2020 est.)
hydroelectricity: 0% of total installed capacity (2020 est.)
tide and wave: 0% of total installed capacity (2020 est.)
geothermal: 0% of total installed capacity (2020 est.)
biomass and waste: 0% of total installed capacity (2020 est.)

Coal

production: 0 metric tons (2020 est.)
consumption: 0 metric tons (2020 est.)
exports: 0 metric tons (2020 est.)
imports: 0 metric tons (2020 est.)
proven reserves: 0 metric tons (2019 est.)

Petroleum

total petroleum production: 0 bbl/day (2021 est.)
refined petroleum consumption: 1,200 bbl/day (2019 est.)
crude oil and lease condensate exports: 0 bbl/day (2018 est.)
crude oil and lease condensate imports: 0 bbl/day (2018 est.)
crude oil estimated reserves: 0 barrels (2021 est.)

Refined petroleum products - production

0 bbl/day (2017 est.)
country comparison to the world: 209

Refined petroleum products - exports

0 bbl/day (2015 est.)
country comparison to the world: 210

Refined petroleum products - imports

910 bbl/day (2015 est.)
country comparison to the world: 202

Natural gas

production: 0 cubic meters (2021 est.)
consumption: 0 cubic meters (2021 est.)
exports: 0 cubic meters (2021 est.)
imports: 0 cubic meters (2021 est.)
proven reserves: 0 cubic meters (2021 est.)

Carbon dioxide emissions

171,000 metric tonnes of CO2 (2019 est.)
from coal and metallurgical coke: 0 metric tonnes of CO2 (2019 est.)
from petroleum and other liquids: 171,000 metric tonnes of CO2 (2019 est.)
from consumed natural gas: 0 metric tonnes of CO2 (2019 est.)
country comparison to the world: 207

Energy consumption per capita

22.841 million Btu/person (2019 est.)
country comparison to the world: 133

Communications

Telephones - fixed lines

total subscriptions: 7,000 (2020 est.)
subscriptions per 100 inhabitants: 7 (2020 est.)
country comparison to the world: 197

Telephones - mobile cellular

total subscriptions: 62,104 (2019)
subscriptions per 100 inhabitants: 59.43 (2019)
country comparison to the world: 202

Telecommunication systems

general assessment: high speed Internet provided by 3 Mobile Network Operators, has subsequently allowed for better health care services, faster connections for education and growing e-commerce services; in 2018 new 4G LTE network; fixed-line teledensity has dropped given mobile subscriptions; mobile technology dominates given the island's geography; satellite technology is widespread and is important especially in areas away from the city; the launch in 2019 of the Kacific-1 broadband satellite has made broadband more widely available for around 89 remote communities (2020)
domestic: fixed-line 7 per 100 persons and mobile-cellular teledensity 59 telephones per 100; fully automatic switched network (2020)
international: country code - 676; landing point for the Tonga Cable and the TDCE connecting to Fiji and 3 separate Tonga islands; satellite earth station - 1 Intelsat (Pacific Ocean) (2020)

Broadcast media

1 state-owned TV station and 3 privately owned TV stations; satellite and cable TV services are available; 1 state-owned and 5 privately owned radio stations; Radio Australia broadcasts available via satellite (2019)

Internet country code

.to

Internet users

total: 42,844 (2019 est.)
percent of population: 41% (2019 est.)
country comparison to the world: 200

Broadband - fixed subscriptions

total: 5,000 (2020 est.)
subscriptions per 100 inhabitants: 5 (2020 est.)
country comparison to the world: 189

Transportation

National air transport system

number of registered air carriers: 1 (2020)
inventory of registered aircraft operated by air carriers: 1

Civil aircraft registration country code prefix

A3

Airports

total: 6 (2021)
country comparison to the world: 178

Airports - with paved runways

total: 1
2,438 to 3,047 m: 1 (2021)

Airports - with unpaved runways

total: 5
1,524 to 2,437 m: 1
914 to 1,523 m: 3
under 914 m: 1 (2021)

Roadways

total: 680 km (2011)
paved: 184 km (2011)
unpaved: 496 km (2011)
country comparison to the world: 190

Merchant marine

total: 32
by type: container ship 4, general cargo 13, oil tanker 1, other 14 (2021)
country comparison to the world: 132

