# PACIFIC RISK PROFILE – TONGA

## COUNTRY OVERVIEW

* [**1033 m**](https://www.spc.int/our-members/) maximum height above sea level
* [**749 km²**](https://www.spc.int/our-members/) land area and [**133**](https://sdd.spc.int/digital_library/pocket-statistical-summary-resume-statistique-de-poche-2020) people per km²
* [**18 volcanoes and 2%**](https://www.preventionweb.net/english/hyogo/gar/2015/en/home/data.html) of people live within 30km of volcanoes
* [**23%**](https://sdd.spc.int/mapping-coastal) population is urban
* [**84%**](https://sdd.spc.int/mapping-coastal) of population live with 1km of coast and **100%** live within 5-10km of coast
* [**99,775**](https://sdd.spc.int/topic/population) total population
* [**49,742**](https://sdd.spc.int/topic/population) (49.85%) men and [**50,033**](https://sdd.spc.int/topic/population) women (50.15%) in 2020
* [**7.6%**](https://www.unescap.org/publications/disability-glance-2019) disability prevalence
* [**$4282**](https://sdd.spc.int/digital_library/pocket-statistical-summary-resume-statistique-de-poche-2020) USD gross domestic product per capita
* [**42%**](https://www.adb.org/publications/gender-statistics-pacific-and-timor-leste) women’s labour force participation
* [**30%**](https://www.adb.org/publications/gender-statistics-pacific-and-timor-leste) women’s share of managerial positions
* [**47.9%**](https://www.adb.org/publications/gender-statistics-pacific-and-timor-leste) women’s share of wage employment in the non-agriculture sector
* [**40%**](https://www.adb.org/publications/gender-statistics-pacific-and-timor-leste) ever partnered women who have experienced violence by an intimate partner.

## HAZARD LIKELIHOOD

(link: [**https://thinkhazard.org/en/report/245-tonga**](https://thinkhazard.org/en/report/245-tonga))

| **Wildfire** | **Landslide** | **Volcano** | **Coastal flood** | **Earthquake** | **Tsunami** |
| --- | --- | --- | --- | --- | --- |
| Very low likelihood | Medium likelihood | Medium  likelihood | Medium likelihood | High likelihood | High likelihood |

## TROPICAL CYCLONES

* In the capital city of Tonga, a cyclone with a 100-year return period, or with a **50%** chance of occurring within the current generation could inflict damage equivalent to [**60%**](https://climateknowledgeportal.worldbank.org/country/tonga/vulnerability)of GDP.

## ECONOMIC LOSS DUE TO DISASTERS

* [**$76.81m**](https://www.unescap.org/sites/default/d8files/IDD-APDR-Subreport-Pacific-SIDS.pdf) USD total average annual loss due to disasters, which is [**18.2%**](https://www.unescap.org/sites/default/d8files/IDD-APDR-Subreport-Pacific-SIDS.pdf) of GDP.

## ADAPTATION COSTS FOR COASTAL PROTECTION

* [**$9-$35m**](https://openknowledge.worldbank.org/handle/10986/28137) USD adaptation costs for coastal protection per year, which is [**1-4%**](https://openknowledge.worldbank.org/handle/10986/28137) of projected GDP in 2040.

## RISK INDEX

* [**Tonga is ranked 2nd**](https://reliefweb.int/sites/reliefweb.int/files/resources/WorldRiskReport-2020.pdf)among the countries with the highest disaster risk, due to extreme natural events and sea-level rise.
  + Exposure – very high
  + Vulnerability – high
  + Susceptibility – high
  + Lack of coping capacities – high
  + Lack of adaptive capacities – medium
* Between 1999 and 2018 [**Tonga was ranked 75t**](https://www.germanwatch.org/en/17307)**h** among countries most affected by extreme weather
* Tonga’s risk level is [**medium**](https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Covid-19/INFORM-Covid-19-Warning-beta-version) when assessing the potential humanitarian impacts of COVID-19 in combination with other pre-existing crisis risks.

## MAJOR DISASTERS 2011-2020

(link: [**https://www.emdat.be/**](https://www.emdat.be/))

* **7** major cyclones (TC Wilma 2011, TC Ian 2014, TC Ula 2016, TC Winston 2016, TC Zena 2016, TC Gita 2018, TC Harold 2020)
* **93,196** people affected
* **$145m** USD total estimated damage
* **70%** of disasters were storms, **10%** were drought and **20%** were epidemic.

## TC GITA (2018)

(link: [**https://www.gfdrr.org/sites/default/files/publication/tonga-pdna-tc-gita-2018.pdf**](https://www.gfdrr.org/sites/default/files/publication/tonga-pdna-tc-gita-2018.pdf))

* The strongest tropical cyclone to impact Tongatapu and ‘Eua since TC Isaac (1982), with average wind speeds of 130 kph and gusts of up to 195 kph
* **80,000** people were affected, which is **80%** ofTonga’s population
* **$164.1m** USD estimated economic value of the impact, which is equivalent to **37.8%** of the nominal GDP
* Per cent loss by sector: **54%** productive, **38%** social and **8%** infrastructure.

## CLIMATE PROJECTION

## (link: <https://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/10_PACCSAP-Tonga-11pp_WEB.pdf>)

* **Rainfall**: projections of annual rainfall are unclear with some models suggesting a slight increase by the end of the century. Extreme rainfall events are projected to become more frequent and more intense
* **Cyclones**: less frequent but more intense
* **Temperature**: annual mean temperatures and extremely high temperature days will continue to rise
* **Sea level**: expected to continue to rise
* **Ocean acidification**: expected to continue
* **Risk of** **coral bleaching** expected to increase
* **El Niño/La Niña**: El Niño and La Niña events will continue to occur. In Nuku’alofa and Lupepau’u, **El Niño** events tend to bring cooler dry seasonsand drier wet seasons than normal, while **La Niña** events usually bring wetterthan normal conditions.