Ports and terminals

major seaport(s): Nuku'alofa, Neiafu, Pangai

Military and Security

Military and security forces

His Majesty's Armed Forces Tonga (aka Tonga Defense Services): Joint Force headquarters, Tonga Royal Guard, Land Force (Royal Tongan Marines), Tonga Navy, Training Wing, Air Wing, and Support Unit (2022)

Military expenditures

2.1% of GDP (2020 est.) (approximately \$10 million)

2.4% of GDP (2019 est.) (approximately \$12 million)

1.5% of GDP (2018 est.) (approximately \$7.1 million)

2.1% of GDP (2017 est.) (approximately \$10 million)

1.7% of GDP (2016 est.) (approximately \$7.6 million)

country comparison to the world: 53

Military and security service personnel strengths

approximately 650 personnel (2022)

Military equipment inventories and acquisitions

the Tonga military's inventory includes mostly light weapons and equipment from Australia, European (primarily the UK) countries, and the US (2022)

Military service age and obligation

voluntary military service for men and women 18-25 (16 with parental approval for non-combat positions); no conscription (2022)

Military - note

Tonga participated in World War I as part of the New Zealand Expeditionary Force, but the Tonga Defense Force (TDF) was not established until 1939 at the beginning of World War II; in 1943, New Zealand helped train about 2,000 Tongan troops who saw action in the Solomon Islands; the TDF was disbanded at the end of the war, but was reactivated in 1946 as the Tonga Defense Services (TDS); in 2013, the name of the TDS was changed to His Majesty's Armed Forces of Tonga (HMAF); Tongan troops deployed to Iraq from 2004-2008 and Afghanistan to support UK forces from 2010-2014

Tonga has a "shiprider" agreement with the US, which allows local maritime law enforcement officers to embark on US Coast Guard (USCG) and US Navy (USN) vessels, including to board and search vessels suspected of violating laws or regulations within Tonga's designated exclusive economic zone (EEZ) or on the high seas; "shiprider" agreements also enable USCG personnel and USN vessels with embarked USCG law enforcement personnel to work with host nations to protect critical regional resources (2022)

Transnational Issues

Disputes - international

Tonga-Fiji: Fiji does not recognize Tonga's 1972 claim to the Minerva Reefs and their surrounding waters; the Minerva Reefs' 200-mile EEZ includes valuable fishing grounds

Acronyms and Abbreviations

°	degree(s) of Latitude/Longitude (N, S, E, and W) or of temperature (C or F)
\$	dollar(s) (U.S. and Australian) or Tongan Pa'anga
ADB	Asian Development Bank
AIDS	Acquired Immune Deficiency Syndrome
APAN	All Partners Access Network
ASW	Accelerated Support Window
AWS	Automatic Weather Station
BCE	Before Common Era (formerly BC)
BHA	Bureau for Humanitarian Assistance (of USAID)
CCA	climate change adaptation
CCST	country cluster support team
CDC	U.S. Centers for Disease Control and Prevention
CE	Common Era (formerly AD)
CEDAW	Convention of the Elimination of All Forms of Discrimination against Women
CFBP	community Facebook page
CFE-DM	Center for Excellence in Disaster Management and Humanitarian Assistance
cm	centimeter(s)
COVID-19	Coronavirus Disease 2019
CRC	Convention on the Rights of the Child
CREWS	Climate Risk and Early Warning Systems
CRI	Climate Risk Index
CRPD	Convention on the Rights of Persons with a Disability
DEMC	District Emergency Management Committees
DKI-APCSS	Daniel K. Inouye Asia-Pacific Center for Security Studies
DMHA	Disaster Management and Humanitarian Assistance
DoD	Department of Defense (of the U.S.)
DRM	Disaster Risk Management
DRR	disaster risk reduction
ENSO	El Niño Southern Oscillation
ETC	Emergency Telecommunications Cluster
EWS	early warning system
FAO	Food and Agriculture Organization (of the UN)
FISA	Friendly Islands Shipping Agency
ft	foot / feet
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFDRR	Global Facility for Disaster Reduction and Recovery

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GHG	greenhouse gas
GWh	Gigawatt-hours
HADR	humanitarian assistance and disaster relief
HF	high frequency (radio)
HIV	human immunodeficiency virus
HMAF	His Majesty's Armed Forces
HTHH	Hunga Tonga-Hunga Ha'apai
IASC	Inter-Agency Standing Committee
ICRC	International Committee of the Red Cross
IDIT	Inclusive Disaster Resilience in Tonga
IFRC	International Federation of Red Cross and Red Crescent Societies
ILO	International Labour Organization
IMF	International Monetary Fund
IOM	International Organization for Migration (of the UN)
IPCC	Intergovernmental Panel on Climate Change
ITU	International Telecommunication Union
JICA	Japan International Cooperation Agency
JNAP	Joint National Action Plan on Climate Change Adaptation and Disaster Risk Management
km / km ²	kilometer(s) / square kilometer(s)
kW / kWh	kilowatt(s) / kilowatt-hour(s)
LEDS	Low Emission Development Strategy
m/m ²	meter(s) / square meter(s)
MACRES	Mobile Applications Community MHEW and Response System
MAT	Media Association of Tonga
MEIDECC	Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change, and Communications
MFA	Minister of Foreign Affairs
MHEWS	multi-hazard early-warning system
MIA	Ministry of Internal Affairs
mm	millimeter(s)
MORDI	Mainstreaming of Rural Development Innovation
MW	Megawatt
NCCCC	National Climate Change Coordinating Committee
NCD	non-communicable disease
NDC	Nationally Determined Contributions
NECC	National Emergency Coordination Centre
NEMC	National Emergency Management Committee
NEMO	National Emergency Management Office
NEMP	National Emergency Management Plan
NEOC	National Emergency Operation Committee

NERC	National Emergency Recovery Committee
NGO	non-government organization
NIIP	National Infrastructure and Investment Plan
NMHS	National Meteorological and Hydrological Services
NOAA	National Oceanic and Atmospheric Administration
NREL	National Renewable Energy Laboratory
NUDSP	Nuku'alofa Urban Development Sector Project
OCHA	Office for the Coordination of Humanitarian Affairs (of the UN)
PACER	Pacific Agreement on Closer Economic Relations
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PDC	Pacific Disaster Center
PHT	Pacific Humanitarian Team
PIEMA	Pacific Islands Emergency Management Alliance
PIF	Pacific Islands Forum
PIMS	Pacific Islands Meteorological Strategy
PIREP	Pacific Islands Renewable Energy Project
PLG	Polynesian Leaders Group
POLHN	Pacific Open Learning Health Net
PREP	Pacific Resilience Program
PTWC	Pacific Tsunami Warning Center
RAMSI	Regional Assistance Mission to Solomon Islands
RCP	Representative Concentration Pathway
RFL	Restoring Family Links
RIMES	Regional Integrated Multi-hazard Early Warning System
RIMPAC	Rim of the Pacific (Exercise)
SDG	Sustainable Development Goals
SPC	Pacific Community (Secretariat of the)
SPP	State's Partnership Program (of the U.S. National Guard)
T\$	Tongan pa'anga
TB	tuberculosis
TBC	Tonga Broadcasting Corporation
TC	Tropical Cyclone
TCC	Tonga Communications Corporation
TCCP	Tonga Climate Change Policy
TCDRM	Tonga Community Disaster Risk Management program
TERM	Tonga Energy Roadmap
TESP	Tonga Education Support Program
TFES	Tonga Fire and Emergency Services
TFHA	Tonga Family Health Association
TMS	Tonga Meteorological Service

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TNCC	Tongan National Council for Churches
TNCWC	Tonga National Centre for Women and Children
TNYC	Tonga National Youth Council
TPA	Tonga Port Authority
TRCS	Tonga Red Cross Society
TSCP	Transport Sector Consolidation Project
TSDF	Tonga Strategic Development Framework
U.S.	United States
UDHR	Universal Declaration of Human Rights
UK	United Kingdom
UN	United Nations
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNICEF	United Nations Children’s Fund
UNSCR	United Nations Security Council Resolution
USAID	United States Agency for International Development
USINDOPACOM	United States Indo-Pacific Command (of the DoD)
VEC	Village Emergency Committee
VHF	very high frequency (radio)
WASH	water, sanitation, and hygiene
WCCC	Women and Children Crisis Centre
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization
WPS	Women, Peace, and Security
WTO	World Trade Organization

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Center for Excellence in Disaster Management & Humanitarian Assistance
456 Hornet Avenue, Building 76, Joint Base Pearl Harbor - Hickam, Hawaii 96860-3503
Telephone: 808.472.0518 | DSN: 315.472.0518
<https://www.cfe-dmha.org>

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